

# POPULAR COMMUNICATIONS

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## Major Maritime Frequency Shake-up



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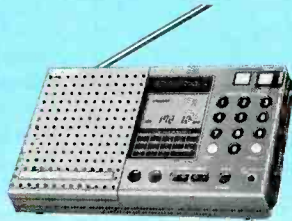


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# POPULAR COMMUNICATIONS

JULY 1991

VOLUME 9, NUMBER 11



9

## FEATURES

### Relay Races 9

Shortwave Broadcasters Aren't Always Where They Seem, Or Say  
*By Gerry Dexter*

### Maritime Frequency Shake-up 14

HF Ute Monitors Will Be Looking For Listening In All The Wrong Places Without This Information On The New Maritime Frequency Bands!  
*By Rick Maslau, KNY2GL*

### Meanwhile, Back At Radio Ranch 18

Memories Of Radio's Earlier Years  
*By Alice Brannigan*

### Books You'll Like 28

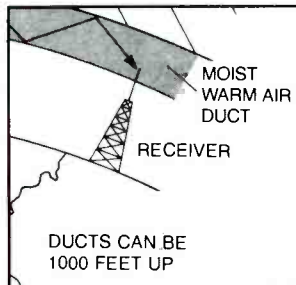
Monitoring The CHPs, All About Codes, And Electronic Warfare  
*By R. L. Slattery*

### Take A Scanner Safari 31

Oongawa! Let's Go Hunting For Big DX Game As We Explore The Corners Of The World!  
*By Chuck Robertson*



14



62

## COLUMNS

Pirates Den	34
How I Got Started	35
Washington Pulse	36
You Should Know	38
Clandestine Communique	43
Listening Post	44
Satellite View	48
Scanning VHF/UHF	51
Broadcast DXing	52
Ham Column	57
CB Scene	58
Emergency	62
RTTY	64
Telephones Enroute	68
Communications Confidential	70

## DEPARTMENTS

Beaming In	4
Mailbag	6
New Products	27
Worldband Tuning Tips	40
Communications Shop	76

**This month's cover:** Radio officer D. S. McGouldrick checks the HF antenna system on the cruise ship Crown Monarch while in port at Key West, Florida. Photo by Larry Mulvehill.

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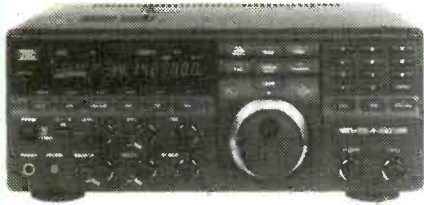
58

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By L. Magne. Graphic presentation of all SWBC stations. Equipment reviews too. .... \$16.95

Shortwave Receivers Past & Present

By F. Osterman. Your guide to 200 receivers with new-used value, specs, features. .... \$6.95

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## COMMUNICATIONS CATALOG

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## AN EDITORIAL

### Too Late For Tears

In March of 1990, a message from a station identifying itself as the *Sole Mar*, a commercial trawler out of Boston, sent a distress call. The Coast Guard received the transmission, which was soon followed by a message from another station on frequency advising that the message was a hoax.

In this particular case, the *Sole Mar* really was going down in the frigid waters of the Atlantic. The message stating that the *Mayday* was a hoax was, itself, a hoax. Two members of the trawler's crew were lost when the *Sole Mar* foundered.

That incident reverberated throughout the halls of Washington. The result is an attempt at a quick cure which, like so many nostrums from the Washington medicine works, is probably too late to help the patient. Worse, it's more interested in treating the symptoms than seeking any real cures. And the people to gulp the strongest doses may be the ones least in need of a cure.

Hoax *Mayday* calls on VHF-FM Channel 16 (156.80 MHz) have been going on for years, but each passing year has seen them

become more common. The Coast Guard's Long Island Sound Group recorded no less than ten bogus distress calls recently, all of which they felt came from the same source. Using direction finding equipment, the signals were traced to a couple of pranksters in a car parked near a Connecticut beach.

This is typical of the problem. There are many very inexpensive handheld and other marine transceivers available these days. Some work on dozens of channels, all work on Channel 16, in any event. These radios are sold by virtually every marine supply shop in the country, and there are thousands of such shops dotting our coastlines, navigable rivers, and larger lakes.

Anybody can walk in off the street and buy one without the need to show proof of owning a boat, or having an FCC marine radio license. This is very convenient for boat owners. It is also very convenient for many people who don't own boats, except that they aren't supposed to be using these radios.

People who have no business with ma-

rine VHF radios have discovered that the sets fill a variety of unauthorized communications needs. Inasmuch as the FCC's radio police don't seem to monitor these frequencies, for many years people have been setting up all manner of private bootleg land-based comms systems on intership channels, claiming that it's cheaper and easier than using the Business Radio Service. Some people illegally install VHF marine transceivers in their cars and use them to place telephone calls through marine operators, like car phones (except cheaper in all respects). So long as the call is placed with the charges "collect," marine operators couldn't care less if the calls are coming from a boat, a car, or a grasshopper riding an armadillo!

Nobody knows how many tens of thousands of marine radios have entered this shadow market. There isn't any way of getting an exact count, but it's a big number. Chances are that few of these marine radios were originally purchased with any malicious intent. But time passes, and intentions change as the owner realizes that the channel control knob on his transceiver offers interesting new opportunities for communications, perhaps first as sort-of an ersatz type CB band chatting with the friendly boaters, and eventually for fun and pranks, like sending out hoax distress messages.

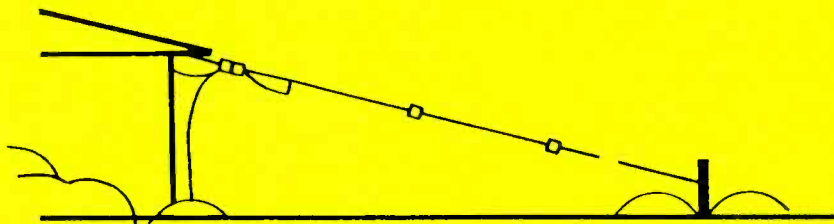
Few persons who have ever owned a boat would, except maybe when drunk, send out a hoax distress call. While I feel that hoax distress calls primarily come from people who have no business owning marine radios, I'm not so naive to think that some false distress calls also don't actually come from boats. As a person who has been an active boater for many years, I've seen lots of drunken and stoned boaters who could easily send out a *Mayday* as a lark. Also, boaters let their kids use their boats, or loan out their boats to friends and neighbors, who might not realize the seriousness of transmitting such a call.

So, I'm not letting boaters off the hook entirely. But, in general, I do not believe that boaters are the heart of the problem or the reason for the proliferation of bogus distress calls.

Let me point out that a marine radio set needs to be issued a license, and in order to qualify for that license one has to either own a boat, or prove to the FCC that there is a good reason to have a station ashore. Most responsible boaters who are cognizant of safety have a VHF radio aboard, and regard it as much a part of the equipment they need

(Continued on page 75)

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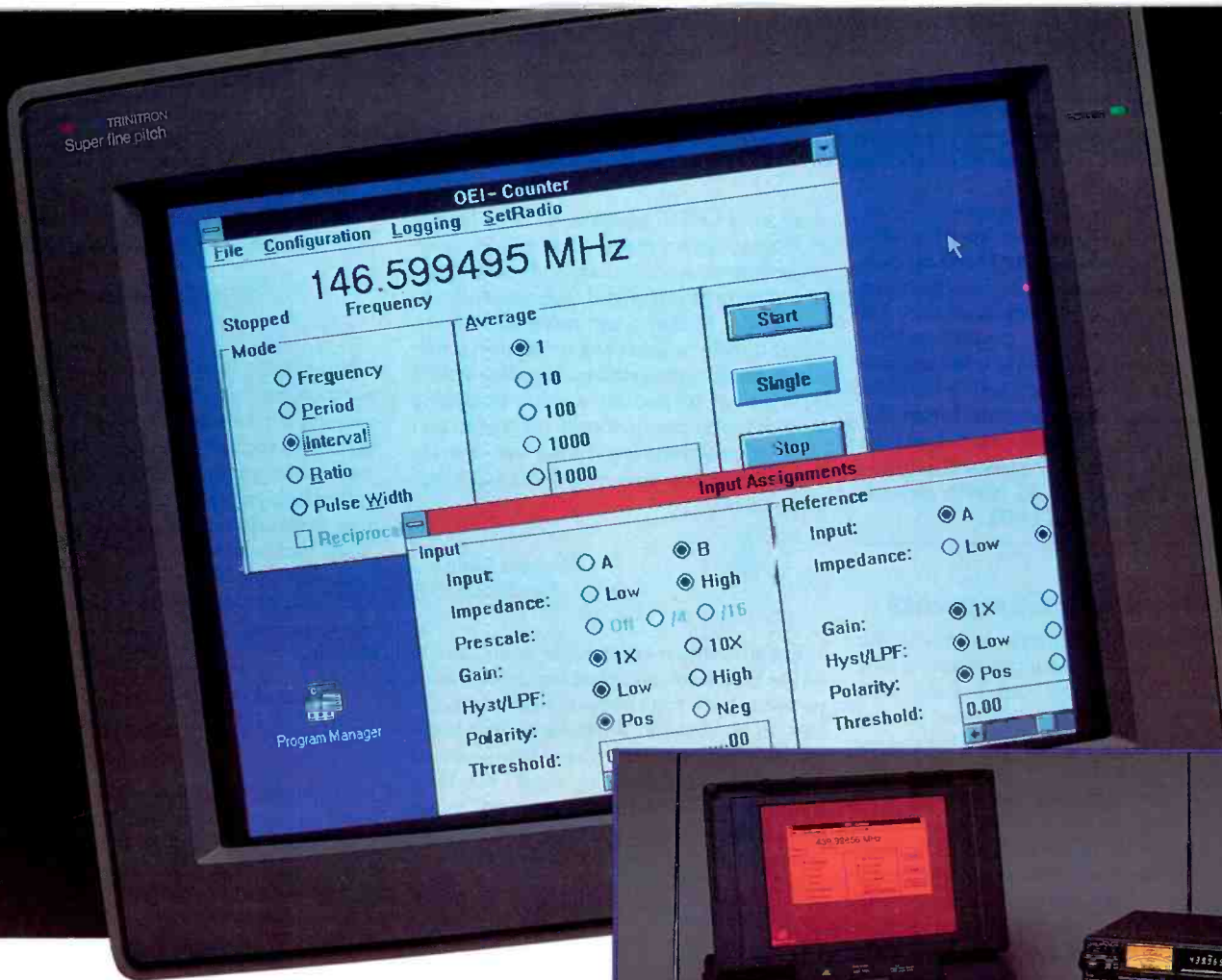


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# MAILBAG

## LETTERS TO THE EDITOR

Each month we select representative reader letters for our Mailbag column. We reserve the right to condense lengthy letters for space reasons. All letters submitted for consideration must be signed and show a return address. Upon request, we will withhold sender's name should the letter be used in Mailbag. Address letters to Tom Kneitel, Editor, Popular Communications Magazine, 76 North Broadway, Hicksville, NY 11801.

### Pirate Radio Comments

The March editorial on pirate radio hit the nail on the head. The average pirate is little interested in jamming and making rude noises. It's true that legit radio turns off a lot of listeners, myself included. That's what motivated me to create an "alternative" (pirate, if you prefer) station, the *Voice of Bono*.

If you stop and think about it, the FCC gets you coming and going. You'll need about \$50K to get on the air legally, and if you decide to bypass their authority and power up without a license, they can collect \$1K the first time, and even more thereafter. Is the \$50K price tag just to keep the riff-raff and undesirables off the air? Personally, I hold them no ill will. They are just trying to do their job, but I wish their attitude would change. Their "naughty kid" view of pirates is not only outdated, it's insulting. I can't speak for all pirates, but I take my own broadcasting operations quite seriously. I'm not "playing radio." My programming is quite calmer than most of the Top 40 sludge on the air today. It's modeled after the mid to late 1960's AM pop radio, back when you could turn on the box and not hear the jocks discussing bodily functions, or ringing up strangers just to insult them over the air, or worse! That isn't entertaining, it's just pathetic.

Gary,  
The Voice of Bono,  
Maryland

Bravo! Congratulations on the March comments regarding pirates. I read it with interest, and showed it to others. Thank you for your support of the efforts of radio enthusiasts. You explained this subject well, especially the part about the FCC's need to serve the public's ever changing interests.

Ted Shevchenko, KC6KEW,  
Burbank, CA

I liked the March editorial. Looking at the progress made in television with the intro-

duction of LPTV, perhaps it's time for the FCC to re-open a dialogue on LPFM. Such micro stations would surely add to the diversity of programming and, subsequently, to the quality of life in communities that are either unable or unwilling to support a full-power broadcasting station. Licenses should be awarded to stations wishing to devote most of the air time to locally originated and oriented programming, rather than merely echoing satellite-delivered feeds from far-away cities.

Michael Nadeau,  
Reedsport, OR

I'm sure that many people would like to let the FCC know that their regulations need revision, but I don't know who to contact or how to go about it. What we need is some sort of campaign to make low-powered community broadcasting legal. Maybe if there were a big enough response, things would change. Thanks for *Popular Communications'* support of Free Radio.

Anita Louise McCormick, KA8KGI,  
Huntington, WV

Anita's got the makings of a good idea. Certainly, anybody with strong feelings on getting the FCC to establish a low-power (5 to 10 watts, FM), amateur or non-commercial, community broadcasting service is welcome to write to the FCC and state their argument. Write to: Federal Communications Commission, Washington, DC 20554. Presumably, such a service would need to be available to persons who could get on the air with minimal financial investment, technical and engineering requirements, and on an "interference expected" basis. Maybe the modulation and transmitting equipment for such stations would have to be FCC type-accepted, and sold as sealed units ready to plug-in and go right on the air. Antennas would be limited as to height and gain. You might have better ideas than these. — Editor.

### Radio Row

The Radio Row editorial last February brought back memories. I spent many hours hanging around there wondering how to best spend my \$2 to \$3, and could then barely carry all the stuff back home on the subway. And speaking of Emerson Radios, I was the guy who saved up throughout the war for that radio and found that my folks tried to talk me out of buying the set!

Bill Fine,  
Reno, NV

I also used to go to Radio Row when my ship (Merchant Marines) was in port at New

York. Used to look over all of the great radio stuff and junk there for hours on end!

Miles E. Hess, Jr., WB4YQE,  
Winter Park, FL

Your Radio Row story in the February issue took me back many years to when I was a young USN Radioman, just arrived in the big city for the first time. I spent many hours there looking in the store windows. I went to the big Lafayette Radio store (100 6th Ave.) near Radio Row to buy myself a Vibroplex "bug" and a Howard Model 430 receiver. Both were lost aboard the USS Hammann (DD-412) on June 6, 1942, when the ship was torpedoed and sunk during the battle of Midway.

Woody Fugate, W4JDU (ex-W9IJT,  
ex-W6TTI),  
Catlettsburg, KY

An enormous number of letters have come in from others who also remember Radio Row with great fondness. Somebody ought to write a book about that place! — Editor.

### Radar War

The March article, *Radar Wars on Our Interstate Highways* intrigued me. As someone who likes to keep a keen eye or ear on who is watching me, I'd like to learn the sources of the Electrolert Spybuster, and also the Chips Detector.

Michael Rapisura,  
Berkeley, CA

The Electrolert Spybuster is made by Electrolert, Inc., 4949 South 25A, Tipp City, OH 45371. For the Chips Detector, try Gray Marketing, 2100 Ward Drive, Henderson, NV 89015. — Editor.

Let's not forget the very effective radar detector that doesn't cost anything. When an oncoming vehicle flashes its headlights, you can be certain that there's highway radar in use just ahead.

Thomas Demers,  
Norwich, VT

Connecticut has a "law" against radar detectors. I wanted to fight the ticket I received for having one, but the prosecutor would only "nolo" the charge, telling me to "get it out of sight." They won't let you fight it, preferring to harass you with a law that won't stand against a court test. My "4-band, high frequency radio receiver" is now buried in the passenger side sun visor. Power is there for the vanity in the mirror.

J.C.H.,  
Sterling, CT



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Bearcat BC-330A	109.99	(7.00)
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100 Channel Digital Programmable Hand-Held Scanner

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World Radio & TV Handbook (1991)	18.99	(*)

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# Relay Races

## Shortwave Broadcasters Aren't Always Where They Seem, Or Say!

BY GERRY L. DEXTER

**S**o the announcer sits there in the studio and says "This is Deutsche Welle, the Voice of Germany, coming to you from Cologne. . . ." Well, that may be where he or she happens to be but it's not the place from which that radio signal made its last leap from transmitter/antenna to your receiver. Deutsche Welle's program may have come to you via any one of five transmitting sites within Germany or another half dozen outside Germany. The latter transmitters are known as relays, stations which, as most SWL's know, receive and rebroadcast the program. The technique provides a target audience with a stronger, more reliable signal than could be achieved with signals direct from the originating station.

At one time about the only shortwave broadcasters using relays were the BBC and Voice of America but over the years more and more broadcasters have come to use this method. Relay stations are normally very expensive answers to reaching an audience, but in recent years, new approaches have cut costs and allowed more broadcasters into the game without having to pay full freight.

The basic relay idea is a slave station owned and operated by a particular international broadcaster. In a few cases—more now than then—part of the agreement allowing the relay to be built in a foreign country includes allowing that country's broadcaster to use the facility as well. In a couple of cases international broadcasters have built relays as joint effort and then shared its use. Some international broadcasters have agreements which allow each to use the other's transmitter(s)—a method which has seen a lot of use in recent years. At least one commercial broadcaster, Africa Number One in Gabon, has the majority of its broadcast facility taken up with relays of foreign broadcasters.

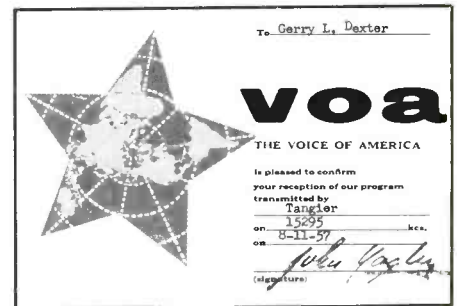
For the listener hobbyist who wants to do more with that signal than listen to its program content, the growing number of relays and relay arrangements can make figuring out "who's on first" quite a game. We'll try and sort some of them out for you here, but remember, stations often make changes in their schedules and they are never guaranteed even when they come from the stations themselves!

At least chasing the relays isn't a matter of seeking out flea-sized transmitters half the world away. These days relay stations often punch out 250 or 500 kw (though there are still some sickly 50 and 100 kilowatts in use.) That doesn't mean that tuning all of them in is going to be a snap, because many of the signals will be beamed away from North America, so you won't be dealing with goliath-like signals in every case. Unfortunately, many stations do not give on-air site ID's for their relays so you can't rely on announcements (there oughtta be a law against that!). Just as troublesome, some stations don't indicate relay sites in their program or frequency schedules (there oughtta be another law!).

So, in order to do after these things you need to take a bit of potluck, sometimes piecing clues together to get the target in your crosshairs. Still another negative is the fact that some stations issue "no data" QSL cards, which means that, under normal circumstances, the relay site won't be indicated on your QSL. Still, with some perseverance, some planning and some luck it shouldn't take a DX'er with average experience and equipment more than a year to log all of the relay sites and situations. QSL'ing them can take a whole lot longer!

Here we go on the relay hunt!

**Afghanistan:** Despite the Soviet pull-out, Radio Afghanistan is still relayed by transmitters within the Soviet Union. 4940,



The VOA usually indicates sites on cards, if requested. This QSL for the Tangier relay is over 30 years old.

6075, 7310, 11755, 12065, 15255, 15520, and 17655 are all via the USSR. Best bets for listeners in North America to pick one of these up are 15255 or 17655 between 1230-1700 for broadcasts in Urdu, Baluchi, Pashto and Dari. Definite site information is lacking, but the transmitters used are believed to be in Azerbaijan SSR, probably near Baku. Replies from Radio Afghanistan seem rare these days and it's unlikely the station would admit to a USSR relay on a QSL card anyway.

**Austria:** Radio Austria International, in addition to its own transmitters at Moosbrunn, Austria, airs via the Radio Canada International transmitters at Sackville, New

RCI's one-per-year QSL arrangement means a long wait to QSL all their relay points.

RFE-RL FREQUENCY SCHEDULE No. 120												D-90				Date: 30 SEP 1990				Page 5				
CET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
UTC:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
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9695																								
9695																								
9705																								

The RFE/RL frequency schedule indicates which sites are on what frequencies when and in what languages.

Brunswick. This is currently scheduled on 6015, beamed to western North America between 0500-0700, with English at 0530.

Canada: Radio Canada International has put together a neat set of relay arrangements, a couple just within the past year or

two, which have really extended the station's range. The BBC transmitter at Daventry, England is used for English to central and Eastern Europe and Africa at 1515-1530 on 9555 and 11935 and 1715-1730 on 5995 and 7235. Daventry is used to western Europe at 0618-0700 on 6050, 7155, 9740 and 11840 and 1930-2000 on 5995 and 7235.

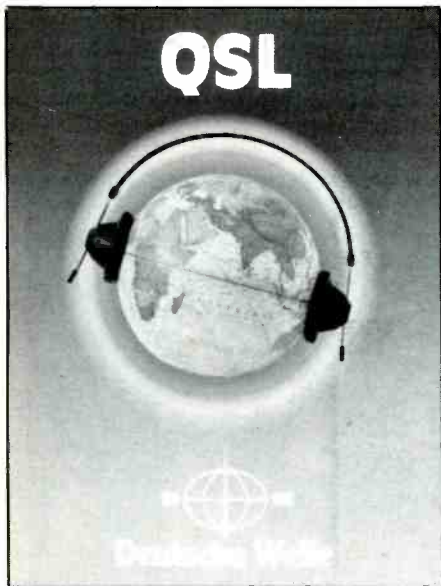
The Deutsche Welle transmitter at Sines, Portugal is used for central and eastern Europe at 1515-1530 on 11915 and 15325. Radio Japan's transmitter at Yamata is used for English to Southeast Asia on 11705 in English at 2200-2230. RCI broadcasts in English to Asia and the Indian subcontinent air over Radio Beijing transmitters at Xian from 1300-1330 on 11955 and 15210. RCI airs over Radio Korea's Kimje transmitter site at 1330-1400 on 6095, 6150 and 9700 and 1530-1555 on 7265. Programs to the Middle East are aired over Austria's Moosbrunn site at 0400-0500 on 11925. You will hear all of these quicker than you'll QSL even one or two. RCI's policy of issuing one "do-it-yourself" QSL card per listener/per year (sent with its program schedule) makes it work for the person who prizes patience.

China: Radio Beijing is aired via the transmitters of three other nations. The Chinese helped Mali put new, higher power transmitters on the air, thus buying themselves

use of that facility. It currently airs to North America at 0000-0100 in English on 15100 and 17705, 0300-0400 on 15100, as well as for a number of other Radio Beijing services. The transmitters of Spanish radio are used to reach North America on 9690 at 0300-0400. Canada's Sackville transmitters are used for the west coast of North America at 0400-0500 on 11840. The French Guiana transmitters of Radio France International carry Radio Beijing to North America at 0400-0500 on 11685. Transmitters in Switzerland are used for English to Europe at 2100-2130 on 3985. Radio Beijing does a pretty good job of placing sites on their QSL's, if asked to do so.

Cuba: Radio Havana Cuba is still relayed by transmitters within the USSR. Two which should be heard here are 17710 in Spanish to Europe and Africa from 1800-2000 and in Portuguese from 2000-2100. Also 17875 between 1800-2000 in Arabic, French and English to Europe, North Africa and the Middle East.

Denmark: Radio Denmark closed down its own shortwave broadcast transmitters last year so, were it not for an agreement through which it is able to broadcast via Radio Norway's facilities, it's an open question as to whether Radio Denmark would even be on shortwave today. Radio Denmark's broadcasts in Danish only (except for an



Don't expect to get cards with sites on them in response to reports to Deutsche Welle.

English ID) are beamed to all parts of the world. For North America, they're currently scheduled at 1430 on 21705, 1530 on 15310, 1630 on 21705, 1730 on 17760, 1830 on 15310, 2130 on 11850, 2330 on 11845, 0030 on 11790, 0130 on 9615, 0230 on 9615, 0330 on 9645, 1030 on 15165, 1230 on 15165 and 1330 on 15360. Most of these should be heard quite well. One of the several unfortunate things about the Radio Denmark situation is the fact that they no longer issue QSL cards.

**England:** The BBC has an extensive arrangement of relays, shared facilities and other arrangements. We cannot possibly include all of the times and frequencies here, but here are some best bets for listeners in North America. The West Indies relay on Antigua is easily heard on 5975 from 2130-0730. The Atlantic Relay on Ascension Island in the South Atlantic can be found on 6005 from 0000-0545 (with a couple of brief transmission breaks), 11750 between 2200-0330, 15260 between 2000-0330 and 15400 from 1500-2300. The East Mediterranean relay on Cyprus uses 7135 from 0230-0330, 11850 at 1900-2300, 15195 from 1030-1515 and 21470 between 0900-1615. The Voice of America's transmitter at Delano, California airs the BBC on 9590 from 0030-0230. The BBC via VOA Greenville can be heard for just 15 minutes between 2100-2115 on 17715 and that's not even on a daily basis.

The BBC's Hong Kong relay station often shows on 7180 between 0900-0930, 1300-1400 and 1500-1615. The Indian Ocean relay in the Seychelle Islands may be found on 15420 at 0900-1215 and 1245-1300 (neither daily) and at 1300-1400 and 1615-1645 (not daily) and 1645-1700. Try also between 0900-1400 on 17885. The Far Eastern Relay at Kranji, Singapore has an extensive schedule. Best bets seem to be 9740 at 0900-1830 with transmission breaks on some days. Another possibility is 15360 from 0915-1830 (not all daily). The BBC relay in the African nation of Lesotho is one of the more difficult catches. Try 3255 from 0300-0430 though reception on this tropical band is always a chancy thing. Also check 6190 at 0300, running, with some breaks, 'til well into our daylight hours. The Eastern relay on Masirah Island (Oman) would seem best now on 11760 from 0300-0815 and 0900-1330 or 15310 between 1100-1615. Broadcasts via RCI's Sackville facility include 6175 and 9590 from 2200-0330. Although site information is no longer included in the BBC's excellent monthly program guide, *London Calling*, we understand the information is available on request from the BBC.

**France:** In addition to its two transmitter sites within France, Radio France Internationale transmits via Gabon's Africa Number One, its own relay station at Montsinery, French Guiana, Radio Japan and Radio Beijing. Listen for broadcasts from Gabon



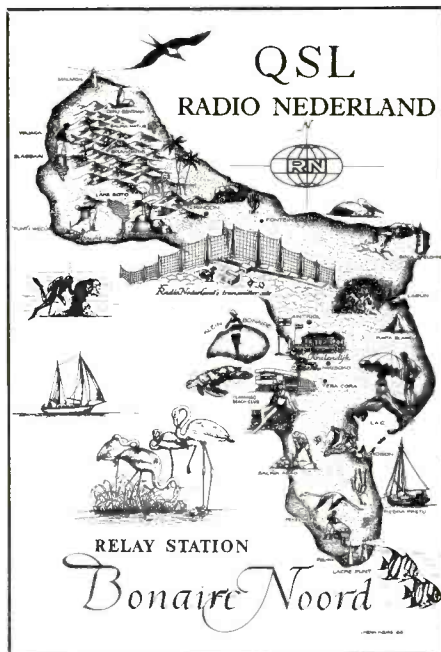
*Radio France International uses relays in Gabon, French Guiana, China and Japan, and there may be additional sites down the road.*

on 7135 at 0600-0700, 7160 at 1800-2200 and 1600-1700 (English) on 11705. For RFI via French Guiana try 9715 at 2300-0200, 9790 at 0600-0700, 9800 at 0300-0600, 11670 0000-0600, 11995 2200-0200, 9790 at 0600-0700, 9800 at 0300-0600, 11670 0000-0600, 11995 2200-0200 (in Spanish and Portuguese), 15365 from 1030-2100 in Arabic, French and English. For reception via Radio Beijing's transmitters try 15275 from 0100-0200 and 15285 between 1030-1130. RFI is scheduled via Radio Japan's Yamata site on 17705 from 1030-1200 and 2300-0030.

**Germany:** With the takeover of Radio Berlin International, Deutsche Welle now has five transmitter sites within Germany. There are several overseas sites. Deutsche Welle's relay at Kigali, Rwanda, in east central Africa is possible on 7225 and 9565 from 0300-0550, 9735 from 1500-2100, 11965 at 1500-1700, 15270 at 2200-0250, 17800 at 1100-1350 or 17860 from 1800-2050 using Germany and other languages. DW's Sines, Portugal relay looks best on 15245 at 1100-1300 or 15470 in Bulgarian at 1600, Romanian at 1500 and 1700. DW uses Canada's Sackville site for 1600, Romanian at 1500 and 1700. DW uses Canada's Sackville site for broadcasts to North America between 0300-0557. The Antigua relay in the Caribbean is easily heard with English to North America on 6040 at 0100 or in German to North America on 6075 from 0200. DW also broadcasts via the facilities of the Brazilian government station, Radiobras, near Brasilia. Try 11810 at 2300-0050 in Spanish. DW's Trincomalee, Sri Lanka relay has been bedeviled by the unsettled situation in that country since it came on the air a number of years ago. Trincomalee was taken off the air last fall and it appears DW may declare the whole business a lost cause and throw in the towel. For transmissions via DW's Cyclops, Malta facil-



*Radio Japan is relayed via Gabon, Canada and French Guiana.*



*Some stations not only put the site on the QSL but even have cards for that site, as the Christian Science Network, Radio Korea (for Canada) and others do. Some years ago Radio Netherlands issued this one for reports on the Bonaire relay.*

## RELAY SITE CHECKLIST

### Afghanistan

Radio Afghanistan  
via USSR

### Austria

Radio Austria International  
via Sackville, Canada

### Canada

Radio Canada International  
via Daventry, England  
Sines, Portugal  
Xian, China  
Kimje, Korea  
Moosbrunn, Austria

### China

Radio Beijing  
via Bamako, Mali  
Nobeljas, Spain  
Sackville, Canada  
Montsinery, Fr. Guiana  
SRI, Switzerland

### Cuba

Radio Havana Cuba  
via SSR sites

### Denmark

Radio Denmark  
via R. Norway sites

### England

BBC  
via Antigua  
Ascension Is.  
Cyprus  
VOA Delano  
VOA Greenville  
Hong Kong  
Seychelles Is.  
Singapore  
Lesotho  
Oman  
Sackville, Canada

### France

Radio France International  
via Gabon  
French Guiana  
R. Beijing sites  
Yamata, Japan

### Germany

Deutsche Welle  
via Rwanda Portugal  
Sackville, Canada  
Antigua  
Brazil  
Sri Lanka (inactive)  
Malta

### RFE/RL

via Portugal  
Spain

### Japan

Radio Japan  
via Gabon  
Sackville, Canada  
French Guiana

### Laos

Lao National Radio  
via USSR sites

### Netherlands

Radio Netherlands  
via Bonaire, Netherlands Antilles  
Talata, Madagascar

### South Korea

Radio Korea  
via Sackville, Canada

### Spain

Spanish National Radio  
via Radio Beijing sites

### Surinam

Radio Surinam International  
via Brazil

### Switzerland

Swiss Radio International  
via Gabon  
Radio Beijing sites  
Brazil

### Taiwan

Voice of Free China  
via WYFR, Florida

### United States

WYFR  
via VOFC

Voice of America  
via BBC Ascension Is.  
Colombo, Sri Lanka  
Kavala, Greece  
Poros, Philippines  
Tinang, Philippines  
Rhodes, Greece  
Tangier, Morocco  
BBC Wooferton, England  
DW, Wertachtel, Germany  
Munich, Germany  
RFE/RL Gloria, Portugal (temp)  
Christian Science Network  
KHBI, Saipan

### USSR

Radio Moscow  
via La Julia, Cuba  
Radio Sofia sites  
Radio Ulan Bator, Mongolia sites

ity check 9515 at 1900-2120 in Arabic, 9545 at 1600-1755 in German, 9565 at 0100-0150 in English for North America, 11795 in German to North America at 0200-0547 and 11865 in English to North America at 0100-0150. Unfortunately, DW issues only no data cards so getting relay site information on QSL's is largely a lost cause, though exceptions are made on rare occasions.

Radio Free Europe/Radio Liberty, based in Germany and with two sites there, also broadcasts from sites at Gloria, Portugal and Playa de Pals, Spain. Like all large broadcasters the schedule is extensive so we're limited to covering just a couple of reception possibilities. For Gloria, try 7145 from 0500-0600 in Russian and Lithuanian, 7165 from 0400 in Romanian and 11725 from 0200 around to 2300, mostly in Russian. Playa de Pals is using 7155 from 2300-0130 in Russian, opening up again at

0400 in Estonian. Try 9660 at 0600 for the Ukrainian sign on. You can get a complete RFE/RL schedule which includes sites and language by writing to the Engineering Division, RFE/RL, 1775 Broadway, New York, NY 10019.

*Japan:* Radio Japan uses three out-of-country sites. Via Africa Number One in Gabon at 0200-0300 on 15325, 0900-1100 on 21500, 1100-1200 on 21750 and 1200-1800 on 21700, running Japanese, Arabic and English. The Sackville, Canada transmitter is employed on 6120 with Japanese and English to North America from 1000-1200. Radio Japan via the RFI French Guiana transmitters is on the air at 0800-1000 on 9675 in Japanese, Portuguese and Spanish, 9685 at 2200-2300 in Japanese, 15325 and 15350 at 0200-0400 in Japanese and Spanish. Radio Japan—always top-notch in the QSL department—will indicate sites on request.

*Laos:* Lao National Radio broadcasts to Europe via transmitters in the USSR. The broadcasts are in French and run from 1100-1130 on 11870 and 15190. The station is a poor verifier but, as an alternative, you can sometimes get Radio Moscow to QSL these.

*Netherlands:* Radio Netherlands operates two relay stations. The powerhouse on Bonaire in the Netherlands Antilles will rattle your headphones in its North American feed on 6165 and 11740 from 0030-0125 in English. Also 9590 and 11720 at 0330-0425. The other relay is at Talata, Madagascar. Try 15570 at 163-1725 in Dutch and again at 1730-1825. Also English from 1830-1925 on 15560. Radio Netherlands will send you their transmission schedule (which indicates sites) on request. The station will also indicate sites on QSL's on request.

*South Korea:* Radio Korea is still another

station which makes use of the Sackville, Canada site to reach audiences in our part of the world. Try 6145 and 9650 in English at 0900 and 11715 at 1000 in Spanish and English. Radio Korea will indicate relay sites on QSL's if you ask.

**Spain:** The Spanish National Radio reaches Asia via Radio Beijing transmitters. Check 11910 for Spanish between 1100-1200 and 9620 between 1200-1300. 11910 is back in use at 1300. At one time Spanish National Radio was relayed by transmitters in the Canary Islands, but these are reported to be off the air. In another year or so we should be hearing Spanish National Radio via a new relay in Costa Rica. Spain's a good QSL'er and will usually put sites on cards.

**Surinam:** Radio Surinam International has not had transmitters of its own since the unscheduled change in government there years ago. RSI's programs are heard via the Radiobras transmitter in Brazil and are scheduled at 1700-1745 on 17755. There's a brief English segment within the broadcast. Radio Surinam is a poor QSL'er.

**Switzerland:** Swiss Radio International has developed three relay agreements in recent years. The station is carried via Africa Number One, Gabon, at 1900-2200 on 9885, 12035, 13635 and 15525, all beamed to Africa. Also via Gabon to South America on 15035 and 15570 from 2215-0100. Radio Beijing's transmitters at Kunmig and Beijing are in use to Asia at 1315-1500 on 7480, 11695, 13635, 15570, 17830 and 21695. The facility in Brazil is used from 0115-0300 on 17730 and 0315-0530 on 6135, 9650, 9885 and 12035. You can get relay sites indicated on your QSL's from Swiss Radio International.

**Taiwan:** The Voice of Free China has an exchange agreement with WYFR - Family Radio, which has its transmitters at Okeechobee, Florida. VOFC via WYFR is easily heard on 5950 from 2300 on through to 1545 in English and various Chinese dialects. Also on 9680 between 0200-0600, 9852 from 2000-2300 and 11740 from 2000-0500. If you can't hear at least one of these you'd better give up and turn your receiver into a planter.

**United States:** WYFR, in turn, is aired over VOFC facilities starting at the odd time of 1302 and running to 1517 in English on 11550, followed by Hindi to 1602. A broadcast in Mandarin starts at 1102 on 5275 and at 1202 on 9280. These offer the best reception possibilities for North American listeners.

Based in Boston, the Christian Science Monitor operates WCSN in Maine and WSHB in South Carolina. KHBI, on US-owned Saipan, qualifies as an out of country relay. Try 9530 from 0800-1000, 9895 between 1000-12000 and 9530 again from 1200-1400. 13625 has been noted between 1200-1400. You can get a schedule indicating which station is operating where by writing to the World Service at PO Box

860, Boston, MA 02123.

The Voice of America broadcasts from nearly a dozen sites outside the United States. The schedule is long and complex so here are a few of the bets:

Via the BBC's Ascension Island relay on 17830 and 21490 at 1200-1400.

Via the VOA Colombo, Sri Lanka relay on 9645 from 1400-1800 and 15395 at 1400-1800.

Via the VOA Kavala relay in Greece on 7105 from 2000-0200, 7205 at 0100-0300, 7225 at 0430 to 0700 and 11805//11835 1500-2100.

There are two VOA sites in the Philippines. For Poro, try 7285 from 1000-1600, 9620 at 1100-1400 (with breaks) 11715 at 1200-1430 and 15125 from 1100-1200. Most likely prospects for Tinang seem to be 9610 at 1100-1230, 9715 between 1330-1430, 9760 at 1100-1700, 11835 from 1230-1330, 11930 1100-1500 (with breaks), 11965 at 0700-1600, 15125 1100-1200 and 15160 from 1400-1500, all in English or various Asian language.

The VOA relay at Rhodes in the Dodecanese Islands, Greece, looks likeliest at 0330-0700 on 9715 or 1700-2100 on 15305.

The Tangier, Morocco VOA relay should be heard between 0400-0500 on 9605, 9615 or 11710. Also try 1700-2030 on 17705, 1700-2200 on 15205.

BBC transmitters at Wooferton, England are used by the VOA. Try from 0100-0130 on 6105 and 11900, 1700-2200 on 11760 or 2100-0300 on 6060.

Deutsche Welle's huge transmitter plant at Wertachtel also relays VOA programming. Try 0100-0200 on 7120, 0100-0300 on 9760, 0400-0500 on 7295, 1100-1400 on 15280, 17855 and 21626.

The VOA's Munich, Germany relay is

tougher. Check 3980 between 0300-0700. It'll sometimes pop through the ham QRM.

The VOA relay at Careyburg (Monrovia) Liberia has been put off the air by the civil war there.

The VOA is making temporary use of RFE/RL's Gloria, Portugal site since so much of the other transmitter usage is being taken up by feeds to the Gulf. Try 0300-0330 on 6095, 15160, 15225, 17810 or 17865.

The VOA makes regular adjustments to its schedule. Write to the Frequency Division, Voice of America, Washington, DC 20547 for a copy of the current frequency schedule, which shows transmitter sites. Sites are indicated on QSL's if requested.

**USSR:** Radio Moscow and other Soviet services are relayed via the La Julia, Cuba site (the same one as used by Radio Havana) on 4765. 9600 and 11840 are commonly used daytime frequencies for Radio Moscow in English, via this site.

Radio Moscow is also relayed via Radio Sofia's Bulgarian transmitters. Try 11790 in Russian during our evenings and 15290 at 2300-0100. These, too, change quite often.

Radio Ulan Bator in Mongolian also relays Radio Moscow, although the Mongolians have just cut the time allotted to this way back, probably as a result of their swing towards democracy. Radio Moscow airings are now scheduled at 0930-1000 on 4080, 4850, 4865, 4995 and 7262.

That's the current relay picture, but we can certainly expect more in the future. The VOA is still working on new sites in Israel and Thailand. Australia, France and others are looking to expand their reach through relays or relay arrangements. Whatever new relays come 'round the corner in the next months and years, there's plenty to sort out as things stand now. Ready, set, go!

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CIRCLE 16 ON READER SERVICE CARD

# Maritime Frequency Shake-up

***HF Ute Monitors Will Be Looking For Listening in All The Wrong Places Without This Information on The New Maritime Frequency Bands!***

BY RICK MASLAU, KNY2GL

**E**ffective at 0001 UTC on July 1, maritime communications between 4 and 27 MHz will never be the same. These HF bands are used for long range radio comms on the high seas. But they're all changing, and the changes affect voice and non-voice operations. Not only have the bands been shifted, but additional digital selective calling (DSC), narrow-band (NBDP), and voice (SSB) will be going into use.

These sweeping changes were adopted by the FCC last January in Docket 90-133. The revisions are required to incorporate in the FCC rules the changes adopted by WARC-87, held at Geneva, Switzerland. These revisions to the international radio regulations changed the maritime channeling plans in the 4 to 27 MHz HF bands allocated exclusively for maritime communications. No changes in the 2 to 3 MHz or VHF maritime bands were made.

For many decades, the mainstay of high seas HF communications was manually sent CW. This mode is, and will always remain part of the romance and adventure of going to sea. That's why being a salty ship's Sparks (Radio Officer) has always been a "dream job" for anybody interested in communications. But, high technology comm systems have provided a number of alternatives to manually sent CW. The reliance upon manually sent CW, and the colorful and proficient brasspounders who can send CW even in heavy seas, has been reduced in recent years. Sadly, it is beaching all too many of this unique breed of radio operators. It has made a lot of formerly busy CW frequencies rather quiet, and has taken



**Table 1  
Distress & Safety Frequencies**

<b>SSB:</b>	4125.0	6215.0	8281.0	12290.0	16420.0	<b>kHz</b>
<b>NBDP:</b>	4177.5	6268.0	12520.0	16695.0		<b>kHz</b>
<b>DSC:</b>	4207.5	6312.5	8414.5	12577.0	16804.5	<b>kHz</b>

some of the pleasure out of DX'ing "ute" stations for those hobby monitors who can copy CW. It made many pileups on RTTY and other maritime frequencies.

The HF band revisions reflect the general worldwide decrease in the amount of manual CW traffic on maritime frequencies, and the corresponding increase in coast and ship stations using DSC, NBDP, and SSB modes. To accomplish the shift from manual to automated systems, the maritime frequencies were rearranged. As a result, virtually every maritime station worldwide, whether on a ship or coastal, whether public or private, will be changing all of its 4 to 27 MHz operating frequencies.

The FCC presently has more than 9,000 public and private coastal stations licensed to operate in the HF bands. There are about 40,000 ship station licensees.

Coastal stations licensed within the past year were issued licenses showing the old frequencies as well as the new ones going into use this year. Other coast station licensees have been sent a mailing advising them of the new frequencies they must now use instead of those shown on their original licenses. They do not need to apply for license modifications.

Ship station licensees will not be sent a mailing, but those that are presently licensed for SSB operation between 4 and 23 MHz are authorized for SSB operation on the new frequencies, including the new 25 MHz SSB frequencies. Those ship stations not presently authorized for SSB operation on the HF bands would require a license modification to use the new frequencies.

We will give an unofficial general outline of the rearranged bands for the benefit of lis-



**Table 2A  
Ship CW Calling/Reply Bands  
(500 Hz Spacing)**

4182.0 to 4185.5 kHz  
 6277.0 to 6279.5 kHz  
 8366.0 to 8369.5 kHz  
 12550.0 to 12553.5 kHz  
 16734.0 to 16738.0 kHz  
 22280.0 to 22283.0 kHz  
 25171.5 to 25172.5 kHz

**Table 2B  
Ship CW Working Bands  
(500 Hz Spacing)**

4187.0 to 4202.0 kHz  
 6285.0 to 6300.0 kHz  
 8342.0 to 8375.5 kHz  
 12422.0 to 12476.5 kHz  
 16619.0 to 16680.5 kHz  
 22242.0 to 22272.5 kHz  
 25161.5 to 25171.0 kHz

teners. However, those who will actually be operating in these bands may wish further information. The Consumer Assistance Branch, Licensing Division, Private Radio Bureau, of the FCC is in Gettysburg, PA 17325-7245. Their phone number is (717) 337-1212. Further information on technical matters may be obtained from the Special Services Division, Private Radio Bureau, FCC, Washington, DC 20554. Their phone number is (202) 632-7197.

**A Look At The New Frequencies**

*Distress and Safety.* The frequencies used for distress and safety comms by ship and coast stations, using various modes, is indicated in Table 1. The NBDP channels remain unchanged, but there are changes reflected in the SSB and DSC channels.

*Radiotelegraphy.* CW channels used by ships are now generally established in 500 Hz steps in certain portions of the 4, 6, 8, 12, 16, 22, 25 MHz bands. The calling frequency sub-bands (500 Hz spacing) are in Table 2A. The working channel sub-band limits (500 Hz channel spacing) are in Table 2B.

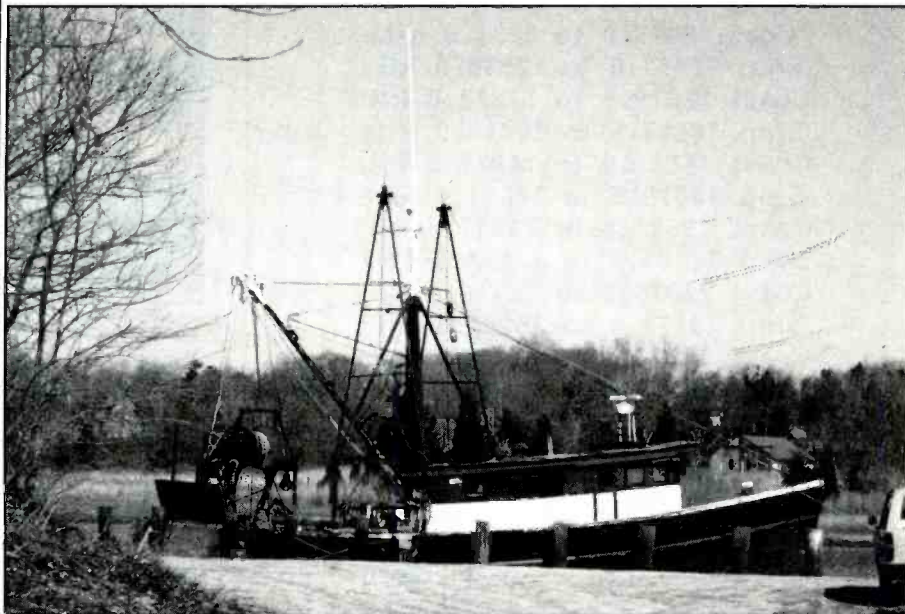
Coast station CW frequencies below 16861.7 kHz were not affected by the changes, but that frequency and all others through 22431.0 kHz were replaced with new frequencies. These new coast station frequencies are indicated in Table 3.

*DSC Operation.* An altogether new arrangement has been established for DSC comms. There are three series of paired fre-

quencies. In our information, frequency pairs are shown as ship/coast.

One series is for worldwide use, and replaces previous DSC authorizations. The other series are new and are intended for regional use. Series "A" pairs are for use in the Atlantic, Gulf of Mexico, and Caribbean. Series "B" pairs are for all other areas. These listings are in Table 4.

*NBDP and Data Operations.* More channel pairs have now been dedicated for NBDP use, such as ARQ mode. In order to accommodate the new channel pairs, some amount of shifting has been required. For instance, previously the coast station transmit sub-band on 13 MHz extended from 13090.0 through 13099.5 kHz (500 Hz spacing). These channels have now been



*The new maritime frequency allocations affect all vessels, using all operating modes in the HF bands. This includes coastal trawlers, tankers, cargo vessels, and even large passenger liners.*

**Table 3  
Coast Station CW Frequencies Above 16861.7 kHz**

17199.2 17208.8 17218.4 22569.0 22570.5 22599.0 22657.0  
 22663.5 22675.5 22681.0 kHz

**Table 4  
General Purpose DSC (Ship/Coast Pairs)**

**Worldwide**

458.5/455.5 2189.5/2177.0 4208.0/4219.5 6312.5/6331.0  
 8415.0/8436.5 12577.5/12567.0 16805.0/16903.0  
 18898.5/19703.5 22374.5/22444.0 25208.5/26121.0 kHz  
 156.525 MHz simplex

**Series A**

4208.5/4220.0 6313.0/6331.5 8415.5/8437.0  
 12578.0/12657.5 16805.5/16903.5 18899.0/19704  
 22375.0/22444.5 25209.0/26121.5 kHz

**Series B**

4209.0/4220.5 6313.5/6332.0 8416.0/8437.5  
 12578.5/12658.0 16806.0/16904.0 18899.5/19704.5  
 22375.5/22445.0 25209.5/26122.0 kHz

**Table 5**  
**Bands for Paired NBBDP & Data Channels**  
**(500 Hz Spacing)**

Ship 4172.5 to 4180.5 kHz  
 Coast 4210.5 to 4218.0 kHz  
 Ship 6263.0 to 6282.0 kHz  
 Coast 6314.5 to 6328.0 kHz  
 Ship 8377.0 to 8393.0 kHz  
 Coast 8417.0 to 8433.0 kHz  
 Ship 12477.0 to 12530.0 kHz  
 Coast 12579.5 to 12632.0 kHz  
 Ship 16683.5 to 16754.0 kHz  
 Coast 16807.0 to 16872.0 kHz  
 Ship 18870.5 to 18881.0 kHz  
 Coast 19681.0 to 19691.5 kHz  
 Ship 22284.5 to 22334.5 kHz  
 Coast 22376.5 to 22426.5 kHz  
 Ship 25173.0 to 25182.5 kHz  
 Coast 26101.0 to 26110.0 kHz



Coastal stations around the world will be affected by the frequency realignment program. Photo shows station VCS, Halifax, Nova Scotia. (Courtesy Robert Ward, VE1BOR.)

**Table 6**  
**Non-Paired (Simplex)**  
**NBBDP Frequency Bands**

4202.5 to 4207.0 kHz  
 6300.5 to 6311.5 kHz  
 8396.5 to 8414.5 kHz  
 12560.0 to 12576.5 kHz  
 16785.0 to 16804.0 kHz  
 18893.0 to 18898.0 kHz  
 22352.0 to 22374.0 kHz  
 25193.0 to 25208.0 kHz

**Table 7**  
**Coastal Station FAX Bands**

4221.0 to 4351.0 kHz  
 6332.5 to 6501.0 kHz  
 8438.0 to 8707.0 kHz  
 12658.5 to 13077.0 kHz  
 16904.5 to 17242.0 kHz  
 19705.0 to 19755.0 kHz  
 22445.5 to 22696.0 kHz  
 26122.5 to 26145.0 kHz

*At one time, large ocean going vessels carried out most of their communications in manually-sent CW. New technologies have now reduced the dependence on CW to the point where more room had to be made for non-CW communication modes. This has resulted in a general upheaval that is now taking place.*

**Table 8**  
**Ship FAX Frequencies**

2070.5 2072.5 2074.5 2076.5 4154.5 4169.5 6235.5  
 6259.5 8302.5 8338.5 12370.4 12418.5 16551.5 16614.5  
 18847.5 18868.5 22181.5 22238.5 25123.5 25159.5 kHz

**Table 9**  
**SSB Calling/Reply Frequency Pairs (Ship/Coast)**

4125.0/4417.0 6215.0/6516.0 8255.0/8779.0  
 12290.0/13137.0 16420.0/17302.0 18795.0/19770.0  
 22060.0/22756.0 25097.0/26172.0 kHz



**Table 10**  
**SSB Working Frequency Bands**

Ship 4060.0 to 4143.0 kHz
Coast 4351.0 to 4435.0 kHz
Ship 6209.0 to 6218.0 kHz
Coast 6510.0 to 6519.0 kHz
Ship 8113.0 to 8285.0 kHz
Coast 8713.0 to 8809.0 kHz
Ship 12230.0 to 12338.0 kHz
Coast 13077.0 to 13185.0 kHz
Ship 16360.0 to 16501.0 kHz
Coast 17242.0 to 17365.0 kHz
Ship 19755.0 to 19776.0 kHz
Coast 18780.0 to 18801.0 kHz
Ship 22000.0 to 22138.0 kHz
Coast 22696.0 to 22834.0 kHz
Ship 25070.0 to 25079.0 kHz
Coast 26145.0 to 26154.0 kHz

replaced by 12598.0 through 12632.0 kHz (500 Hz spacing). What had previously been twenty channel pairs are now sixty-nine channel pairs in this one band alone. Table 5 shows the new channel pairs for NBDP, 500 kHz spacing between channels.

In Table 6, we see the now-expanded allocations for non-paired (simplex) NBDP and data transmissions. This area, in particular, was given elbow room. Previously, no channels were allocated in the 18 MHz band and now there are eleven. There had been only two channels at 22 MHz, now there are forty-five.

**Radio Facsimile.** In Table 7, we see the exclusive frequency bands that are available for assignment to coast stations using 3 kHz channels for FAX. However, other HF fre-

quencies available for shared use by maritime and other radio services (except in the 4000 to 4063 kHz, and 8100 to 8195 kHz bands) is available for assignment to coast stations for FAX.

Table 8 shows all of the carrier frequencies available to ship stations for FAX under the new allocations.

**HF-SSB Voice Channels.** Table 9 shows the call and reply public correspondence (high seas telephone service) channel pairs (ship/coast) that will now be used for SSB mode. Note that 4125, 4417, 6215, and 6516 kHz may be used for simplex communications. Also, 4125, 6215, 8291, 12290, and 16420 kHz are available for simplex use related to safety and distress traffic.

The sub-bands used for working channel pairs (ship/coast) for high seas SSB telephone service that will henceforth be used are shown in Table 10.

**Mississippi River SSB.** In Table 11, we see all of the channels that will be in use along the Mississippi River System.

**Private Maritime Systems.** Table 12 shows the new frequency line-up available for licensing to private HF-SSB simplex coast stations in the maritime service. This includes the new 25 MHz channels. Ship stations authorized for HF-SSB operation may use any of these frequencies. Frequency 6516 kHz is for daytime use only.

**Alaska Private Stations.** Stations authorized in the 4 MHz band for private SSB communications in Alaska will switch to the the frequencies shown in Table 13.

This will give you a general guide to the changes that are kicking in. What with high interest in monitoring the maritime services, it will be beneficial to keep this information handy until you get used to the redesigned territory. It's really quite different! ■

**Table 11**  
**Mississippi River SSB Simplex**

4065	4089	4116	4408	6209	6212	6510	6513	8201	8213	8275
8737	12362	12365	16546	kHz						

**Table 12**  
**SSB Frequencies: Private Coast Stations**

2065.0	2079.0	2096.5	3023.0	4125.0	4146.0	4149.0	4417.0
5680.0	6224.0	6227.7	6230.0	6516.0	8294.0	8297.0	12353.0
12356.0	12359.0	16528.0	16531.0	18840.0	18843.0	16534.0	
22159.0	22162.0	22165.0	22168.0	22171.0	25115.0	25118.0	
kHz							

**Table 13**  
**Alaskan SSB Communications**

4366.0	4369.0	4396.0	4402.0	4420.0	4423.0	kHz	
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# Meanwhile, Back At Radio Ranch

## Memories Of Radio's Earlier Years

BY ALICE BRANNIGAN

We thought that instead of looking at one of broadcasting's powerhouse stations, this month we would lead off with a true mini-mite.

Roger, POP'COMM's AM/FM Broadcast columnist mentions in this month's *Broadcast DX'ing* column about special late-night DX tests and frequency checks that AM broadcasters sometimes run on behalf of or dedicate to DX hobbyists. We thought that we might mention something about these tests in past eras, since they go back a long way in the DX'ing hobby.

There were several stations that became quite famous with DX'ers of the 1930's for their regular DX tests and programs. Two of these were WTRC, in Indiana, and Louisiana's WJBO. WJBO was originally a 50 watt station.

Also, WTRC has had a great and colorful history that goes back to the very early days of broadcasting. Unfortunately, the station either doesn't realize its rich history, or else has decided to ignore its great trek across the midwest before it finally got to its present location in Elkhart in November of 1931 (which the station now considers its starting date).

WTRC actually traces back to 1923 when, as WJAK, it operated on 833 kHz from Stockdale, OH under the auspices of the White Radio Lab. A year later, its owner got religion and, as Rev. Clifford L. White ("The Radio Parson") moved WJAK to Greentown, IN where it ran 30 watts on 1180 kHz. WJAK's slogan was, "One of America's most beautiful cities, and the home of the first automobile." In 1925, White upped its power to 100 watts on 1110 kHz. By 1926, he had returned WJAK to 1180 kHz. That was just before the station was sold, and its location changed.

In 1926, WJAK became the property of J.A. Kautz, of the Kokomo Tribune, 1531 Washington St., Kokomo, IN. Now operating on 1280 kHz, it ran 50 watts. It remained on that frequency until late 1928, when the government moved it to 1200 kHz.

None of these arrangements lasted very long. By 1930, WJAK was on 1310 kHz with its 50 watts, and it was being operated from Marion, IN by the Marion Broadcasting Co., at 4th and Adams Streets. This wasn't a lengthy arrangement, either.

We acknowledge with thanks your letter of Jan 31/31 and verify your report. Hope we may serve you again.
Remarks: Your report checks with our log sheets, We thank you for your letter.
MARION BROADCASTING CO. STATION W. J. A. K. <i>Madison</i>

A veri from WJAK dated January, 1931. This station evolved into Elkhart's WTRC. (Courtesy Joe Hueter, PA.)

On November 18th, 1931, WJAK pulled up stakes again and moved to Elkhart, IN where it still ran 50 watts on 1310 kHz. The station's new owner had become C. D. Greenleaf, of the Elkhart Daily Truth (a newspaper). Not long after the move to Elkhart, the call letters were changed from WJAK to WTRC. In early 1937, WTRC increased power to 250 watts.

The nationwide frequency shuffle just before WWII saw WTRC moved to 1340 kHz. During the 1940's, the station was headquartered in the Hotel Elkhart, with the transmitter at the intersection of Oakland Ave. and Mishawaka Rd.

By the 1960's, WTRC was running 1 kW, which remains its present power on 1340 kHz. It has an MOR format and is now owned by Pathfinder Communications Corp., which lists November 18th, 1931, at the station's starting date.

WTRC was one of the great DX test stations throughout the 1930's.

### Another Rejected Heritage

One of the other broadcasters famous in the 1930's for its twice-a-month two-hour DX tests (during the winter months) was WJBO, Baton Rouge, LA. Here's another station that, like WTRC, has today forgotten about or decided to overlook a rich history going back long before the starting date (December 11, 1934) it presently lists for itself.

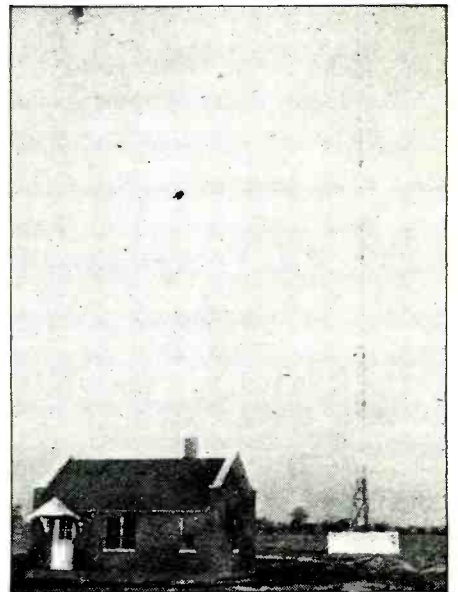
This station actually began life in the New Orleans of 1923 as WAAB, "The Voice of New Orleans," with 100 watts on 1120 kHz. It was operated from 127 South Saint Patrick Street by someone with the unusual

WTRC —ELKHART, IND.— —100 WATTS— —1310 KILOCYCLES—	VERIFICATION
Thank you for your interest in WTRC.	
We are happy to number you among our listeners, and herewith acknowledge your reception as of April 13, 1933.	
The comments of our listeners are of material assistance to us at all times, and we would like to hear from you again.	
<i>R. H. Dammann</i> Radio Station WTRC.	

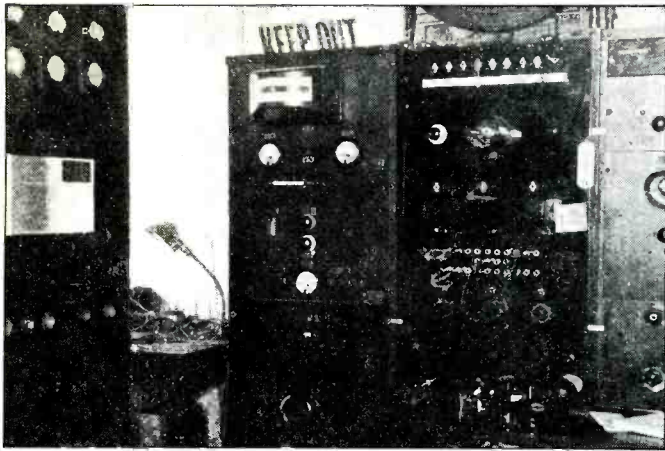
By 1933, WTRC was in Elkhart and running 100 watts on 1310 kHz. (Courtesy Joe Hueter, PA.)

name of Vlademar Jensen. In 1926, Jensen changed WAAB's call letters to WJBO. The station kept hopping around on the band, and by 1931 had tried 1140, 1370, 1300, and finally 1420 kHz. Jensen also moved the entire station down the block to 119 South Saint Patrick Street.

In February of 1933, the licensee of WJBO became the Baton Rouge Broadcasting Company, although the station itself remained in New Orleans at Jensen's address. During the summer of 1933, how-

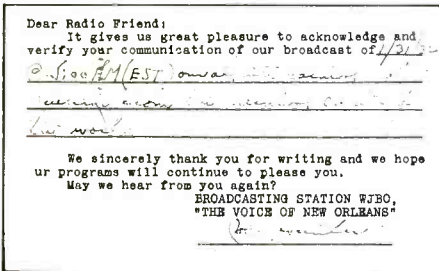


The WTRC transmitter building just after the station went up to 250 watts in 1936.

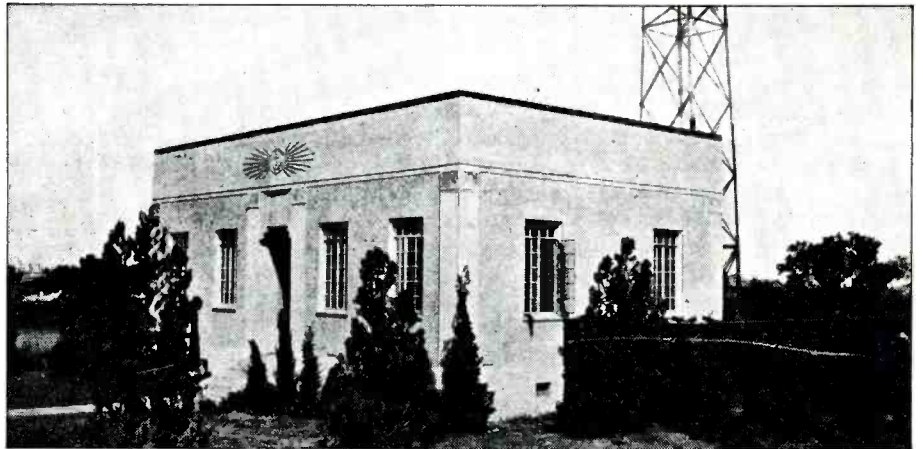


WTRC's 250 watt transmitting equipment.

The 1936 WTRC staff. Left to right: Announcer Schrock; CE Sinton; Asst. Engineer Zellmer; Station Director Baker; and Studio Pianist Mrs. Ethel Geiss.



Even though WJBO now claims it began in 1934, it really goes back much further. This 1932 veri helps tell the story. (Courtesy Joe Hueter, PA.)



A 1935 view of the WJBO transmitter building.



In 1935, the CE at WJBO was Wilbur T. Golson, who put on numerous late night DX tests for DX listeners.

ever, WJBO was moved to Baton Rouge where it continued operating with 100 watts on 1420 kHz. In 1938, WJBO increased its power to 500 watts and switched to 1120 kHz. That arrangement lasted until just before WWII when it was moved to 1150 kHz and began operating with 5 kW.

During WWII, the honcho at Baton Rouge Broadcasting was C.P. Manship, Jr. The station's headquarters were at 444 Florida Avenue, with the transmitter on Roosevelt Road. WJBO remains at the same address, and still runs 5 kW on 1150 kHz, although its owner (since October of 1989) has been George Jenne. We have no idea of the significance of the odd December 11, 1934, date the station claims as its starting point.

DX'ers of the 1930's became quite familiar with WJBO, and with the voice of its Chief Engineer, Wilbur T. Golson, who officiated over those sessions. The DX broadcasts often featured call-ins, DX'ers mail-bag, DX'ers as guests in the studios, and music requests. Special QSL's were issued, along with souvenirs and prizes for reports arriving from distant points.

### Smart Weapons

What with Electronic Warfare (EW) being so prominent in the news this past year, we thought you might like to get in a time capsule and zip back to the mid-1930's and get some idea of the electronic weapons that were being worked on as WWII loomed on the horizon. Some ideas worked, others didn't seem to pan out.

They did foresee aircraft equipped with

TV cameras that could flash live pictures of combat zones back to headquarters. They felt that many aircraft and tanks could be unmanned drones, operated completely by radio control from great distances away. Inventors had plans for radio-controlled torpedoes and bombs. Some thought of the possibilities of radio-controlled robot infantry troops.

Although Marconi disowned any connection with the scheme, there was one proposed invention that wanted to capitalize on his discovery of the ability to concentrate and direct radio signals in a beam. That idea called for transmitting large amounts of radio energy at "decimeter" wavelengths in a tight beam. That beam could then be focused along a highway or at an aircraft in order to induce mechanical chaos. For instance, it could attack the ignition wiring and either upset the proper timing of the spark impulses to the engine cylinders, or perhaps burn out the coils.

Another device under development was the direction-finding "detector" that could locate moving objects in the dark or fog, and then aim and fire artillery at objects so located. Two systems were being tested, one with infra-red beams, the other with UHF radio signals. The infra-red idea depended upon heat impulses radiated from the moving object that could be detected at two



A 1936 DX special in progress at WJBO. At the controls is Wilbur Golson. Standing to the right are two visiting DX'ers, Sam Cashie, Jr., and A. V. Deterly.

points and, by triangulation, a fixed focal point could be determined.

The UHF system transmitted signals at the object, which were to be reflected back and picked up at two separate receiving points for triangulation. This idea, credited to the French, is what was refined into RADAR.

At the time, the caution for all such inventions was how well they would work under actual combat conditions, taking into account static and other accidental radio interference. The possibilities of enemy use of deliberate interference was also mentioned. Therefore, it became the general opinion that in order for EW to be effective and practical, such devices would have to be designed to reject interference that could ren-

der them useless. Coded control tone coding was one possible approach suggested. FM was thought to be another way of approaching this because it was said to be "interference-free radio."

### Information, Please!

We don't get many inquiries from Athens, Greece, so we were pleasantly surprised to hear from DX'er Aris Giannarelis asking for further information on two photos he sent along.

The first photo shows a vintage automobile sporting a loop antenna on its roof. Someone in the back seat is wearing headphones. Although it looks to us like an early taxi cab, Aris assures us that it's a photo of a

1923 police cruiser from New York City. He wants to know if we can tell him what frequencies were used by the NYPD in those days.

In those days, the NYPD operated station WLAW with voice on 833 kHz. The agency also had a CW station, KUVS, for communicating with ships on 600, 666, and 1000 kHz.

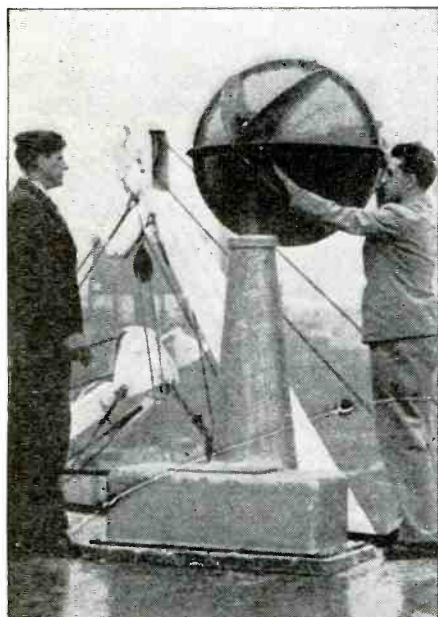
Additionally, Aris sent us a 1921 photo of the first coastal telegraph station in Greece, which he tells us was in the Athens suburb of Vari. He wonders if we can determine the call letters of this station. No problem; we traced it back as far as records of 1919 where it appears under the call letters SXA.

### Photo Update

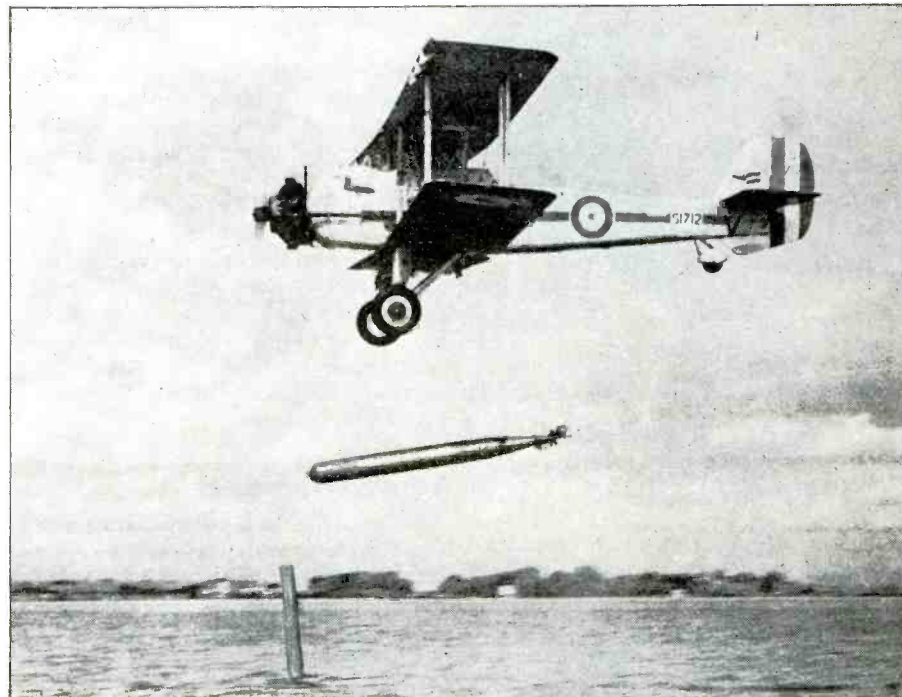
Last year we ran a feature here about Major Armstrong, inventor of FM radio, and the gigantic transmitting tower he constructed during the 1930's in Alpine, NJ to test his experimental FM stations, W2XEA and W2XMN.

Our description intrigued Mark J. Rosen, of Bronx, NY. That motivated Mark to drive over to Alpine (3 miles north of the George Washington Bridge) and take a look. Mark was pleased to see this magnificent and historic structure still dominating the landscape, and still in use! The tower is decked out with about one hundred and fifty repeater antennas, plus dozens of microwave dishes aimed in all directions.

Mark brought along his camera and snapped some photos for us to share with you. We appreciate Mark's efforts, and invite other readers to snap updated photos of any old radio scenes shown in these pages.



Early electronic warfare experiments included this 1935 French radio device that enabled the operator to detect obstacles or moving objects at night and determine their exact position.



Another 1935 electronic warfare test proved that a radio controlled pilotless drone aircraft could release a torpedo at a specific predetermined point (note marker in the water).



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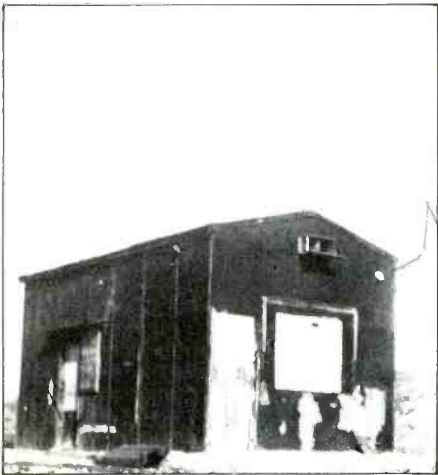
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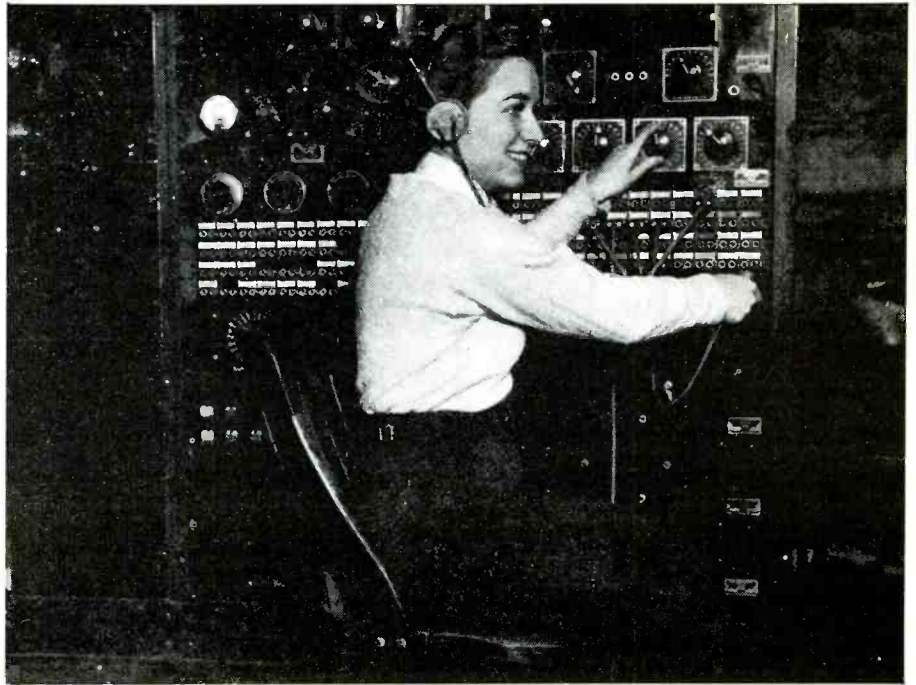
We would guess this as an early experiment in equipping a taxi cab with a radio, however Aris Giannarelis tells us it's a 1923 New York City police car.



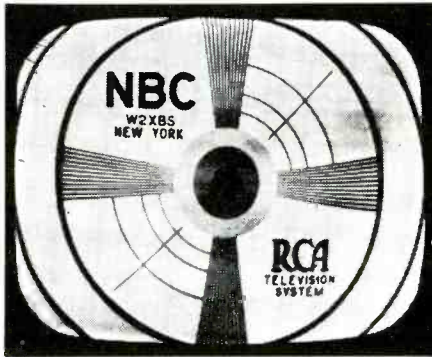
This is Greece's first coastal telegraph station, SXA. (Courtesy Aris Giannarelis, Athens, Greece.)



A 1991 look at the wonderful FM transmission tower built more than 50 years ago by Major Armstrong at Alpine, NJ. Today it is home to many repeater and microwave antennas. (Photo by Mark J. Rosen, NY.)



Master control at 1936 TV station W9XAL/W9XBY, in Kansas City, MO. That's Asst. Engineer Eleanor Thomas at the controls. She was 18 years old at the time, and the holder of an FCC First Class Phone ticket.



A 1946 TV test pattern after the FCC opened up the present TV channels. This one was from W2XBS, an NBC Experimental transmitter on Channel 4 in New York City.

### How About That Early TV?

To most folks, early TV means the 1940's. But, it's a fact that TV broadcasting is far older than that. In the early 1930's, TV was transmitted in the 2 MHz band, but by the mid-1930's stations were flexing their muscles on experimental frequencies above 30 MHz.

One station to run 1936 comparison tests between different frequency bands was in Kansas City, MO. This station, operated under Experimental Radio Service licenses W9XAL and W9XBY, was owned by First National Television, Inc. It was authorized for 500 watts of video, 150 watts of audio, on 2750 to 2850 kHz, 42.00 to 56.00 MHz, and 60.00 to 86.00 MHz.

An unusual feature of this station was that

the Assistant Engineer there was an 18-year old YL, Eleanor Thomas. Eleanor was the youngest YL, at the time, ever to have passed the FCC's First Class Phone license exam rating her eligible to operate any broadcast or TV station in the USA. We have a photo of her in the control room of W9XAL/W9XBY back in 1936.

Other 1936 TV stations authorized to test on 42 and 60 MHz were New York City's W2XAX (Atlantic Broadcasting Co., 50 w.), W2XF (NBC, 5 kW), and W2XDR (Radio Pictures, Inc., 500/1000 w.); Boston's W1XG (General Television Corp., 500 w.); Milwaukee's W9XD (Milwaukee Journal, 500 w.); Philadelphia's W3XE (Philco, 1.5 kW), and W3XEP (RCA, 30 kW); Jackson, MI's W8XAN (Sparks-Withington Co., 100 w.); Iowa City's W9XK (Univ. of IA, 100 w.), plus several portable units.

These experiments proved the use of frequencies above 30 MHz to be suitable for TV, and six channels were eventually established in the USA. This included TV Channel 1 (44 to 50 MHz), which was withdrawn before being put into use.

### Park It Here

The National Park Service runs a gigantic network of VHF and UHF comms stations for use within their facilities. Looking back to the formative years of this system, we find that in the mid-1930's the stations operated in the 2 MHz band, with frequencies such as 2496, 2520, 2600, and 2604 MHz being able to accommodate virtually all of the operations. These comms activities were primarily concerned with fire fighting, as base dispatchers were in contact with ranger





A 1938 National Park Service radio room. This one is KGYA/KGYB at Mount Rainier National Park and operated in the 2 MHz band.

posts, mobiles, and transportable units in the parks.

One extensive early NPS system was in the Great Smoky Mountains (NC/TN). In that system there were 33 transmitters in lookout towers, park headquarters, fire stations, etc. This system covered about 687 sq. miles of forest and mountain land.

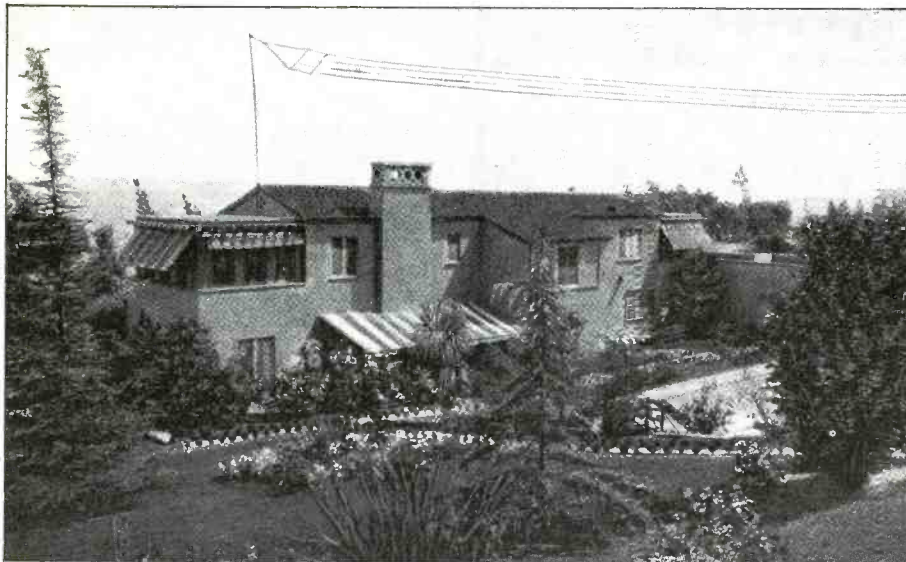
At Mount Rainier NP, a novel use of the park's radio system was used in conjunction with ski races. Sets were placed along the long race routes to check on the safety and positions of the race participants.

Typical callsigns: Mount Rainier NP was KGYA and KGYB; Glacier NP was KNIA; Yellowstone NP was KNJB; Rocky Moun-

tain NP was KNKP; and Yellowstone NP was KNKS and KNKU.

### Star Time

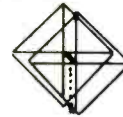
We always enjoy learning about those busy people in the public eye who share our hobby of relaxing by DX'ing, CB'ing, hamming, or listening to a scanner. Jackie Gleason was a scanner nut, and did you know that newsman Walter Cronkite and singer Don Osmond are licensed hams? Actor/director John Astin (the unforgettable Gomez Addams, of *The Addams Family*?) is a CB hobbyist, as is singer Gary U.S. Bonds. Some past/present noted personalities with



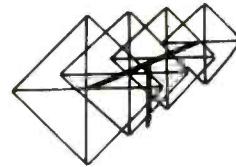
The home of silent movie star Wallace Reid displayed his interest in early wireless.

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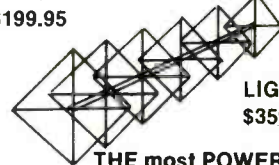


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ham tickets include Chet Atkins, Marlon Brando, Barry Goldwater, Jean Shepherd, Ronnie Milsap, Alvino Rey, Cliff Arquette ("Charlie Weaver"), Stu Gilliam, Howard Hughes, Arthur Godfrey, Bill Leonard, Gen. Lucius Clay, and one of the creators of radio's original *Amos n' Andy*. These are only a few, there are (and were) many others, including kings, presidents, astronauts and sports figures. Let's look at this going back a few decades.

One of the earliest celebrity DX'ers was someone that is all but completely forgotten today. That was actor, director, and screenwriter Wallace Reid (1891-1923). In Hollywood's silent film era, handsome Reid was a major force who made dozens of features and shorts. He was Paramount's leading star for several years.

Long before commercial radio broadcasting began in late 1921, Reid had a complete wireless receiving system installed at his beautiful home so that he could copy hams, coastal traffic with ships at sea, and also tune in the early experimental broadcasters.

Reid never lived to see radio come of age. In 1922, at only 32 years, he passed away after becoming addicted to morphine he was taking to relieve the pain resulting from a train accident in 1919.

Reid had been so famous that, even after his death, his home was still attracting sight-seeing tourists. A souvenir postcard we located shows this home, and is captioned, "Residence of the late Wallace Reid, Hollywood, California." At one end of the roof (photo left) there can be seen a mast supporting one side of Reid's extensive four-wire antenna system. The other end of the



John Astin (you've seen him in dozens of films and TV programs), looks on as a tech adjusts his mobile CB installation (about 1980).

antenna terminates at a mast at the extreme right side of the photo.

And let's not forget the highly publicized 1934 DX contest held between crooner Bing Crosby (1904-1977) and macho actor Richard Arlen (1899-1976). Each using a new deluxe McMurdo Silver *Masterpiece III* receiver, they set out to each log as many DX stations (5,000 miles or more) as they could within a one week time frame. Their combined total was 122 stations in 28 na-



Richard Arlen (left photo) and Bing Crosby (right photo) were two Hollywood personalities who dabbled in SWL'ing during the early 1930's.

*Bing Crosby*  
Hollywood

October 31, 1934

McMurdo Silver  
3352 N. Pauline Street  
Chicago, Ill.

Dear Mr. Silver,

In spite of certain claims to the contrary by manufacturers of other equipment, I want to assure you that the 109 foreign stations distant more than 5,000 miles recently logged in my shortwave competition with Richard Arlen were all tuned with your *Masterpiece III*, as were Arlen's. The set, a duplicate of the official receiver used by Admiral Byrd at the South Pole, was used exclusively in that contest.

Please accept my regrets for a misunderstanding beyond my control and my thanks for a thrill that comes once in a lifetime.

Sincerely,  
*Bing Crosby*

BC/cw

When rumors began circulating that Arlen and Crosby used different receivers than they had claimed, it got Bing's Irish up. He sent this letter to McMurdo Silver assuring him that they had, indeed, used *Masterpiece III* receivers.

tions. McMurdo Silver raved about this in his advertising.

The biggest flap came after the contest when the manufacturer of a rival receiver insinuated that both Arlen and Crosby had really used his sets, and not McMurdo Silver's receivers. Crosby's letter to Mr. Silver debunking this was a masterpiece. Those were the days.

### Color Us Gone Till August

That makes it "30" until the August issue. Thanks to those who have sent in photos, old QSL's, station listings, and other items for use here and in the archives. Everything is appreciated and most useful. We'll be looking forward to getting together with you next month. ■

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# NEW PRODUCTS

## REVIEW OF NEW AND INTERESTING PRODUCTS



### Five-Language Personal Translator

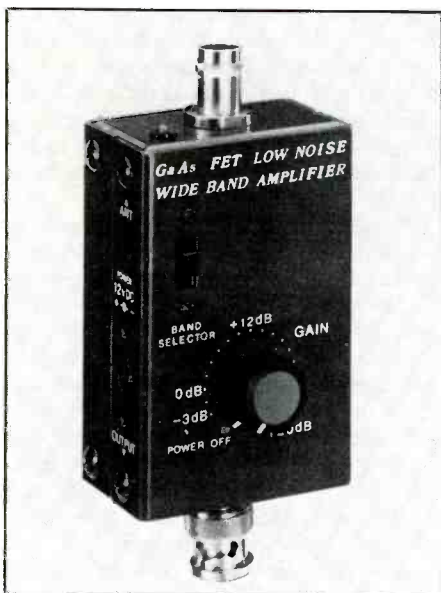
The Micronta® Five-Language Personal Translator (Cat. No. 63-683) is now available at over 7,000 Radio Shack® technology stores nationwide.

The pocket-sized device quickly provides translations for common words and phrases between English, French, German, Spanish and Italian.

It has a 20,000-word memory (4,000 for each language) and an easy-to-read LCD display that will handle up to 24 characters for sentence translation.

It also features a currency converter that can change U.S. dollars to any of three preset foreign currencies the user puts in memory, a clock showing the date and time in 128 cities around the world, and a ten-digit calculator.

The Micronta Five-Language Personal Translator sells for \$49.95 at all Radio Shack stores and participating dealers nationwide.



### New Receiver Pre-Amplifier

ACE Communications announced the introduction of a new adjustable gain receiver preamplifier. The unit covers the frequency range of 100 kHz to 1.3 GHz.

The new unit is extremely compact, mea-

suring 3" in height, 2" in width, and 1½" in depth. Amplifier gain continuously variable from -3 dB to +20 dB. The use of an advanced GaAs field effect transistor allows flat response over the entire coverage range. BNC connectors, plus an internal battery are used to facilitate versatility; the amplifier can even operate on handheld receivers.

The amplifier can improve the performance of test equipment, VHF/UHF communications receivers, plus "shortwave" receivers. A suggested retail price of \$89.00 has been set for the unit, designated GW-2.

For more information, contact: ACE Communications Monitor Division, 10707 East 106th, Indianapolis, IN 46256, or circle 102 on our Readers' Service.



### Rebroadcast Video Programs To Remote TVs

Midland International introduced video convenience to the home and office with a wireless video/audio rebroadcast system called POW-R-MAX VIDEO COMMANDER. The new accessory rebroadcasts programming from VCR's or virtually any video device with an audio-video jack to one or more remote TV locations up to 100 feet. The system comprises a small transmitter and one or more receiver units. Installation is easy. The video source is simply plugged into the transmitter unit and the receiver into a standard TV set (one receiver required per TV). VIDEO COMMANDER had hundreds of applications in homes, businesses, schools, restaurants—wherever remote or multiple video presentation is desired or needed. It may be used to rebroadcast signals from a VCR, satellite system, camcorder, monitor camera, or computer. In the home, children may watch a video tape in another room while their parents view something else. Or it can be used with a camcorder to monitor children playing in the yard or at sleep. The 72-400 utilizes a different broadcasting system than units previously announced. It eliminates the

need for fine-tuning systems. It also has special filtering to prevent interference in metropolitan areas—a potential source for interference and poor range. Its new transmission system delivers bright, bold picture and sound. In business offices, schools and restaurants, training films, presentations, educational materials or entertainment may be rebroadcast simultaneously from a single source to a multiple offices or classrooms. For complete information on Video COMMANDER, contact Midland International Corporation, Consumer Communications Division, 1690 N. Topping, Kansas City, MO 64120, or circle 103 on our Readers' Service.



### Radio Updated

For nearly a decade, the RH256 had been the communications workhorse for professionals in just about every business and industry imaginable. Now, the new improved RH256NB is ready to take its place.

The RH256NB retains its classic style and design integrity so former RH256 owners will immediately feel comfortable with the new radio. Redesigned volume and squelch controls and knobs are larger, easier to use and recessed for protection. Programming and operational functions remain the same.

The major changes in the RH256NB have been made inside the radio. The RH256 incorporates Track Tuning to cover an expanded 12 MHz frequency spread without re-tuning. The voltage control oscillator now incorporates Surface Mount Devices for improved stability. CTCSS is built in and programmable for 50 different tones on receive and transmit.

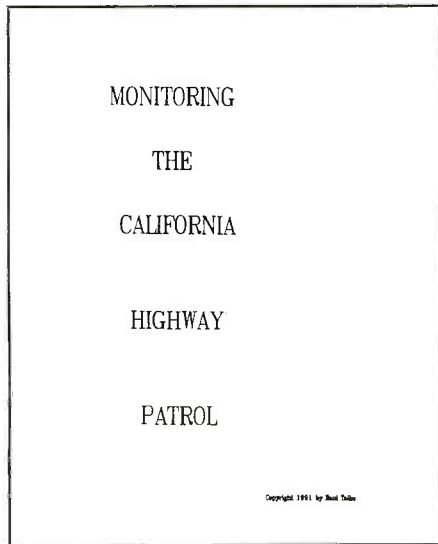
A large full function, backlit keyboard provides immediate access to any of the RH256NB's sixteen channels. Additional built-in features include scan, scan delay, priority channel, time-out-timer, low RF power output indicator, keypad beep, off-hook scan, off-hook to priority channel, power up on channel one (1), transmit carrier turn-off delay, and RELM's two year limited warranty.

For more information about the RH256NB or the name of your nearest authorized RELM Two-Way Dealer, contact RELM Communications, Inc., 7707 Records Street, Indianapolis, IN 46226, or circle 104 on our Readers' Service.

## California, Here I Come!

It has seemed to me that California has always had one of the highest per-capita concentrations of communications enthusiasts. Scanner fans are no exception, and frequency guides covering listings in the state have always been popular, even with people who don't live in California.

Not long ago we reviewed an excellent book about the California Highway Patrol. The only complaint we had was that the



book didn't contain any specific information on CHP comms frequencies or stations. Inasmuch as the CHP is a large, efficient, and high-profile law enforcement organization, it has always been the focus of scanner users. That's why we felt this information should have been included to round out the book.

After our review appeared, we received a letter from Raul Taibo, a California scanner enthusiast who agreed with our observations and told us to wait because he was in the process of putting together a book entitled *Monitoring the California Highway Patrol*. He told us we would receive a copy.

Raul's book is now upon us, and it's most informative. This isn't anything fancy, mind you. It's about 70 single-sided sheets, double space typed, no illustrations or photos, no fancy cover, and it's bound by three staples. But the information is there, and we thought it was well done.

The book covers beat assignments, geographical coverage, frequency coverage, channel listings (by area), scanning tips, CHP codes, and an explanation of CHP dispatching techniques. It looks to us as if Raul gives his topic an extremely thorough treatment, and explains the highly complex CHP comms system in a coherent and easi-

ly understandable manner. It's the most in-depth examination of this system we have yet come across.

*Monitoring The California Highway Patrol* is \$8.95 per copy. It is published by Raul Taibo, 448 Ignacio Blvd., Suite 172, Novato, CA 94949.

## Code Stuff

We live in the information age. Information is bought, sold, swapped, and stolen, just like any other commodity. Spies sell military secrets. Businesses are victims of corporate espionage. Grungy tabloids pay huge sums for intimate details of celebrities' lives.

Businesses and private individuals are fighting back with every means at their disposal, but locked doors, armed guards, and computer passwords still can't protect everything. Another weapon, popularly used by governments the world over: codes.

*Code Making and Code Breaking*, by Jack Luger, is a practical, illustrated guide to building and breaking codes. In its 121 pages, you'll learn how to construct codes from the simple to the complex. Learn about using computers and other devices in code making and code breaking. Learn why the most unbreakable code isn't necessarily the best code.

The book covers substitution ciphers, electro-mechanical ciphers, transposition ciphers, quasi-cryptosystems, communication security, code-breaking, and more. Samples and examples are provided so that the reader can practice the methods explained. There are numerous photos, illus-

trations, and code charts to supplement the well-written text.

You may not be a government, or even a company. That doesn't mean you might not have information you'd rather restrict from casual or deliberate inspection by others. This could, for instance, include names, addresses, telephone numbers, financial records, radio frequencies, surveillance logs, serial numbers, appointments, inventions, plans, diaries, combinations to safes, account numbers, and many other things. *Code Making and Code Breaking* is the type of book that will give you effective ideas on doing this. Also, it will help you unravel codes used by others who are trying to prevent you from reading their stuff.

Lots of clever ideas are in this book. We have seen some crypto books that are so advanced and complicated that nothing would make sense to persons with anything less than a math degree from an Ivy League university. No problems like that here. It's very easy to understand, and very interesting.

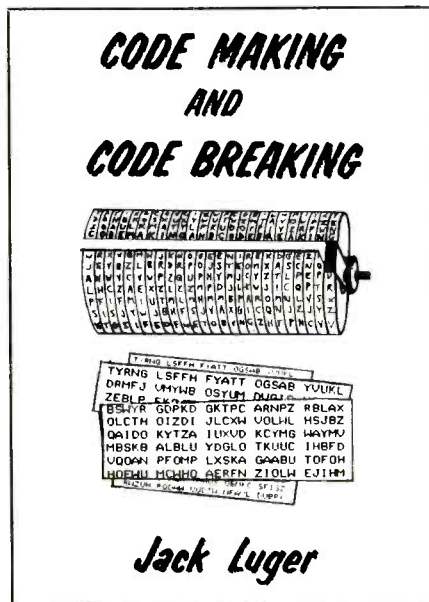
*Code Making And Code Breaking*, by Jack Luger, is \$10.95, plus \$3 shipping, from Loompanics Unlimited, P.O. Box 1197, Port Townsend, WA 98368. Residents of WA State please add 85¢ sales tax.

## Electronic Warfare Handbook

Electronic warfare (EW) is, briefly, the use of radio to support combat missions by disrupting enemy communications, navigation, guidance, and weapons systems. The concept is almost as old as radio itself, but recent hostilities in the Persian Gulf area have given the public some hint as to just how sharp a cutting edge modern technology has honed to these weapons.

*The Electronic Warfare Handbook* presents an introduction to EW, the philosophy behind it, and specific information on how it's conducted. Included are chapters on EW resources; EW planning; CW coordination and control; electronic counter-countermeasures (ECCM) techniques; EW reports; EW's use in amphibious operations; electronic threat; jamming; electronic deception techniques; communication ECCM training; frequency band designations, and much more, including an excellent EW glossary, plus reference book list.

This is the information on what EW is all about, and how today it's just as vital a weapon of war as a Guided Missile Destroyer, an F-117A Stealth fighter, or a heavy tank. Its use, in fact, is deftly coordinated with the activities of all military services in order to help render enemy weapons systems and comms ineffective or totally use-



# THE ELECTRONIC WARFARE HANDBOOK

less. But it's a lot more than blindly sending out a lot of radio noise and garbage.

It has become a high form of military science, creating signals that deceive and confuse the enemy and cause his equipment to work against him. It allows a barrage of broad spectrum radar jamming to be done, while not interfering with our own radar systems. It offers methods of defeating the enemy's best methods of avoiding or even counteracting our EW efforts.

Still, EW operations are used only at certain times, and very selectively, for their maximum impact. The whole philosophy of how, when, where, and why EW is to be used is, in itself, a fascinating concept that incorporates many factors that wouldn't occur to you. Well, not unless someone explained it in detail.

Explaining it all in detail is what the *Electronic Warfare Handbook* does. This is not a heavy technical tome, it's written so that the average person can easily understand the topic. When you read it, you'll probably be able to take a few good guesses as to why the Iraqi Air Force never left the ground, why Iraq's surface-to-air missiles were mostly ineffective, why Saddam had trouble chatting with his tank commanders, and so many other things about the war that were never really explained in the mass media. Now it will first begin to make sense to you!

A very absorbing book, as current as the network TV news, but far more revealing as it explains the techniques used by the electronic warriors.

The *Electronic Warfare Handbook* is \$15.95, plus \$3.50 shipping to addresses in North America, from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725. Residents of NY State please add \$1.20 sales tax.

## It Really Is A Wonderful World

The *Wonderful World of Ham Radio*, by Richard Skolnik, KB4LCS, is a new 38-

page illustrated book that is intended as an introduction to the hobby for young people. Filled with photos, exciting insights into the hobby, and all sorts of other imagination stimulating features, here's a fine book to give to any youngster who you think would enjoy hamming.

Mind you, this isn't some childish "Billy and Jane Learn About Ham Radio From Mr. Calkins" nonsense. It's a real book, well written, and intended to inform an intelligent young person, and head that youngster down the road towards a ham ticket. It's probably best suited to readers between about 11 and 18, but maybe even younger for a kid who happens to be very sharp. Skolnik has done a fine job with his book.

Unfortunately, school and public libraries have very little about ham radio that would interest young people. The last time I checked my nearest public library, the newest (and only) book they had was so old it

## THE WONDERFUL WORLD OF HAM RADIO

*An introduction for young people*



Richard Skolnik  
KB4LCS

was yellowing, and the photos showed a kid using an ancient Johnson Viking Ranger II, and a National receiver. Anybody looking at that book today would think twice about pursuing the matter further.

This book should remedy this type of problem, which appears to be common. If you know a youngster who would be an asset to hamming, this is a very worthwhile book to present as a gift. Or, you might wish to get several copies, then donate a copy to each of your local public libraries, as well as libraries in local schools for grades 6-12.

The book is \$7.95. It's available from MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762.

## In Addition . . .

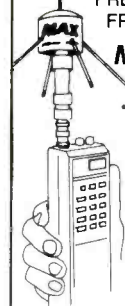
Gates Energy Products, which has long made the rechargeable battery packs that come in leading power tools, has recently entered the consumer market with rechargeable nickel-cadmium batteries under the brand name Millennium Power System.

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Power Rating:  
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Height: 10 Feet  
Weight: 8.0 Lbs  
Materials: Anodized  
6063T-6 Aircraft  
Aluminum Tubing  
Requires 1 Coaxial Cable  
for Hook-up

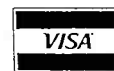
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Horizontal - 17 Times  
Vertical - 15 Times  
Horz. to Vert. Separation:  
20-25 DB  
Power Rating:  
2000 CW, 4000 PEP  
Height: 11 Feet  
Weight: 10 Lbs.  
Materials: Anodized  
6063T-6 Aircraft  
Aluminum Tubing  
Requires 2 Separate Coaxial  
Cables for Hook-up



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**DEALER INQUIRIES, PLEASE CALL**

The company has produced two excellent and informative books relating to batteries. The book *An Introduction To Batteries* is illustrated and explains the essential elements of the various types of batteries and their applications, along with a glossary of battery terms. Another section shows the reader how to create a simple household battery from common household items.

The second book is called *Taking Charge*. It's a colorful, lavish, and beautiful looking publication that explains the many

advantages and cost savings to be achieved by the use of rechargeable batteries compared to disposables. It's very informative, and if you use batteries in your radios, cameras, tape machines, or other items around your home, office, or shop, this book will give you some things to think about.

*Taking Charge* is \$3.95, the other book is free. *Taking Charge* may be obtained by phone by calling (toll free) 1-(800)-CAN-POWER. The back of the *Taking Charge* book has \$15 worth of rebate coupons for

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\*RADIO\*101\* presents

## The Newcomer's Guide To \*Radio\*Talk\*

by Larry Ledlow, Jr.



### Shortwave Radio

It's a wonderful hobby! You can literally travel the world from your armchair. You can keep up with current events, study new cultures, and even learn a new language. Even if you have no interest in learning, say, Japanese, French, or German, you must acquire a certain new vocabulary to make the most of your newfound hobby.

A friend wrote to me a few weeks ago: "I was tuning down around 90 meters looking for some tropical SWDX and sites. QRM and QSB were very bad, as 0840 UTC I heard a SS YL numbers callup, SINPO 2222. Cut a tape, but QRM from RTTY (850/75R) zero wa 2 kHz up made it almost uncatchable." See what I mean?

\*Radio\*Talk\*, as we'll call it, can easily intimidate you if you let it. All other hobbies have developed specialized jargon, and shortwave listening (SWLing) is no different. The vocabulary of radio may seem overwhelming at first, but not easy. Herein we'll tour the SW listener's world and equip you with a basic understanding of the language used to describe his or her tools, techniques, and results.



### What is It, Anyway?

Radio signals, heat (infrared), visible light, ultraviolet radiation, x-rays, and gamma rays make up the electromagnetic spectrum, and they differ only in wavelength (or frequency). Imagine throwing a pebble into a still pond. Waves radiate outward from where the stone entered the water. Each type of radiation just mentioned moves outward from its source in a similar manner, except the "waves" are really changing strengths and directions of the electric and magnetic field components of the signal. (Figure 2) The number of complete changes, or cycles, per second is the signal's frequency, and the distance between peaks or troughs in the signal is wavelength. Frequency units are usually in Hertz (Hz), after a 19th century scientist named Heinrich Hertz who

Millennium products. *Introduction to Batteries* is available by calling 1-(800)-67-POWER.

The Pittsburgh (PA) Area Frequency Database is a new scanner aid for computer owners. It covers police, fire, medical, and business radio users in the counties of Allegheny, Beaver, and Washington, PA. It is available on 5.25-inch floppies in the following three formats for IBM PC compatibles: (1) Buttonware PC-File + Version 3.0 (PC-File 5.0 or greater not supported); (2) ASCII Delimited; and (3) Ashton-Tate dBASE III + Compatible. No other formats or 3.5-inch diskettes are presently available. It is available by mail order for \$38.00 (includes shipping and tax) with payment by check or money order from R. E. Christian, P.O. Box 12763, Pittsburgh, PA 15241-0763. Please be certain to specify the format you want sent to you.

Universal Radio's new illustrated catalog showed up here and it's 92-pages of great communications stuff, including all types of new receivers, antennas, ham gear, scanners, FAX and RTTY receiving terminals, and just about any kind of accessory you could ever want around a radio room. It's free on request by 4th Class Mail, or \$1 by First Class Mail. Request it from: Universal Radio, 1280 Drive, Reynoldsburg, OH 43068.

Here's just the thing for beginners who would like to get an effective crash-course on certain aspects of the monitoring hobby. It's called the *Radio 101* series of booklets. These are inexpensive (\$3.95 each), well written, illustrated, and very informative 12-page publications for the newcomer. We saw four of them, *The Newcomer's Guide to Radio Talk*; *How To Select A Shortwave Receiver*; *The Jolly Roger Flies Again: A Pirate Radio Primer*; and *An Antenna Primer*. They looked good to us, and we think they serve a useful purpose. More titles in this series are on the way. They're from Moon-Beam Press, P.O. Box 149, Briarcliff Manor, NY 10510.

# Take A Scanner Safari

## Oongawa! Let's Go Hunting For Big DX Game As We Explore The Corners Of The World!

BY CHUCK ROBERTSON

**T**arzan knew the value of communications. One well-modulated yodel and everybody in the jungle for miles around knew he was calling CQ. In the real world it takes a microphone, a transmitter, and a patch of the electromagnetic spectrum. To know your way through this jungle, you need a Scanner Safari Guide. That's me, B'wana!

Let's stalk rare and elusive skip signals. Let's hunt down those wild things until the capture. So, load up the Land Rover, grab your scanner, and we'll head into some of the deepest, darkest, areas of the scanner spectrum.

### Tanks For The Memories

*Desert Storm* lived up to its name. It blew through like a tornado. The peak activity came and went in only a few weeks, but those who were searching for it on their scanners got an earful as Allied Forces made

their very bold statement in land, air, and sea action.

Early on, Marl Knowlton, Palm Bay, FL, was tuned to 30.60 and 36.45 MHz as he monitored endless waves of B-52's carpet bombing Iraqi Republican Guard positions. USN fighters with ID's like *Cliff* and *Eagle* were logged on 34.95 MHz. AWACS electronic surveillance aircraft were on 32.30 MHz contacting fighters, although some of it was scrambled.

Max van Arnhem, in the Netherlands, heard lots of US mil skip from the war zone. He was tuned to 39.15 MHz when he heard a SCUD alert.

My own monitoring, in IL, produced war zone skip daily from dawn to mid-morning. I erected a three half-wave dipole antenna cut for 30 MHz especially for bringing in these signals. I was ready when the land war began.

I heard the first US convoy enroute to Ku-

wait City operating on 31.30 MHz. *Mad Max* called *Road Warrior* to say that his driver needed a rest. They decided to pull over and cover him when the switch of drivers was made. Other ID's in the convoy were *Lawman*, *Engineer 1*, *Guardian 6*, and *Chase 24*.

The USS Missouri was noted on 38.80 MHz. *Fort Sumter* (USS Sumter?) and *Texas Jake* (USS Texas?) were frequently heard on 34.45 MHz. On 33.65 MHz came the warning, "F-15, are you aware that artillery is falling around you?"

The last major action of the war was near Basra, Iraq. Ground forces on the move were monitored on 30.85 MHz as they said they were moving down the mountain into the riverbed by the Basra overpass.

Tanks were heard on 30.70 MHz. One was overheard to say, "Let's continue to move forward 1,000 meters at a time."

The war is over, but the US presence in

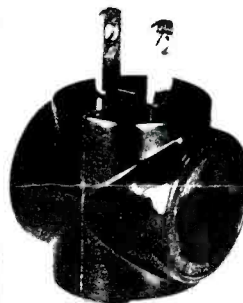


- ◆ *The Allied military presence in the Persian Gulf area will continue for a while, so keep checking all frequencies discovered as active during Desert Storm. (US Army photo by Sgt. Robert L. Reeve, US Army Cmbt. Pict. Det.)*

*This is the fanciest cube tap you've ever seen, or heard! It's actually a professional surveillance device that transmits on any frequency selected in the 72 to 91 MHz range. It picks up every sound in a room and transmits these sounds up to a block and a half. You can hear it all on your scanner!*

### CUBE TAP WIRELESS FM MICROPHONE

110 VOLTS AC



The Cube Tap Wireless Microphone Model 110 operates on 110 volts AC or DC. No batteries are required in this transmitter, therefore when it is inserted into a wall outlet the unit will transmit indefinitely. Another feature is, the receptacle that is opposite the prongs of the cube tap is alive and can receive a plug without affecting the operation of the transmitter. If for example, there is a lamp plugged into a wall outlet, it can be removed, the Cube Tap Wireless Microphone inserted into the outlet and the lamp plugged into the Cube Tap Wireless Microphone.

This transmitter is designed so the building's wiring serves as the antenna, making it possible to receive the signal direct—if in the same building—with a line cord antenna radio, or outside of the building in the conventional manner.

Frequency tuning range of the transmitter is from 72 to 91 MCs so the unit can operate in the more private 72 to 76 MC band, or on the low end of the standard FM band from 88 to 91 MCs. Transmitting distances vary and are governed by conditions at hand, making the range from ½ to 1½ blocks. The high sensitivity of the microphone permits a pickup of normal speech up to 35 feet in a relatively quiet room. Instructions are included. This transmitter is intended for use in areas where it does not conflict with local regulations.

the Persian Gulf will remain in evidence for a while longer. This fall, when F-2 layer long-haul skip returns, it will be worth checking these frequencies again.

## Far East DX

Last winter, I was surprised when my scanner stopped on 32.35 and 34.60 MHz to bring me the sounds of Japanese military comms. These signals were in WBFM mode, and were the first low band Japanese mil signals I'd ever picked up.

Where were the stations located? What were they doing? Although I couldn't understand the language, I could make some deductions based upon the propagation patterns. The stations were heard from mid-morning to early evening. That meant they were probably coming from somewhere between Hawaii and the US west coast. Had

the skip been from Japan, the stations wouldn't have been heard at my location until late afternoon.

A secondary clue came through from a Control Observer at Ft. Irwin National Training Center, CA. On 32.10 MHz (Channel 1) *Scorpion I* was having a radio problem. He jokingly remarked about it to another station, saying something like, "This set was made in Japan, so maybe I ought to ask one of these guys here to take look at it."

The very next day, *Scorpion I* was on the air mentioning preparations for "the Israelite Task Force." So it looks as though Fort Irwin hosts troops from other nations as well as Americans.

## Eavesdropping on 76 MHz

In the September '90 POP'COMM, I presented an in-depth look at the 72 to 76

MHz VHF mid-band. That feature brought in several interesting letters, including a catalog featuring WBFM electronic spy equipment operating in this "little used" band.

Other models in the catalog utilized the following bands: 34 to 50 MHz, 145 to 180 MHz, 160 to 240 MHz, and 235 to 305 MHz. In fact, for a long time monitors in the USA and Canada have reported surveillance ops and wireless mics in the 72 to 76 MHz band. They were right. It appears to be a haven for such purposes by federal agencies throughout North America, plus local agencies, as well as private investigators, and individuals seeking to snoop on neighbors and spouses. You might wish to keep the 72 to 76 MHz band in mind the next time you wish to explore.

## Wireless Mic Developments

Wireless mics have gotten so popular in

### Low Band Skip Log

AA= Arabic; EE= English; GG= German; SS= Spanish; FF= French; RR= Russian; PP= Portuguese; TD MUX= Time Domain Multiplexing; WBFM= Wideband FM; NBFM= Narrowband FM; AM= Amplitude Modulation.

25.35, 25.75, 26.85, 26.90: US a/c on bombing runs during Desert Storm; WBFM.  
 27.575: Kentucky Dam, standby freq., AM.  
 29.80: SS voice pager, AM.  
 29.80, 29.82, 29.87: FF, NBFM.  
 29.875: US fishing vessel outbanders, Alaska(?).  
 29.89: Outbander vessels, AM.  
 29.90: 3 US outbander fishing vessels in San Pedro area discussing going to Alaska. AM mode. Also Soviet mil ops here, WBFM clear voice RR. US mil Desert Storm tanks here in WBFM, also on 30.30 & 30.70.  
 29.91: "1 to 2. Go to Command Net," WBFM, USN? Also an SS business station calling Santa Rosa in AM. Plus an AM SS radiophone, mentioned Santa Lima.  
 29.925, 36.24, 38.525, 39.625, 39.70, 39.80: SS radiophones, NBFM.  
 29.95: SS station calling Santa Clara; AM.  
 29.98: SS pager, voice + 2 tones, AM.  
 30.00, 30.15, 30.45, 31.20, 31.25, 31.50, 32.20, 32.20, 32.65, 32.70, 32.90, 33.80, 34.15, 34.20, 34.40, 34.40, 36.05, 37.00: Soviet mil, clear voice RR. Monitors report a significant increase in Soviet mil comms of late. Because of internal problems in USSR?  
 30.00: US business radio ops on business freq. "Did you get any sales? I've got to lock up." OM & YL.  
 30.03: US mil a/c maintenance comms.  
 30.15, 31.95, 32.85, 33.05: USAF in UK, NBFM.  
 30.20, 30.30, 30.40, 30.85, 32.05, 32.35, 32.40, 33.55: FF mil, in mid-east.  
 30.25: "One bridge destroyed!" Desert Storm.  
 30.30: US mil Desert Storm tanks, "We're turning our turret...we're gonna fire the main gun."  
 30.335: Radiophone, Jamaica.  
 30.45: US mil a/c in USA "Kansas 13," at "Gunsite." Also here RSA mil in Afrikaans.  
 30.50: Ameremb security in UK, "I need the license number of the white Saab." ID'd as "Three."  
 30.55: US mil, Desert Storm "Op 2."  
 30.60: UK mil, Desert Storm, K-10-B announcing, "Confirm direct fire." Other similar ops on 30.80, 31.10, 32.70, 34.80, & 36.05.  
 30.70: Radiophone, in Italian.  
 30.75: UK mil, Alpha 71.  
 30.825: Radiophone, Oriental. Intercepted late afternoon in Illinois.

30.825, 32.0125, 32.2375, 32.30, 32.325, 32.4375, 32.7125, 32.75, 32.80, 33.1375, 33.60, 33.80, 33.9625, 37.125, 38.75, 40.325: Soviet mil TD MUX nets.

30.85: Desert Storm "Cobra 6" (101st Airborne), "We're on the move. We're gonna do it." Also here, "1st Squad, this is Squad Lead. If happy, click mic." Talk of Basra, Iraq.

30.95: Desert Storm: "I'll take your request for Porta Potties to the Puzzle Palace. You know how that goes." Porta Potty may well be a coded reference to something other than what it seems to be. Also here USAF in UK, NBFM stas Rifle & Seacross Runway. "Pull him onto the taxi way."

31.00: Phone patch, Alaska with talk of a registered guide who sold someone a boat motor that didn't work. Also here 2 separate fast food windows, probably in CA. One is a KFC, the other sells tacos.

31.05: US mil, Desert Storm, Red 1, Black 6 Golf.  
 31.10: Outbanders, one was the "Taco King." Also here & 31.25 FF mil, may be French Guyana. This freq also had UK mil stas V-31 & I-31.

31.18, 31.22, 31.26, 31.34, 31.38, 31.40, 31.48, 31.52, 31.56, 31.60, 31.64: Heard late afternoon & early eves in IL. May be Korean business radios.

31.10, 33.10, 33.25, 33.40, 33.85, 39.10: AA stas.  
 31.20, 31.70, 32.05, 32.45, 38.75: AA mil ops.  
 31.25, 32.65: USAF in UK, NBFM.

31.30: US Desert Storm, clear & scrambled, "I need a translator. I can't understand what he's saying." Also here, Camp Roberts, CA with helo & tower.

31.34: TX State conservation police, "All I hear on this radio is Portuguese. Maybe it's the Iraqis."

31.35, 31.95, 32.05, 32.15, 32.40, 32.70, 33.05, 33.40: GG mil ops.

31.40: Desert Storm sta CM-4, "We can't move. Do you copy?"

31.48: Gulf Fleet Marine vessel Gulf Commander reporting leaving Maracaibo, Venezuela.

31.50: Desert Storm: "Fire for effect." "3-T-80, I just fired." Nonstop arty firing comms for several weeks. Also a SITREP (Situation Report) re the advance going well. Also here phone-in pager complete with DTMF dialing tones. Same noted on 31.525. Sounds like some sort of US overseas operation. Noted late in day in IL. Any ideas?

31.60: Desert Storm: "The tanks are coming fast. They're spread out and coming fast."

31.70: US mil stas Black Diamond & Monkey Ranch.

31.85, 31.90: Jamaican business radios.

31.95: Desert Storm: "How many TOW's did the front line order?...We need Atlases...What are you hauling your injured in?"

32.05: US mil sta Poker Tango Juliet: "There are 2 hornets out there."

32.10: Desert Storm arty ops: "Identify target. How far away?" Also USN sta Hamilton Kilo 1 here & on



the entertainment business that new frequency space has had to have been allocated for their use. The professional model wireless mics used to mostly operate on frequencies between 174 and 216 MHz (TV Channels 7 to 13). Those frequencies began getting too crowded in metro areas. It alarmed audiences when one channel of a multi-channel rock band wireless mike system would suddenly emerge from the sound system of the fashion show around the corner from the theatre.

Now the FCC permits wireless mics to share space with all TV channels. That means: 54 to 72 MHz, 76 to 88 MHz, 174 to 216 MHz, 470 to 608 MHz, and 614 to 806 MHz. High fidelity wireless mics use WBFM mode, and are supposed to use 200 kHz channel spacing. Look for them on even numbered frequencies, such as 76.20, 76.40, etc., or 795.60, 795.80, etc.

Channels designated for NBFM mode are spaced at 25 kHz steps. These are primarily cueing devices, remote control, voice comms for studio/stage techs and personnel, stage hands, prop handlers, camera operators, directors, and similar. Look for channels such as 76.025, 76.050, and so on.

Power is supposed to be limited to 50 milliwatts on VHF, or 250 milliwatts on UHF. However, we saw one wireless mic listed with 500 milliwatt (1/2-watt) specs, so maybe the rules aren't being strongly enforced.

In any given area, the heaviest used frequencies for wireless mic operations will be where no interference is to be expected from local TV station operations on those channels. In most cities that may mean 614 to 806 MHz; a portion of the spectrum covered by only a few receivers, like the ICOM R-7000.

Wireless mic users now include actors, musicians, comics, singers, night clubs, theatres, arenas, sports teams, TV and film productions, churches, educational institutions, and many others.

## Into The Jungle!

Those are some of the caves where you can begin your hunt. From this point, your guide leaves you on your own to venture forth into the wilds. I'll give you a list of some recent scanner DX loggings that you can use for inspiration and as a hunting aid.

Right now the 72 to 76 MHz band is great for Sporadic-E propagation. Mid-morning and early evening hours are particularly good. This time of year you can also get tropo skip in the VHF and UHF bands. Best bets are morning and night hours.

Your comments and loggings are always welcomed. Write to me at POP'COMM.

30.45 with "Come back alongside and pick up your passengers." Also heard here were Controller Observers at Ft. Irwin, CA: The Israeli Defense Force 06 is supposed to be out here."

32.20: Desert Storm arty or missile ops announcing time of firing, range bearings, etc. Also noted here & 34.65 Desert Storm EPW transport stas Rhubarb, Mallard, Straight Jacket.

32.25: Desert Storm USN comms re bridge-to-bridge ops on Channel 8. Also here & on 32.40, 32.80, 34.90 were Israeli mil comms.

32.30: Baghdad calling Basra in AA via repeater here. Later switched to RR!

32.35: US mil a/c, "Sidekick 1, no joy." Another US mil heard with, "You'll be encountering a T-72." Here & on 30.30 heard Motherload announcing pulling into FTC landing. Apparent US mil transportation.

32.40: Continuous stream of training commands to tank operators, "You're going to have to start driving this ship for yourself-- turn left, low gear. Driver Tiger 2."

32.45: "Have lift balloons ready to remove items." Referred to Mountain Time Zone, TX accents. Desert Storm skip brought in Alpha 41 Convoy Commander to X-31, "Move the weapons to my position."

32.475: UK mil sta "Charlie."

32.60: Desert Storm US tanks. Also arty, "Target is dug in with overhead protection...Ready, 29?...Fire!"

33.15: Desert Storm. Dozers moving sand berms.

33.46: Fire Dept., Maceira, Portugal in PP.

33.70: SS pager, 2 tones & voice, Guadalajara, Mexico.

33.85: USAF in UK, "C185 has an engine shutdown. Will be landing Runway 29." NBFM.

34.00, 34.20, 34.25, 34.50, 34.70: Korean mil.

34.10: USAF in UK: "Smoke report in Zone 140. Fire Department, respond."

34.11: MILES (Multiple Integrated Laser Engagement System) Contact Teams, Ft. Irwin, CA. NBFM. "I'll be on Channel 4, Mo-Comm."

34.25: US mil in clear & DES scrambler, Magnum 01. Also possible US mil in UK in NBFM, "Unit 1, Unit 7, I'm going to take a look at the marsh."

34.30: USCG TAC-3 freq for cutters & a/c around FL. TAC-4 is 34.85. Hot stuff! What are freqs of TAC-1 & TAC-2? See 34.45 logging.

34.45: Anti-smuggling ops: "There's one individual hiding in the skin of the ship with a weapon...Boarding party has comms with Juliet...They have the detainee. You might want to send someone to assist." Also Desert Storm USN ops here.

34.60: US mil a/c, possible Ft. Campbell helos enroute Tinker AFB. Asked about weather for Scott & Tinker AFB's. Mentioned 319.0 MHz UHF. Also a Turkish repeater out here, too.

34.81: St. Louis Zoo ops here.

34.85: USN TAC-1, "Man overboard has been recovered."

35.04: A Mexican station often heard here giving US business radios a hard time, shooting skip, & being a general pain. "Do you copy me, station in the States? This is a USAF frequency...etc." Also west coast Canadian fishing vessels bootlegging here & on 31.98. One vessel in clear voice, the other in odd scramble.

36.60: US mil: Lucky 7 Ops, & 770.

36.70: Rattlesnake 326 at Yakima Firing Center, WA. 36.775, 37.675, 37.875, 38.575; 39.925: Soviet Gov't ops, NBFM.

36.80, 37.25: FF mil.

37.00: Trucker outbander, NBFM: "We got the hammer down. See ya' later."

37.20: Repeater out (34.20 in) at Friendship Farm, a shopping center in Ocho Rios.

37.75: US mil "Throw some more sand in there. It needs to be shallower for the tanks."

38.00: Repeater out, in Hebrew. Israel.

38.02: Canadian logging ops near Turner Valley, AB

38.10: Illegal business radio, US southwest.

38.25: US mil "Dog 6, Duty 6. Duty 2 shot a vehicle under a cammo net."

38.30: Desert Storm: "Don't worry about the planes"

38.325: Repeater out (35.325 in), Jamaica.

38.60, 39.62: GG stations.

38.65, 38.70: Asian stations with numbers. Pakistan?

38.75: US mil: "Code name, Maltese."

38.775: RR with alerting tone. Non-mil.

38.80: Repeater out (39.20 in). Foreign sta repeats

RR skip & US police.

39.60: US mil training: Team Kilo, Team Oscar, Team Sierra.

39.90: US mil guards: "Guard house, this is ASP-COR."

40.10: Repeater out, USN MARS, voice & RTTY. Mentioned Miramar NAS, CA. Also here are comms in Farsi with beep at end of each xmsn. Iran.

40.79: Repeater out, maybe USN fire ops in CA, NBFM: Chief Miner.

40.95: SS paging at a hotel, including instructions for room service.

41.00: Farsi radiophone or repeater. Iran.

41.00, 45.00: Dutch mil.

41.71: Radiophone in mixed Hebrew & EE.

41.75: "Retrans Aircraft, this is Show Me Alpha.

Going to 41.65 MHz."

42.80: EE, mentioned Singapore.

43.00, 43.50, 43.58: FF comms.

44.15: Farsi, sounded like reading a communique. Iran was mentioned often.

44.39: Trinidad: "Richmond, come in to Lowland."

44.80: Desert Storm, a/c planning a bombing run, "I've got all the players." Also on 32.30.

45.39: Chinese comms?

## FOCUS ON FREE RADIO BROADCASTING

**H**ope Radio International remains the most active of recent pirates. Joshua Wilkes of Kentucky had them on 7412 at 0300 with announcers "M.J." and "Jus Disgustin'". Skip Harwood in California had them at 0310 on 7425, 0400 on 7410 and 0300 on 7412, all with rock music, commercials for the ACE club and t-shirts. In Illinois, William Hassig had them on 7412 from 0155 tune in, using an interval signal of repeated guitar chords, then a program of Canadian rock. Matthew Mulligan in Ontario found them on 7413 at 0115. Pat Murphy in Virginia had this one at 0110 on 7415 giving the Blue Ridge Summit address.

Pat had **Radio USA** at 0200 with Mr. Blue Sky, skits, and the P.O. Box 452, Wellsville, NY address.

**KUSA - Radio Wisconsin** was heard by Mulligan at 0440 on 7415 saying they were working on getting a QSL address. He heard them later announcing 6210, 11535, 15735, 21870 and 25970. Dan Alexander of Pennsylvania found them on 7415 to 0530 close with heavy metal and classic rock, announcing 100 watts. They were on 5415 USB when Harwood heard them at 0420. Wilkes had them on 7415 at 0410 with a later change to 6210. R.D. Reid in British Columbia also had the station, at 0500 on 7419.9 to 0518 sign off, opening again at 0522 on 6210 with greetings to the UK. Jerry Coatsworth of Ontario found them at 1620 on 7415 announcing 25840 was for the Mideast, 6210 the world service, and 7415 for North America. This station was shut down by the FCC.

**The Voice of Anarchy** was logged by Hassig, Illinois on 7411 at 0016 with a spoof on a numbers transmission. Later at 0110 on 7413 with 60's anti-war songs. Wilkes says this one is reported to be in the Chicago area. He heard them at 0400. Coatsworth found them at 2250 with a numbers spoof and "tinkling-sounding" interval signal. Wilkes had them again on 7413 with "Leonard Longwire." Harwood found them on 9252 at 0050, announcing the Blue Ridge Summit address.

Mulligan heard **Action Radio** on 7415 at 0220 with music to sign off at 0230.

An apparent new one, **Airhead Airways**, was logged by Murphy on 7415 at 0356 with anti-Iraq comments. Wilkes had them at 0356 with host "Shalak Iraq."

Harwood reports **WKAR** on 7415 at 0500 announcing 50 watts and saying they have no QSL. Ended with "Happy Trails." Coatsworth had them from 0500 sign on to close at 0553.

**The Voice of Hell** seems to be another new one, heard by Murphy. This was on 7415 at 0033 and Pat thinks the QSL address was in Fall River, MA. Off at 0052.

**The Voice of Intoxication** was noted by Ross at 7414 on 2246 with songs about liquor and drugs. Off at 2303 with "Tequila". Coatsworth had this one at 2230 with the same kind of format.

**KXXVI Interplanetary Radio** "with studios in outer space" was found by Martin Small, Indiana, on 7415 at 2103 with mostly New Age music and satires on commercials. No QSL address was given. Martin's brother, listening in Michigan, said they were strong there, too.

"There will be no peace as long as Kirk lives." So announced **The Voice of the Klingon Empire** when Wilkes heard them on 7415 at 0450.

**Jolly Roger International** was another

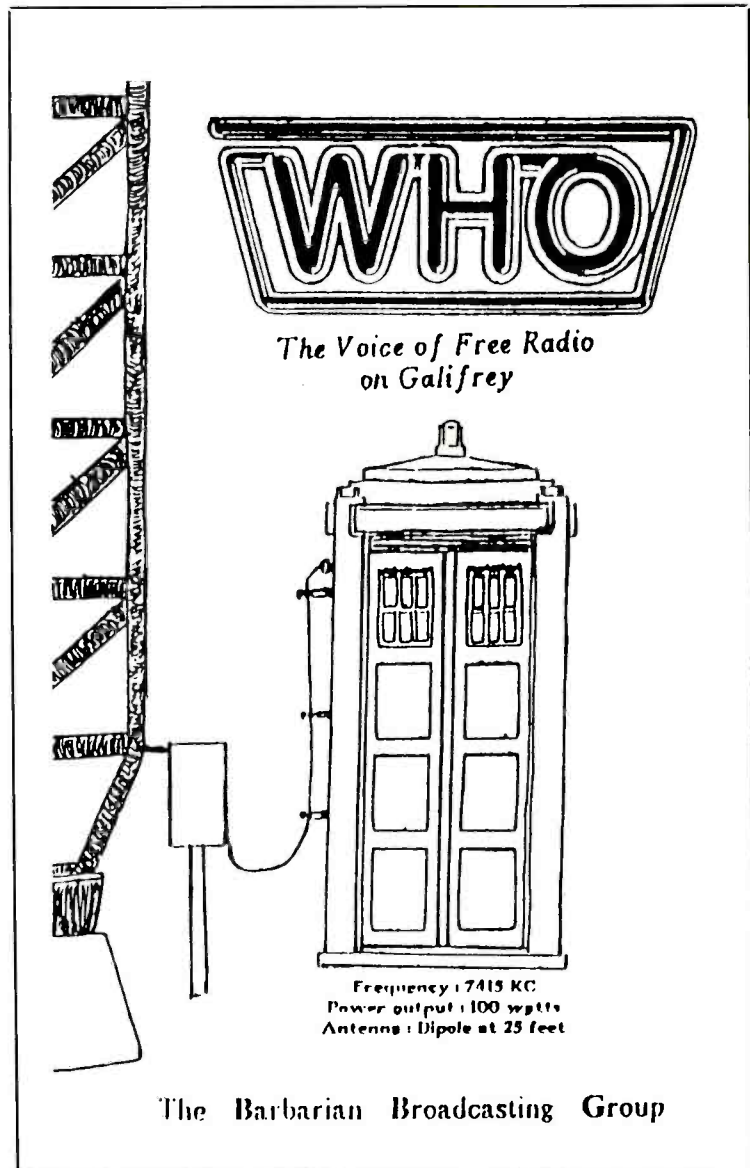
Harwood catch, on 7417 at 0538 with rock music. Skip thinks it may have been a feed from another station.

Skip also had **WRX** with tests on several frequencies before airing a program on 7420 at 0515, playing jazz but having technical problems.

**WKRX** was also heard by Skip, at 0500 on 7415. The station said they'd be on Fridays.

**The Free Radio Project** (this is the one that transmits in Morse code) was on 7414 at 0040. (I've lost the contributor's name on this one, sorry!)

**Radio Free North America** was heard by Coatsworth with a special to troops in the Gulf on 7414.5 at 2345.



Could it really be the Good Doctor himself on WHO? Probably not, unfortunately.

# HOW I GOT STARTED

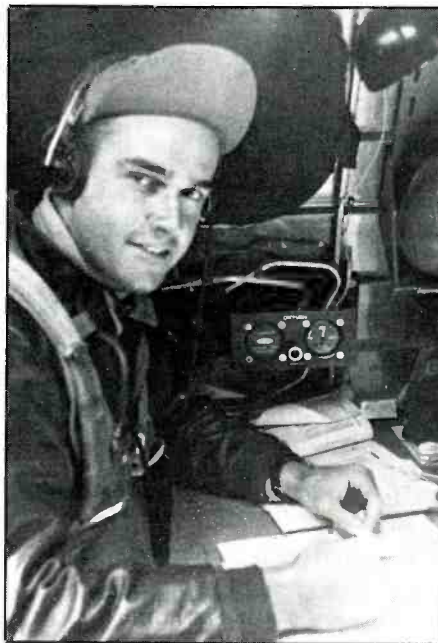
Jerry also had **Radio Fluffernut** on 7415 at 2130 announcing Box 293, Merlin, Ontario. Ross had this at 2136 with New Age and rock music.

Coatsworth found **Radio Pepperland International** on 7415 at 2040 with a British-accented DJ playing the Beatles.

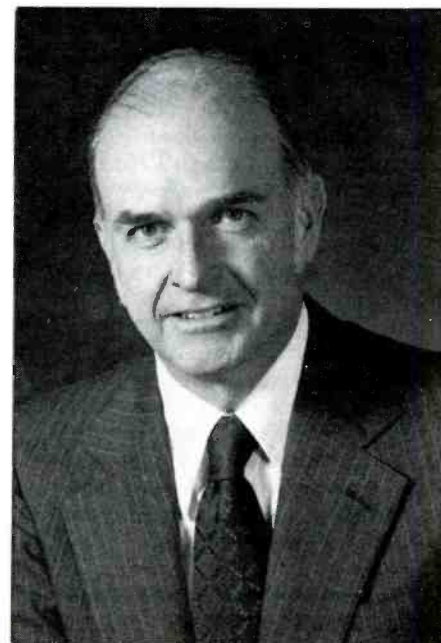
I'll bet Bob Ross could teach courses in pirate radio DX'ing. In addition to the already mentioned loggings he contributes the following: **WLIS** on 7415 at 2040 with DJ Jack Boggan and various interval signals. **Radio Beaver** on 7415 at 0215. Bob says this one is in Canada. He also heard something called **Overdrive Trucking News** on 7415.8 at 1908 and a format of—just that! Bob had the **Voice of Oz** on 7415 at 0019.

Still other Ross logs include **KGUN America** on 7415.7 at 0046 "three miles above the North American continent" and Box 6527, Baltimore, MD. **Live Wire Radio** from Great Britain on 6291 at 0802; **Radio Mauser Worldwide** on 7489.2 at 2029; **Pirate Radio 16K** with a test in CW on 7415 at 0024; **WHO** at 0000 on 7415 with the Dr. Who theme and "Voice of Free Radio on Galifrey". Also **WHIP** via CSIC on 7412 at 0035 and the **Mountaineer Pirate Network** on 7410 at 0056. *Whew!*

A note that Jerry Coatsworth handles mail for Radio Beaver, Radio Fluffernut and Europirate Radio Gemini. He offers the service to other pirate operators and may be reached at P.O. Box 293, Merlin, ONT, NOP 1WO, Canada. ■



Edwin Wade performing his radio operator duties aboard a B-17, during WWII.



Edwin Wade, today. These days, he's got his eye on a ham ticket!

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Entries will be judged taking into consideration if the story they tell is interesting, unusual, or amusing. We reserve the right to make any necessary editing changes to improve style or grammar.

The winner picked each month will receive a 1-year gift subscription (or 1-year subscription extension) to *POP'COMM*.

Address all entries to: How I Got Started, Popular Communications, 76 North Broadway, Hicksville, NY 11801.

### Our Winner For July

Our July winner is Edwin C. Wade, Huntington, WV. Edwin told us:

"Back in 1943, while in the Army, I fin-

ished a course at Radio Operator and Mechanic School, Scott Field, IL. This required 5 months of daily training in CW (3 hours) and radio theory (3 hours). It was a very intensive course and I could copy CW at 24-wpm.

"Soon enough I was assigned as a radio operator and gunner aboard a B-17 Flying Fortress with the 15th Air Force in Italy. We flew many missions, but eventually we were shot down behind the German lines in Russian held territory. After some months, I finally got back intact.

"After the war, my GI radio training caused me to go back to school where I graduated as an Electrical Engineer. My interest in radio slowed down, although in 1960 I picked up a Lafayette HE-40 shortwave receiver.

"After I retired, I saw a magazine story about how shortwave radio was becoming very popular. That rekindled my interest and I decided to get a Kenwood R-5000 receiver. My interest soared! Next, I connected an IF 232C interface to tie the receiver to my IBM Model 30 computer. It worked great, and I found that I can still copy about 12-wpm CW. I have added a scanner to my station, and I'm thinking about getting a ham license." ■

# WASHINGTON PULSE

## FCC ACTIONS AFFECTING COMMUNICATIONS

### **Miami Pirate FM Station Shut Down**

Richard M. Smith, Chief, Field Operations Bureau, and Dexter Lehtinen, United States Attorney for the Southern District of Florida, announced that an unlicensed and illegal radio broadcast station in Miami, Florida, was shut down. The U.S. Marshals Service seized the radio transmitter and other station equipment owned by Archie Bruton in Miami. The station identified itself as "WMAB" and transmitted on 91.9 MHz, a frequency in the FM broadcasting band.

The FCC's Miami Office received complaints of interference to air traffic control frequencies and licensed FM broadcast stations caused by the pirate station operation. According to the FAA, many aircraft pilots at Tamiami Airport reported having trouble hearing instructions from the airport tower controllers. The interference was caused by spurious emissions from the unlicensed station.

The Miami Office of the United States Attorney is proceeding with a civil in rem forfeiture action against the equipment and is seeking an injunction against the unlicensed radio operator.

Operation of transmitters which do not comply with the Commission's technical standards is a serious matter because of the potential for interfering with safety of life services such as aviation, marine, law enforcement and other licensed radio services.

### **Wisconsin Pirate Station Shut Down**

The FCC's Field Operations Bureau, in a coordinated effort with its monitoring network and the Chicago Office, shut down an unlicensed Wisconsin pirate broadcast station. Domenic R. Bianco of Reedsburg, Wisconsin, was fined \$1,000 for illegally operating on 7.411 MHz, which is allocated to the international fixed public radio communications service. Bianco's format was commentary and music. He identified the station as "KUSA".

### **Denied Review Of FOIA Decision**

The Commission has denied the application of Mark Pierce, for review of a Freedom of Information Act (FOIA) ruling by the Chief, Field Operations Bureau, which denied Pierce access to Commission documents concerning (1) the Bureau's list of "The Ten Most Wanted" unlicensed radio stations and operators, and (2) its methodology for determining which stations and operators should be included on such a list.

The only document responsive to Pierce's request is a one page, internal memorandum prepared by the Bureau which lists the "ten most wanted" pirate radio stations un-

der active investigation. The Bureau informed Pierce that release of the list could hamper its investigative strategy for detecting illegal operators and would thwart the effectiveness of its law enforcement activities.

The Commission said the Bureau properly withheld the list, noting it is not the policy or the practice of the FCC to release the identity of investigatory targets in non-public investigations. Release of such information could disrupt the investigations by alerting illegal operators that they are the subject of enforcement actions, thus enabling them to modify their illegal operations and elude detection.

Therefore, the Commission said, the list warranted the protection afforded by Exemption 7(A) of the FOIA which protects documents, the release of which would interfere with law enforcement investigations.

### **San Francisco Bay Area Fishing Boat Operators Fined \$12,000 For Illegal Radio Operations**

Six commercial fishing boat operators were fined \$2,000 each by the Federal Communications Commission for the unauthorized and unlicensed operation of a radio transmitter on a frequency reserved for U.S. Government use only.

The Department of Defense had contacted the FCC because several unauthorized radio users were disrupting their safety radio communications in the San Francisco Bay area. Using mobile direction-finding equipment, engineers from the San Francisco FCC Office traced the illegal transmissions to six commercial fishing vessels.

Each of the following boat operators was issued a Notice of Apparent Liability in the amount of \$2,000 for illegal radio operations: Joseph Cricchio, Monterey California; Michael A. Kurtz, Bellingham, Washington; John Feigel, Bellingham, Washington; Eugene O. Vitalich, Seattle, Washington; Casey L. Moran, Bellingham, Washington; Pete E. Zankich, Bellingham, Washington.

### **FCC Traces Radio Bomb Threat**

The FCC's St. Paul Office, using radio direction finding techniques, recently traced the source of a radio bomb threat made against Flying Cloud Airport, Eden Prairie, Minnesota, to a residential area in Shakopee, Minnesota.

On February 22, 1991, John David Berken, age 22, Shakopee, Minnesota, was arrested by the FBI for making the bomb threat, a violation of Title 18, U.S. Code, Section 844(e). Berken was subsequently

charged in U.S. District Court, Minnesota, with threatening to blow up the Flying Cloud Airport in a radio message transmitted on a FAA air traffic control frequency. It is alleged that the radio transmission was made from his vehicle to the airport control tower, and that Berken used a fictitious Arabic name during the transmissions.

The investigation of the bomb threat was jointly conducted by the FBI, FAA, Minnesota State Patrol, Shakopee Police Department, and the FCC.

### **Emergency Medical Radio Service Proposed**

The Commission proposed amending its private land mobile rules (Part 90) to establish a new Emergency Medical Radio Service (EMRS).

Emergency medical service (EMS) communications are those related to the actual delivery of emergency medical treatment. Generally, this includes the transmission of information between rescuers at an accident or disaster and physicians, or the dispatch and coordination of emergency medical providers engaged in the transportation of injured persons.

Under the present rules, entities engaged in the provision of emergency medical care are ordinarily licensed in the Special Emergency Radio Services (SERS). Frequencies in the SERS are shared by ten categories of eligible users including medical services, rescue organizations, veterinarians, handicapped persons, disaster relief organizations, school busses, beach patrols, establishments in isolated places, communications stand-by facilities and emergency repair of public communications. Emergency medical service communications are generally encompassed in the broader category of medical services within SERS. This category is shared by certain hospitals, institutions and organizations regularly engaged in providing medical care.

In response to concerns that the rapid increase in the number of EMS and SERS transmissions had overburdened available spectrum, hindering the quality and reliability of EMS communications, the Commission proposed to establish a separate Emergency Medical Radio Service.

The Commission stated that the establishment of an insulator EMRS would serve as an important step toward increasing the dependability of EMS transmissions. Specifically, by limiting eligibility in the EMRS to persons or entities that provide basic or advanced life support services on an ongoing basis and by imposing restrictions upon the use of EMRS frequencies, congestion can be kept to a minimum. In addition, the various entities engaged in the provision of emergency medical services would benefit

from actions designed to coordinate the use of EMRS spectrum.

The EMRS would be designated a subcategory of the Public Safety Radio Services (PSRS). While the rules do not formally designate the SERS as a PSRS except for purposes of the National Public Safety Plan, the safety of life and property aspects of the PSRS and EMS entities licensed in the SERS make these two groups uniquely compatible.

Furthermore, communications transmitted by PSRS licensees and EMS entities commonly relate directly to the imminent safety of life. By contrast, the communications of licensees in the non-EMS SERS categories, while often indirectly related to life-saving activities, are not ordinarily of this same nature.

The Commission said the principal source of spectrum for the EMRS will be the existing SERS frequencies limited primarily for EMS communications. This includes the ten MED channels and the five VHF MED frequencies and certain other SERS frequencies. (Ten paired UHF frequencies in the 460 MHz range, known as the MED channels are available on a primary basis for specific types of medical communications, the majority of which involve emergency situations. In addition, five VHF simplex frequencies in the 155 MHz range are reserved for eligible users in the medical services SERS category.)

The Commission noted that this spectrum was especially suitable for the EMRS because it was already designated for emergency medical communications and because the current limitations on its use make its removal least disruptive to non-EMS SERS licensees. In addition, adequate resources exist to accommodate SERS licensees dislocated from these frequencies. The Commission also proposed to assign five 220 MHz channel pairs to the EMRS.

### Record 1,410 EBS Activities For Emergencies

Commissioner Andrew C. Barrett, FCC Defense Commissioner, reported that the FCC is receiving reports of Emergency Broadcast System activations from broadcast stations at a record rate. The 1,410 activations were from 192 stations and cover situations such as: flash floods, tornadoes, severe thunderstorms, floods, blizzards, ice storms, power outages, high winds, chemical explosions, evacuations, small stream flooding, prison escape, telephone outage, Hurricanes Lily and Gustav, gasoline spill, fires, gas leak, and a railroad chemical spill. The stations received notification to activate through NOAA Weather Radio, EBS decoder/receiver, or state and local officials including police, fire and emergency personnel.

This brings to 11,926 the total number of activation reports received since 1976, when the FCC, the Federal Emergency Management Agency (FEMA), the National

Weather Service (NWS), and the National Industry Advisory Committee (now the Emergency Broadcast System Advisory Committee) started the EBS State and local program.

The Commission does not require broadcast stations to file a report when they activate the EBS, so the actual number of activations may be considerably more than the above numbers. Also, the FCC has received 325 reports since July, 1981, from stations who have activated the EBS at the request of state and local officials for nuclear power plant public notification tests.

The Commission commended broadcasters for their use of an organized system to disseminate emergency information. Broadcast stations, as the holders of a valuable public franchise, have an obligation to serve in the public interest and use of the EBS is an excellent example of fulfilling that obligation.

### New Rules For Use Of 220-222 MHz Band By Private Land Mobile Licensees

The Commission established service rules for use of the 220-222 MHz band by private land mobile licensee. Creation of these new service rules for land mobile use will aid in promoting the evolution and further development of narrowband technology.

In 1988, the Commission reallocated the 220-222 MHz band from the shared fixed, land mobile, and amateur services to private and federal government land mobile use only. The Commission's objective in reallocating these frequencies was to provide unused spectrum for the development of spectrally efficient narrowband technologies. Today's action established rules by which the Commission can grant licenses for land mobile service in the reallocated band.

The 2 MHz available in the 220-222 MHz band will be allocated in 400 five kHz-wide frequencies, paired to create 200 narrowband channels. Channels will be set aside for nationwide and local applicants. Ten of the nationwide channels will be set aside ex-

clusively for Government use. All of the local channels will be available on a co-equal basis for Government and non-Government licensees.

The Commission said that all applications for licenses in this band will be granted on a first-come, first-served basis. Applications filed on the same day for more than the number of channels or channel groups available will be subject to a lottery. Non-nationwide licenses will have a five-year license term and must be constructed and placed in operation within eight months of the license grant. Because nationwide licensees will need a significant period of time to implement their systems, they will have a 10-year license term and their systems must be constructed and placed in operation according to a schedule of benchmarks at 2, 4, 6 and 10 years.

Finally, applications may be filled only for primary land mobile uses, although fixed and paging uses ancillary to land mobile operations will be permitted. All transmissions must meet certain technical standards. The Commission is adopting fixed mileage separation criteria to permit co-channel reuse for non-nationwide channels.

Applications will be accepted for filing beginning the second day after publication of this Report and Order in the *Federal Register*. Applications for nationwide licenses must be accompanied by the appropriate filing fee (\$35 per call sign—a separate call sign is required for each channel in each geographic area). For example, a 10-channel nationwide system serving a required minimum of 70 geographic areas would have a filing fee of \$24,500.

Nationwide licensees must meet financial and construction entry criteria for an application to be acceptable for filing. Because Commission collection of information regarding these criteria is subject to Office of Management and Budget (OMB) approval, applications for nationwide licenses may initially be submitted without this information. While this guarantees applicants a "place in the processing line," the Commission will, after OMB approval, require this information to determine final acceptability of filed applications. ■

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## Letters . . . Do We Get Letters!

**A**fter doing columns and articles like this for some time, I've noticed that readers tend to write and ask the same basic types of questions over and over. This month, I'm going to try to save everyone some time and effort (not to mention postage) by fielding some of the more common ones.

*What do you think about the brand X receiver? Is it better than the brand Y receiver? or . . . What's the best receiver available for under \$500? (or some other amount)*

I don't own and haven't even used the vast majority of shortwave receivers now available. (Believe it or not, receiver manufacturers don't send me complimentary samples of their wares just because I write for *POP'COMM*). Very often, letter writers assume I'm knowledgeable about a receiver they're interested in, when I actually have only seen ads for it in *POP'COMM*. There's no way I can give an opinion about a receiver I haven't used.

Also, my opinion of a certain model might be vastly different from yours or even the majority of users. For example, I have a very negative opinion (based upon several years of ownership and use) of a currently popular shortwave receiver. I found it to be internally noisy and the audio quite poor. Yet this is one of the most popular models around. Why was mine different? It could be that most SWL's are less "audio critical" than I am. All I know is that the SWL to whom I sold my receiver is very happy with his purchase, while I'm equally happy to be rid of the set.

*What shortwave receiver do you use?*

The writer assumes he'll be able to hear the same DX I do if he just has the same receiver I use. It's the same reason why, as a kid, I used to buy baseball bats with Mickey Mantle's name on them.

I'm not going to tell you a receiver doesn't matter when it comes to hearing DX. I am going to tell you that I've been around SWL'ing since the early 1960's, and no receiver could replace the things I've learned along the way. And until you've learned a few things about DX'ing and receivers, you won't be able to get as much out of a receiver as a more experienced DX'er can.

My needs might be different from yours, and that influences my choice of equipment. I'm a multimode (AM, SSB, CW, RTTY, etc) DX'er and have a special interest in the AM broadcast band. I'm not inter-

ested in "ease of use" as a criterion, because I'm a compulsive dial twiddler anyway. If you're mainly interested in listening to AM broadcasts from major international shortwave stations with minimum hassle, your needs could be met by a very different receiver than the one I might choose.

But I will say this much: I use four main receivers. Two are classics from the vacuum tube era, the Hammarlund HQ150 (35 years old) and HQ180A (25 years old) models. I like these for their superb audio, selectivity options, and performance on the AM broadcast band. I also have another vacuum tube receiver from about 20 years ago which I use to listen to major international stations because of its great audio, resistance to overloading, and ease of use. Finally, I have a ham transceiver that incorporates a general coverage receiver which I use for the bulk of my listening. It includes dual VFO's, memories, and all the other good stuff most modern receivers offer. It also serves as my main ham rig.

If you're looking for a receiver, almost any model from the major manufacturers which advertise in *POP'COMM* each month will offer you enough performance and features to serve as a completely satisfactory DX or SWL'ing rig. The real secret is how well you use a receiver, not the kind of receiver you use.

*I want to connect an external antenna to my radio. Tell me how to add an antenna jack to my radio.*

There are three problems. One is that I'm not intimately familiar with the circuitry of every shortwave radio ever made. Second, I'm not a design engineer. More often than not, I don't have a clue how to make the desired modification. And the third—and biggest—problem is that if you have to ask a question like this, you shouldn't try to modify or alter your shortwave radio! Today's shortwave radios are complex beasts, and are not the place to poke around if you "think" you know what you're doing.

Most questions like this come from owners of portable shortwave sets who want to add an external antenna. Actually, most of these sets give adequate SW performance with their built-in telescoping "whip" antenna. If you do need extra oomph from an antenna, it's usually more trouble than it's worth to try to add an antenna with coaxial lead-in (such as a dipole) or add a coaxial

antenna input. Instead, I suggest just using a random length of insulated wire and adding an ordinary alligator clip to one end of the wire. You can then attach the alligator clip to the whip antenna for added signal strength. Ugly? Inelegant? Yep, but it works.

If your radio has a built-in "loopstick" or "rod" antenna for the AM broadcast band, you might improve performance on that band by taking a pencil, plastic rod, or other non-metallic item suitable for winding several turns of wire around. Take a random length of insulated wire and wind several turns of one end around the pencil or rod. Tape the wire in place, and then locate the pencil next to the AM antenna. By careful placement of the pencil or rod, the signal from the external antenna can be inductively coupled to the internal AM loopstick, and improved AM reception might result in better reception.

Beyond these two tricks, don't try to wire an external antenna into your receiver if it doesn't have external antenna jacks already installed.

*I heard this station on XXX kHz. What was it? or What are the frequencies that Air Force One uses?*

A basic set of frequency reference guides for those frequencies you're interested in is essential for monitoring. These are available from several of the advertisers you see each month in *POP'COMM*. If you spend several hundred dollars on their receiving equipment, spend another few dollars for good frequency references.

*What's the single most useful accessory for my receiver?*

If you have a receiver with a 50Ω coaxial antenna input and use a random wire antenna (or a single antenna on all bands), then an antenna tuner will make a remarkable difference in what you can hear. The impedance of any antenna will vary greatly when used over a wide frequency range; an antenna tuner will be able to match the antenna's impedance to the 50Ω input of your receiver no matter where you're listening. The result is that you are able to transfer every last drop of signal your antenna snags to your receiver, and in many situations you can improve a signal by three, four or even more S-units by using an antenna tuner. An antenna tuner is one accessory I can't do without!

*(Continued on page 42)*

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# World Band Tuning Tips

July, 1991

This Pop'Comm feature is designed to help you hear more shortwave stations. Each month, this handy, pull-out guide shows you when and where to tune to hear a wide variety of local and international broadcasts on shortwave.

The list includes broadcasts in many languages besides English. Most of the transmissions are not beamed to North America. Keep in mind that stations make frequent changes in their broadcast times and frequencies. Changes in propagation conditions may also make some stations difficult or impossible to receive. Your equipment and receiving location will also have a bearing on what stations you are able to hear.

Note: EE, SS, FF, etc. are abbreviations for English, Spanish, French, etc. Some frequencies may vary slightly. All times are in UTC.

Freq.	Station/Country	Time	Notes	Freq.	Station/Country	Time	Notes
2390	R. Huayacoctla, Mexico	0030	SS	5930	R. Prague Int'l, Czechoslovakia	0300	EE
3205	R. West Sepik, Papua New Guinea	1230	pidgin/EE	5935	R. Riga, Latvia	0400	Latvian/Swedish
3240	Trans World Radio, Switzerland	0300	vernacular	5950	V of Free China, Taiwan	0200	EE via WYFR
3270	R. Namibia, Namibia	0400	vernacular	5955	La Voz de Centauros, Colombia	0400	SS
3290	R. Central, Papua New Guinea	1100	EE/pidgin	5960	Radio Canada Int'l	0030	EE
3290	Radio Centro, Ecuador	1000	SS	5985	RTVC Congo	2200	FF//4765
3316	Sierra Leone Bc Service	0700	EE	5990	R. Romania Int'l	2200	EE
3330	R. Cultural, Guatemala	0200	SS	5995	R. Melodia, Peru	0800	SS
3360	La Voz de Nahuala, Guatemala	0300	SS	6010	R. Mil, Mexico	0400	SS
3945	Radio Vanuatu, Vanuatu	0845		6010	R. Los Andes, Venezuela	1000	SS
3980	R. Baghdad	0300	AA	6015	R. Austria Int'l	0530	via Canada
4000	R. Bafoussam, Cameroon	0430	FF	6020	R. Netherlands	0030	EE
4720	R. Abarora, Bolivia	1030	SS	6025	R. Amanacer, Dom. Republic	1200	SS
4725	Voice of Myanmar, Myanmar (Burma)	1200	Burmese	6050	R. Nigeria, Ibadan	0500	
4750	R. Bertoua, Cameroon	0500		6070	CFRX, Canada	1100	
4755	Sani Radio, Honduras	1200	sign on in SS	6080	R. Australia	1200	
4760	Ynan PBS, China	1200	CC	6087	Cent. Bc System, Taiwan	1130	CC
4770	Radio Nigeria, Kaduna	0430	sign on	6090	R. Luxembourg	2330	FF
4790	R. Atlantida, Peru	0200	SS	6105	R. Panamericana, Bolivia	1100	SS
4795	R. Douala, Cameroon	0500		6130	CHNX, Canada	0900	
4803	R. Huancavelica, Peru	1000	SS, aka "Villarica"	6135	R. Santa Cruz, Bolivia	1015	SS
4810	R. Orion, S. Africa	0345	Afrikaans	6150	Caracol Colombia	0000	SS
4815	R. Burkina, Burkina-Faso	0600	FF	6155	R. Austrai Int'l	0430	
4820	La Voz Evangelica, Honduras	0300	EE	6160	CKZN, Canada	1200	
4830	R. Grigota, Bolivia	1000	SS	6165	R. Netherlands	0030	EE via Bonaire
4832	R. Reloj, Costa Rica	0200	SS	6170	La Voz de la Selva, Colombia	1030	SS
4835	R. Tezulutlan, Guatemala	0100	SS	6180	R. Nac. Amazonia, Brazil	0800	PP
4850	CRTV, Cameroon	0530	FF	6185	Vatican Radio	0630	EE/pidgin
4865	La Voz del Cinaruco, Colombia	0400	SS	6189	R. Oriente, Peru	1100	SS
4870	R. Rio Amazonas, Ecuador	0300	SS	6190	R. Bremen, Germany	0900	GG
4875	Voice of Jinling, China	1200	CC	6210	European Christian Radio	0700	Sundays
4885	R. Clube do Para, Brazil	0100	PP	6218	Icelandic Ntl Bc Service	0200	Icelandic
4890	R. France Int'l, via Gabon	0445	FF	6245	Vatican Radio	0600	Italian
4911	Emisoras Gran Colombia, Ecuador	0220	SS	6280	Voice of Hope, Lebanon	0400	sign on
4915	GBC, Ghana	0600		6570	Defense Forces Bc, Stn, Myanmar	1200	Burmese
4915	R. Cora, Peru	1000	SS	6900	Turkish Met. Radio, Turkey	0530	TT
4920	R. Quito, Ecuador	0200	SS	7100	V Res. Galo Negro (clandestine)	2200	vern/PP
4920	R. Rica, Nicaragua	1200	SS	7110	Voice of Ethiopia	0330	sign on
4920	ABC, Australia	1100		7125	Vatican Radio	0145	EE
4930	R. Barahona, Dominican Republic	0300	SS	7125	Brit. Forces Bc Service	0200	to Gulf
4940	R. Continental, Venezuela	0200	SS	7145	R. Polonia	0000	Polish
4940	R. Kiev, Ukraine	0430	Ukr.	7165	R. Free Europe, Germany	0300	
4965	R. Santa Fe, Colombia	0300	SS	7190	BBC	1330	via Hong Kong
4970	R. Rumbos, Venezuela	0100	SS	7190	R. Africa, Eq. Guinea	2230	EE religion
4980	Ecos del Torbes, Venezuela	0400	SS	7215	RTV Ivoirienne, Iv. Coast	0600	FF
5009	RTM Madagascar	0300	sign on, PP	7255	R. Botswana	0350	IS, sign on
5011	Escuelas Radiofonicas Populares, Ecuador	0100	SS	7265	Sudwestfunk, Germany	0500	GG
5020	SIBC, Solomon Islands	1130	EE	7270	R. Polonia, Poland	2200	EE
5020	La Voix du Sahel, Niger	0530	FF	7275	"ELBC" Liberia	0758	sign on
5025	R. Rebelde, Cuba	0100	SS	7285	RTM, Mali	0700	sign on, FF
5025	R. Parakou, Benin	0430	FF, sign on	7325	BBC	0000	
5040	La Voz de Upano, Ecuador	0030	SS	7345	R. Prague Int'l, Czechoslovakia	0400	EE
5047	RTT Togo	0600	FF	7365	KNLS, Alaska	1200	RR
5055	Faro del Caribe, Costa Rica	0200		7370	Turkish Police Radio	0500	TT
5055	RFO, Fr. Guina	0400	FF	7375	R. For Peace Int'l, Costa Rica	0200	USB
5068	R. Progreso, Ecuador	0130	SS	7412	All India Radio	1245	
5097	R. Eco, Peru	1000	SS sign on	7415	various pirate stations	weekends	
5925	R. Tallinn, Estonia	0700	Estonian	7430	Voice of Greece	0700	Greek
				7465	Kol Israel	0100	



Freq.	Station/Country	UTC	Notes	Freq.	Station/Country	Time	Notes
7510	KTNB, Utah	0200		11880	Spanish National Radio	0100	EE
7525	CPBS, China	1330	CC	11890	R. Oman	1600	AA
7600	HD2IOA, Ecuador	0400	time signals	11895	R. Tirana, Albania	2030	SS
8350	R. Baghdad	2200	AA	11910	R. Budapest, Hungary	0230	EE
9022	VOIRI, Iran	0100		11925	V of the Mediterranean, Malta	1430	EE
9045	Iran's Flag of Freedom (clandestine)	0400	Farsi	11930	Trans World Radio, Bonaire	0300	EE
9115	R. Continental, Argentina	0200	SS, USB feeder	11938	V of People of Cambodia	1245	
9345	R. Pyongyang, N. Korea	1300	EE	11945	BBC, via Hong Kong	2300	
9355	Kol Israel	0000	Hebrew	11945	R. Encarnacion, Paraguay	0100	SS
9435	Kol Israel	0100	EE	11945	UAE Radio, UAE	0330	EE
9445	Voice of Turkey	0400		11955	R. Nacional, Angola	0500	PP
9465	WMLK, Pennsylvania	0600		11960	RTM Mali	0600	FF
9480	R. Tirana, Albania	0430	EE	11980	KSDA, Guam	1430	
9505	R. Japan	1400	EE	11985	Voice of UAE	1700	AA
9535	Swiss R. Int'l	0730	EE	11990	R. Baghdad	2100	AA
9535	R. Japan via Sri Lanka	1445	EE	12205	RTT, Tunisia	1800	AA
9540	National Unity Radio, Sudan	1400	EE	12015	R. Ulan Bator, Mongolia	0900	EE
9545	Deutsche Welle, via Antigua	0330		12035	Swiss R. International	0400	EE
9555	R. Veritas Asia	1315	CC	12050	R. Cairo, Egypt	0200	AA
9560	R. Jordan	1730	AA	12085	R. Damascus, Syria	2130	EE
9560	V of Ethiopia	1500	EE	12105	V of Greece	2330	
9565	All India Radio	1400	EE	13605	UAE Radio, UAE	2300	AA
9565	R. Universo, Brazil	1000	PP	13630	R. for Peace Int'l, Costa Rica	2300	EE
9570	R. Romania Int'l	0200	EE	13655	R. Jordan	1200	EE
9575	RAI, Italy	0100	EE	13655	R. Jordan	1200	EE
9580	R. Australia	1200		13655	R. Pakistan	1500	Urdu
9585	Qatar Bc Service	0200	AA	13675	UAE Radio, UAE	1900	AA
9595	R. Tanpa, Japan	0900	JJ	13685	Swiss Radio Int'l	1530	
9600	R. Portugal	0230	EE	13770	Deutsche Welle, Germany	0500	
9610	ABC, Australia	1130		13775	R. Pyongyang, N. Korea	0000	EE
9615	R. Denmark, via Norway	0130	Danish	15084	VOIRI, Iran	1900	Farsi
9620	R. Yugoslavia	0100	EE	15140	R. Nacional, Chile	2000	SS
9625	CBC No. Service, Canada	1200		15155	HCJB, Ecuador	0030	EE
9640	BBC via Antigua	0500		15170	R. Tahiti	0430	FF/Tahitian
9650	Swiss R. Int'l	0400		15190	R. Inconfidencia, Brazil	0030	
9655	Trans World Radio, Swaziland	0400	vernacular	15260	R. Canada Int'l	1900	EE
9670	R. Rumbos, Venezuela	0200	SS	15265	Radio Canada, Brazil	1930	PP
9670	FEBC, Philippines	1300	VV	15285	Qatar Bc. Service	0030	AA
9695	R. Sweden	0330	EE	15325	R. Japan, via Fr. Guiana	0230	JJ
9705	V of Ethiopia	0400	vernacular	15330	R. Moscow	1300	
9710	R. Vilnius, Lithuania	0700		15335	RT Morocaine	1600	AA
9735	R. Nacional, Paraguay	0100	SS	15350	R. Luxembourg	2130	EE
9740	BBC via Singapore	1300		15345	Trans World Radio, Bonaire	1300	EE
9740	R. Cairo, Egypt	0200	EE	15400	R. Finland Int'l	1230	
9745	HCJB, Ecuador	0300	EE	15430	R. Austria Int'l	1330	EE
9750	R. Korea, S. Korea	1300	EE	15435	UAE Radio, UAE	1330	EE
9750	Radio Havana Cuba	0430	EE	15445	R. Amazonia, Brazil	2130	PP
9755	R. Canada Int'l	0200		15470	R. Tashkent, Uzbek SSR	1200	EE
9760	R. Tirana, Albania	0230	EE	15475	UAE Radio, Gabon	1700	FF
9770	R. Australia	1430		15500	CPBS, China	0100	CC
9780	R. San'a, Yemen	2100	AA	15560	R. Netherlands	0030	EE
9785	KVOH, California	0600		15590	KTNB, Utah	2200	
9835	R. Budapest, Hungary	0200	EE	15770	INBS, Iceland	2300	Icelandic
9870	Trans World Radio, Guam	1300	CC	17500	RTT Tunisia	2000	AA
9900	R. Cairo, Egypt	2100	EE	17555	R. Pakistan	1500	Urdu
9925	R. Cairo, Egypt	0500	AA	17595	RTVM, Morocco	1400	FF
9925	BRT, Belgium	0030	EE	17640	BBC	1600	EE
9950	R. Damascus, Syria	2130	EE	17665	R. Kiev, Ukraine	2000	FF
9941	La Voz del CID (clandestine)	0200	SS	17705	R. Beijing, China	0000	EE
9965	R. Caiman (clandestine)	0100	SS	17720	R. Romania Int'l	1315	EE
10010	V of Vietnam	1300	VV	17740	R. Sweden	1230	EE
11100	CPBS, China	1200	Taiwan-2 service	17755	BSKSA, Saudi Arabia	0500	AA
11335	R. Pyongyang, N. Korea	2330	SS	17770	Radio New Zealand	0600	
11560	R. Cairo, Egypt	1800	AA	17785	Voice of Turkey	1700	EE
11585	Kol Israel	2230	EE	17790	Radio RSA, S. Africa	2200	
11620	All India Radio	2030	EE	17862	R. Nacional, Colombia	2200	SS
11645	V of Greece	0100	Greek	17900	RAI, Italy	1400	Italian
11685	FEBC, Philippines	1100	sign off	21455	HCJB, Ecuador	2230	SS, USB
11695	R. Beijing, via Fr. Guiana	0400	EE	21485	Vatican Radio	1400	SS
11700	R. Pyongyang, No. Korea	0000	SS	21490	R. Austria Int'l	1430	EE
11710	RAE, Argentina	0100	EE	21500	R. Sweden	1530	EE
11715	R. Sweden	1230	EE	21530	R. Portugal	1600	EE
11735	R. Yugoslavia	0100	EE	21535	Qatar Bc Service	1200	AA
11750	R. Sofia, Bulgaria	0400	EE	21550	R. Finland Int'l	1400	EE
11755	R. Finland, Int'l	0745	EE	21555	R. Yugoslavia	1300	EE
11785	R. Guaiba, Brazil	0900	PP	21566	R. For Peace Int'l	2330	EE
11790	VOIRI, Iran	1430	Farsi	21605	UAE Radio, UAE	1330	EE
11800	RAI, Italy	0100	EE	21635	R. France Int'l	1230	EE
11815	R. Polonia, Poland	1430	EE	21665	R. Romania Int'l	1330	EE
11827	R. Tahiti	0400	FF	21700	R. Japan, via Gabon	1500	EE
11830	R. Anganguera, Brazil	2330	PP	21800	BRT, Belgium	1400	EE
11835	R. El Espectador, Uruguay	0100	SS	21810	BRT, Belgium	1400	EE
11840	R. Beijing, via Canada	0400		21840	RAI, Italy	1330	Italian
11840	R. Moscow, via Cuba	1400		25645	RTBF, Belgium	1300	
11860	FEBA, Seychelles	1800	Tigrina	25870	BBC	1200	
11865	R. Denmark, via Norway	1530	Danish	25950	HCJB, Ecuador	1200	USB

## You Should Know

(from page 38)

*How can I get a good ground, like my receiver manual says?*

To make a long story short, I don't use a ground with my shortwave receivers (although that's not the case with my ham rig). If you're using a ground, I'm willing to bet that you have one that's completely worthless for radio work!

If you have an ordinary insulated wire running from your radio to a ground rod or cold water pipe, you have a terrific ground for DC or low frequency (say 60 Hz or so, the power line frequency) AC voltages. If there's a stray voltage of those types present on the chassis of your receiver, the ground works. But the chances of there being such a voltage with a modern solidstate receiver are really low. And a single wired ground doesn't hack it at radio frequencies. The reason is that ordinary insulated wire shows a very high impedance at radio frequencies. The impedance is usually so high that no current whatsoever can flow at radio frequencies from your receiver to ground. It's as if the ground wasn't connected at all!

Getting a working ground at radio frequencies isn't easy. The only way to overcome the high impedance is to use a flat copper braid known as a *grounding strap* (it's about as wide as most plastic tape) in-

stead of ordinary wire. Connection to a single ground rod or cold water pipe doesn't work; you'll need to use several ground rods or radials with a single rod.

A good ground is essential for most transmitting applications, but for receiving? Forget it! Try this little experiment: if you're currently using a ground, tune in several different stations and try disconnecting the ground. Notice any change in the signal? Nope? Well, what do you suppose that tells you about the effectiveness of your ground system?

Doesn't a ground system help protect your receiver from lightning? *NO!!!* A direct hit or nearby strike can induce powerful currents in your antenna that no ground system can protect against. Modern solidstate receivers are especially prone to having their front-end circuitry damaged in such a way, and grounding doesn't help at all. What does? Only one thing always works: disconnecting the antenna from your receiver and unplugging your receiver from the AC wall socket whenever you're not using it!

*What? Why? How?*

I had great parents that never answered any questions for me. Their usual response was "go look it up." At an early age, I learned the fun of using encyclopedias, dictionaries, frequency guides, and other reference books to find out what I wanted to know. In the process of locating desired information I stumbled onto other useful information. I

found that with a little effort I could find the answer to about 95% of the questions I had.

About 95% of the questions I get are very basic and could have been answered by the letter writer if they had done a little research. Not only would they have gotten an answer sooner, but they would have also learned some additional good stuff in the research process.

There are terrific references to radio theory and communications you should know about: *The Radio Amateur's Handbook* by the American Radio Relay League, *Radio Handbook*, and *Electronic Communication* by Robert Shrader. All are practical, accurate, no-nonsense guides to the technical side of radio, and I keep a recent edition of all three in my DX'ing library. You can also find copies at your local public or school library.

You should also get catalogs from the major SWL book and equipment dealers and start adding titles reflecting your interests to your DX'ing library. There are more really good books available today for SWL's than ever before, and I don't know of a better way of getting up to speed on a certain topic than reading a book about it.

You might also want to fill in the gaps in your collection of *POP'COMM* back in 1982 and 1983!

Anyway, if this article is like my other ones, it'll trigger a lot of questions. I'll answer some more in a future column! ■

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# CLANDESTINE COMMUNIQUE

## WHAT'S NEW WITH THE CLANDESTINES

Clandestine radio enthusiasts enjoyed tracking the *Voice of Free Iraq* as it tried out a number of frequencies (9570, 9995, 15600, 17920, 17940, 17960) and then added "Radio of the Iraqi Republic from Baghdad" to its name, used a number of the same musical themes and bridges as Radio Baghdad, put a Saddam sound-alike on the air and even jammed itself to add more authenticity. Things were even more confused because, until late in the war Radio Baghdad was also on 15600 and 17940, and one had to continually check the known Baghdad frequencies of 6055 and 11990 (both from Kuwait) to decide which station was being heard. It was not until the allies took out Kuwait's power grid that the strong Baghdad signals on all four frequencies went off. Robert Ross was one of many to hear the Voice of Free Iraq, catching the broadcasts running to 1830 sign off (schedule later changed to 1300-0100 straight through). He also spotted an Arabic station on 17960, a frequency later used by the Voice of Free Iraq. What Bob heard, though, wasn't parallel to the others. As the air war progressed all of the various anti-this and anti-that services of Radio Baghdad dropped off the air leaving only "Mother of Battles Radio" running on 8350 sideband, although that moniker didn't last long either. If Hussein remains in power it will be interesting to see what new creations Radio Baghdad will devise.

It's likely we'll never know all of the broadcasting moves and countermoves that went on during the Gulf crisis. Radio Kuwait was supposed to have been aired on shortwave over Radio Cairo's facilities but we never saw any loggings of this.

The Colombian clandestine *Radio Patria*

*Libre* disappeared from the airwaves around mid-December, about the time the Colombian army defeated an element of the Revolutionary Armed Forces of Colombia (FARC) and destroyed a radio transmitter at the FARC headquarters. Trouble is it's the National Liberation Army (ELN) which runs *Patria Libre* and it doesn't seem likely FARC is hosting another group's radio voice. News reports say that another guerrilla group, the Popular Liberation Army which had been active for 23 years, has given up the fight and returned to civilian life. Apparently, another group is negotiating a peace agreement with the government as well. So maybe it's just a case of the whole anti-government effort simply running out of steam. Meantime George Zeller, in his clandestine column in *The A\*C\*E\** says he's no longer hearing *El Pueblo Responde*, the station which seemed to be on the air to "answer" *Patria Libre*.

*Radio Hope* (Radio Nadezhda) is broadcasting on shortwave on 12055 between 0430-0630 and 1630-1800. It supports the Soviet view on the question of independence for Estonia and is said to broadcast from a Soviet military installation. There have been one or two reports of this one being logged in the eastern US.

Sheryl Paskiewicz in Wisconsin reports reception of the Polisario Front's *La Voz de Sahara Libre* on 15215 between 2159 and 2205, in Spanish with talk and ID. This program runs from 2200-2300 and is carried over Radio Algiers.

If you're in the mood to log something especially offbeat try the *New Star Broadcasting Station*. Its Chinese language numbers broadcast was heard many times on 8300 at 1300 and 1400 during this past DX season.

There are good arguments for laying this at Taiwan's door and strong reason to blame it on Beijing.

It's beginning to look like the two El Salvador clandestines *Radio Venceremos* and *Radio Farabundo Marti* may no longer be active on shortwave. Checks here haven't found either one nor have we seen any loggings in awhile. One report from Central America says the two are active only on "local channels" which we take to mean medium wave, or more likely FM. Perhaps this guerrilla effort is tiring out, too.

Here are the current schedules for the three clandestine programs being aired over WHRI, Indiana:

*Radio Libertas*, promoting independence for Croatia in Yugoslavia: Monday through Saturday from 1600-1700 on 11790 and 21840, Sundays at 2100-2200 on 13760 and 17830. Sheryl Paskiewicz had this one from 1655 to 1700, closing with the theme from "2001."

*La Voz de Fundacion* (Cuban American National Foundation) airs its anti-Castro program daily at 0100-0400 on 7315 and 9495. Also at 1200 on 9495 and 11790. The 1200 broadcast does not air on Saturdays. There is a second one hour broadcast at 0500 on Saturdays and Sundays on 7315 and 9495.

*La Voz de Alpha 66* (Alpha 66) airs Monday through Friday at 2300-0000 on 9495 and 13760 and 1100-1200 on 9465 and 11790.

That closes things out for this month. Your loggings and other information about clandestine broadcasts are greatly appreciated. We can keep your name confidential if you desire. Thanks for your help and support and we'll look for you next month. ■

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PUSHTU  
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د ما پښتغ له پلوه به 19 او 25 منټو له 1200 څخه تر 1300 څخه پورې  
او د ما پښتغ له پلوه به 19 او 25 منټو له 1515 څخه تر 1615 څخه پورې  
په پښتو او دري ژبو خبرو وني کوي  
هيله کېتې چې خپلې غوښتنې او نگرې لاندې  
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THEY ARE 12230-15100-15685 ALLAH-O-AKBAR

Barbara Harris of Tennessee received this QSL card from the Voice of Unity, operated by the Muslim Mujahideen of Afghanistan.

## WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Every season of the year brings different shortwave listening opportunities. Right now is the best time of the year to be tuning the higher bands late into the nighttime hours. You'll hear any number of international broadcasters in the 15, 17, even the 21 MHz range, with signals from some areas holding up right on through the night. As early as last February we were already enjoying armchair copy of Radio New Zealand on 17770 at midnight local time! These higher bands are less bothered by summertime static, too. Those who prefer the lower shortwave frequencies will still find plenty to tune for, though, even though the QRN can sometimes be wearing. Summertime doesn't mean a total end to good Latin American reception. In fact, there are some better than average openings, particularly to the Andes. Late night African reception on 60 meters can also be exceptionally good in the summertime.

Radio Beijing continues with its effort to improve reception of its signals around the world. The latest area to be looked at for improvement is Latin America. Radio Beijing has concluded an agreement with Brazil's Radiobras to air a relay for Latin America. This will probably amount to about an hour a day, in Spanish. We don't have the schedule yet, however.

We've been hearing—for years, it seems—of plans for expansion at Radio France International. Now it's official. RFI is going to put 16 500 kW transmitters on the air from France. Another 500 kW transmitter will be added to the French Guiana relay at Monastirery. That'll make five. And the long-discussed possibility of new RFI relays at Djibouti and Thailand has been approved.



*This is the Voice of America transmitter building at Bethany, Ohio. Thanks to Glenn J. Ward of Ohio who took a tour and some photos.*

These things will all take some time, of course. It'll probably be a couple of years before we hear the first results.

Another station that has undergone a power upgrade is Radio Tanzania which has added a pair of 100 kW transmitters. The station's commercial service is now scheduled from 0900-2100 on 6105, the national service from 0430 to 2100 on 4785, 5050 and 9685. A combined service airs from 0200-0430 on those three frequencies. Radio Tanzania has never been an easy catch in North America and the higher power probably won't amount to a quantum leap forward in receivability. The best bet looks to be sometime between 0300-0500.

We're not sure how long it is destined to continue, but for a time at least, Deutsche Welle is issuing a special full data QSL card. The map-style card shows the five DW transmitting sites within Germany—Julich and Wertachtel, plus the ex-RBI sites at Nauen, Konigs—Wuserhausen Leipzig. DW is indicating the transmitter site heard on these QSL's.

Economic problems in Hungary are starting to put the pinch on Radio Budapest. Look for several language services. A considerable number of employees will be let go. Even the monthly program guide "Budapest International" is being cut to a quarterly. As with all international broadcasters,



*The Protestant Church at Kralendijk, Bonaire, one of the 1991 QSL card series being issued by Trans World Radio there.*



*This QSL card from the Sri Lanka Broadcasting Corporation shows what may be the SLBC building. Thanks to Kevin Story, TX.*



The equipment-filled shack of Jeff Seymour, Colonia Heights, VA.

Radio Budapest will appreciate having your comments.

The English edition of Radio Austria International's DX program, "Austrian Shortwave Panorama" was put on hold due to the station's expanded coverage of the Gulf War. Apparently, there was some chance that the program would not be brought back. Again, listener input is sought.

Trans World Radio, Bonaire, is issuing a new series of four QSL cards during 1991, each a color photo of a prominent building in Kralendijk, Bonaire's capital. TWR wants reports to cover at least 15 minutes and include enough program details to prove you heard the station. Also includes the date, time, frequency and SINPO code. IRC's while appreciated, are not required. The station does not want taped reports.

MAILCALL - Kevin Story in Texas, complains about the long time required to get replies from some stations. That is the nature of the beast, Kevin. You should always figure on waiting three to four months before assuming you aren't going to get an answer. After that length of time try a follow-up or a fresh report. But, with some stations, be prepared to try again and again and again. In some cases, it can take years to dig out a response. We recently got a QSL from a station we'd been working on since 1977! QSL'ing is a very rewarding part of the SWL hobby, but it also demands tremendous patience and persistence!

Mark Northrup of Missouri says he was at an electronics store and noticed a "neophyte" in the process of buying a shortwave radio. The customer wasn't getting much in the way of answers from the salesman, so Mark stepped in and answered questions. But Mark says he doubts he was able to convince the customer that shortwave wasn't going to be just like reception of FM!

William Moser of Pennsylvania conducted a course on shortwave at the Museum of Scientific Discovery and says the class was a big success. The class was largely newcomers turned on to shortwave by the war. The course title was "Operation Desert Voice."

It's goodbye to North Dakota for regular log reporter Larry Zamora who is headed for Southern California after four years in Grand Forks. Larry says he'll be reporting again as soon as his new listening post is set up. Good luck in the new situation, Larry!

John Miller of Georgia wonders about the status of Radio Polonia's broadcasts to the United States. The North American service is still defunct, John. Your best bet for hearing English from Poland might be on 7270 from 0630-0700. Once fall returns you can also try the same frequency at 2230-2330.

Jeff Seymour of Virginia, (nickname "Dragon Master") first got turned on to radio listening at the age of seven and has quite an assortment of receivers as you can see in his shack photo. Apparently, Jeff had gotten out of the hobby for a while but says his wife got him started again. Sometimes it's the other way around, Jeff!

Your correspondence to this column is always most welcome. Log reports, letters, questions, comments, station schedules, news clippings, club news and spare QSL's you don't need returned are all sought. Also, it's all too seldom that we open a letter and find a shack photo inside! We appreciate your participation in *Listening Post* in whatever way you can.

Remember, we ask that log reports be arranged by country, with your last name and state abbreviation after each time. Leave some room between items so we can cut them for sorting. Thanks.

Here are this month's loggings. EE, FF, SS, etc. are language abbreviations. Lan-

guage reported in English unless indicated otherwise. All times are UTC.

- Alaska:** KNLS on 7365 at 0818 with music, ID. (Moser, PA)
- Albania:** Radio Tirana, 6120//9760//11825 at 2330 with news. (Moser, PA) 7300 at 0651. (Smith, OH) 9760 at 2335. (Bailey, AR)
- Antigua:** Deutsche Welle relay on 6040 at 0144. (Moser, PA)
- Argentina:** Radio Nacional, 6060 in SS at 0800-1000, also noted at 2230, 0030. (Bednarski, BC) Radiodifusora Argentina al Exterior (RAE) 11710 at 0000 in SS. (Bednarski, BC)
- Ascension Island:** BBC Atlantic Relay on 15400 at 2111 with news. (Moser, PA)
- Australia:** Radio Australia, 9580 at 0945, interview, music. (Roseboro, NC) 9580//9770 at 1430 with ID, frequencies. (Moser, PA) 11880 at 1657 with IS, sign on, time signal, news. (Zamora, ND) 15465 at 2100 with news. (Kavelage, WI)
- Austria:** Radio Austria International, 9870//9870 at 0143. (Moser, PA) 13730 at 0132. (Paradine, ON)
- Belgium:** BRT on new 13720 at 0030 with news, press review, "Belgium Today" etc. (Miller, GA) 21810 at 1419. (Moser, PA)
- RTBF, 17675 at 1700 with ID, time check, news in FF. (Zamora, ND)
- Brazil:** Radiodifusora Taubate, 4925 at 001-0030 with brief talks ID, vocals, mentions of Sao Paulo, jingles. All PP. (Paszkievicz, WI)
- Radio Cancao Nova, at 0910 in PP. (Bednarski, BC)
- Radio Universo, at 0120 in PP. (Bednarski, BC)
- Bulgaria:** Radio Sofia, 9700 at 2132. (Shumaker, MI) 0405. (Roseboro, NC) 11660 at 0020. (Paradine, ON)
- Cameroon:** CRTV Yaounde, 4850 at 2205 with music, ID in FF. (Kavelage, WI) At 0640 in FF. (Moser, PA)
- Canada:** Radio Canada International, 5960 at 0043. (Bailey, AR) 11855 at 1315. (Northrup, MO) 13670//17820 at 1800. (Moser, PA) 15150 to Africa at 2137. (Roseboro, NC)
- Radio Japan Sackville relay on 6120 at 1130. (Moser, PA)
- CHNX, Halifax, 6130 at 1110 with CHNS MW relay. (Story, TX)
- Chile:** Radio Nacional, 15140 at 2344 in SS with music. (Moser, PA)
- China:** Voice of Jinling, 4875 at 1309-1330 with ID, instrumental music, talks, music bridge. (Paskiewicz, WI)
- Guangxi PBS, 5050, 1242-1310. Drama, instrumental, music, announcement, classical music, ID at 1300, news, music bridge. (Paskiewicz, WI)
- Radio Beijing, 9770 with news by woman at 0324. (Vaage, CA) 11580 at 0029 and 11840 and 0400. (Paradine, ON) 15450 at 1201 with news. (Moser, PA)
- Colombia:** Caracol on 6150 at 0705 in SS with Latin music, news items. (Bednarski, BC)
- Costa Rica:** Radio For Peace International, 7375 at 0300 with environmental problems and UN report. (Story, TX)
- Radio Lira/AWR on 9725 at 2317. "Your Radio Doctor" and "Bits and Peaces". (Moser, PA)
- Faro del Caribe, 5055 at 0305 with religious programming. (Kavelage, WI)
- Cuba:** Radio Havana Cuba, 11760 at 0430. (Vaage, CA) 11820 at 0300 with news, music, ID, DX program. (Paradine, ON)
- Radio Reloj, 5025 in SS at 0345.
- Czechoslovakia:** Radio Prague International, 5930 at 0128; 0255. (Bailey, AR; Paradine, ON) 7345 at 0357. (Vaage, CA)
- Denmark:** Radio Denmark, via Radio Norway, 11845 at 2330 with woman in Danish and EE ID. (Vaage, CA)
- Ecuador:** HCJB on 9745 at 0322. (Shumaker, MI) 15155 at 0233; 0605. (Bailey, AR; Moser, PA)
- Egypt:** Radio Cairo, 9475 at 0200 sign on. (Moser, PA) 9900 at 2152. (Shumaker, MI) 11905 in AA at 1745. (Bednarski, BC) 12050 at 1310 in unidentified language. (Northrup, MO)
- England:** BBC, 5975 (via Antigua) //6175//7325 at 0417. (Vaage, CA) 6145 at 0145 with jazz. (Paradine, ON) 7325//9410 at 2219 with "Newshour". (Zamora, ND) 12095 at 0303. (Foss, AK) 15070 at 1607. (Moser, PA)

**Ethiopia:** Voice of Ethiopia, 9706.4 at 0328 sign on with jack-in-the-box IS, announcement, gong, news. (Paszkievicz, WI)

**Finland:** Radio Finland International, 15400 at 1319 with "Close-Up" feature. (Roseboro, NC)

**France:** Radio France International, 15195 at 1131 with news. (Moser, PA)

**Gabon:** Africa Number One on 9580 at 0643 with talks in FF. (Moser, PA)

Radio Japan via Moyabi on 11735 at 2345 with feature. (Moser, PA)

**Germany:** Deutsche Welle, 6075//6145 at 0540 in GG, 15105 in SS at 0000, 15410 in GG at 2300 and 17810 in GG at 2000. (Bednarski, BC) 9545 at 0300. (Shumaker, MI) 13610 in GG at 2105, 15145 in FF at 1730, into FF. (Kalvelage, WI)

**Greece:** Voice of Greece, 9395//9420//11645 at 0147 in Greek. (Moser, PA) 11645 at 0140; 0150. (Paradine, ON; Smith, OH)

**Guam:** KTWR on 11805 at 0827 with IS, sign on, ID. (Moser, PA)

**Guatemala:** Radio Tezulutlan, 4835 at 0207 with music, ID in unidentified language. (Kalvelage, WI)

**Hawaii:** WWVH time signals at 1215 on 5000, woman announcer. (Moser, PA)

**Honduras:** La Voz Evangelica, 4820 at 0500 with preacher in SS. (Bednarski, BC)

**Hungary:** Radio Budapest, 9835 at 0133 with news and features. (Moser, PA) 0243. (Bailey, AR)

**India:** All India Radio on 9565 to southeast Asia at 1330. (Roseboro, NC) 11620 at 2220. (Smith, OH) 15185 at 1727-1800 in AA with IS, ID, Qur'an, talk, instrumental music. (Paszkievicz, WI)

**Iran:** VOIRI, 9022 at 1947. Man with ID in EE. (Moser, PA)

**Israel:** Kol Israeo, at 2136 in AA on 7465, 9388 at 2139 with music. (Kalvelage, WI)

**Italy:** RAI, 7275 at 0439. (Bailey, AR) 9575 with news at 0101. (Shumaker, MI)

European Christian Radio, 6210 at 0701 in EE with xylophone-type IS, address, talk about panda bears and Psalm 23. (Paszkievicz, WI)

**Japan:** Radio Japan, 5960 (via Canada) at 0325 with

news and features. (Roseboro, NC) 11815 at 1410 with news. (Zamora, ND) 15325 (via French Guiana) at 0304 with "Let's Learn Japanese." (Shumaker, MI) 17810 at 0148. (Foss, AK)

**Jordan:** Radio Jordan, 9560 at 1600 sign on with news. (Moser, PA) 1620-1700. (Bednarski, BC)

**Latvia:** Radio Riga, 5935 at 0357 sign on with piano IS, "Runa Riga" ID, choir and talk in Latvian. (Paszkievicz, WI)

**Lithuania:** Radio Vilnius, 15180 at 2230 with letters, DX program of Lithuanian DX Club. (Foss, AK) 2317 talking about "how things are in Vilnius." (Moser, PA)

**Luxembourg:** Radio Luxembourg, 2115 on 15350 with DJ Shawn Tilley rock, musical IDs, contest. (Miller, GA) 2305 with rock. (Moser, PA)

**Mali:** Radio Beijing relay on 11715 at 0318 with "Business and Trade News." (Moser, PA)

**Malta:** Voice of Mediterranean, 9765 at 0633 with music and history. (Moser, PA)

**Mauritania:** ORTM, 4845 at 0652 with chants in AA. (Moser, PA)

**Monaco:** Trans World Radio, 9480 at 0815 with scripture lesson. (Moser, PA)

**Morocco:** RT Marocaine, 15335 at 2020 in AA. (Kalvelage, WI) 2324 in AA. (Moser, PA)

**Netherlands:** Radio Netherlands, 11720 at 0332 with news and commentary. (Shumaker, MI) 0419. (Vaage, CA) 15560 at 0115 with sports news, music, ID. (Paradine, ON)

**Netherlands Antilles:** Radio Netherlands Bonaire relay on 9590 at 0330 sign on. (Moser, PA)

Trans World Radio, Bonaire, 9535 with "Caribbean Connection" at 0305. (Moser, PA) 0400. (Bailey, AR)

**New Zealand:** Radio New Zealand, 17770 at 0358, ID 0400. (Kalvelage, WI) 0426. (Bailey, AR)

**Nigeria:** Voice of Nigeria, 7255 at 0502 with news and commentary on Nigerian affairs. (Smith, OH) 0523. (Bailey, AR)

Radio Nigeria, Kaduna, 4770 at 0615-0635 with economic reports and commentary. (Story, TX)

**North Korea:** Radio Pyongyang, 9535 with commentary at 1330. (Kalvelage, WI) 15115 at 0020-0049 music and talks. (Foss, AK)

#### Abbreviation Used in Listening Post

AA	Arabic
BC	Broadcasting
CC	Chinese
EE	English
FF	French
GG	German
ID	Identification
IS	Interval Signal
JJ	Japanese
mx	Music
NA	North America
nx	News
OM	Maie
pgm	Program
PP	Portuguese
RR	Russian
rx	Religion/ious
SA	South America/n
SS	Spanish
UTC	Coordinated Universal Time (ex-GMT)
v	Frequency varies
w/	With
WX	Weather
YL	Female
//	Parallel frequencies

**Norway:** Radio Norway, 1185 in NN with EE ID at 2329. (Vaage, CA) 11855 at 2103 with press review and "Listener's Corner." (Zamora, ND) 21705 at 1648 in NN. (Moser, PA)

**Oman:** Radio Oman (tentative) in AA at 1705 on 9735. (Bednarski, BC)

**Papua New Guinea:** NBC Port Morseby, 4890, weak at 0910. (Bednarski, BC)

**Peru:** Radio Atahualpa, (4820? editor) at 0900, announcing 4 am local, commercials, all SS. (Bednarski, BC)

Radio Cora, 4915 at 0440 in SS with music, ID., (Bednarski, BC)

**Philippines:** VOA relay on 15425 at 1203 with "Communication World" DX program. (Moser, PA)

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CIRCLE 31 ON READER SERVICE CARD

**Poland:** Radio Polonia, 7270 at 2234 with news. (Moser, PA)

**Portugal** Radio Renascenca, 9600 at 0034-0100 in PP with news, ID jingles, interview, speech. (Paszkie-wicz, WI)

Radio Portugal on 9705 at 0247. (Smith, OH) 15250 at 2000 with news and "Welcome to Portugal" program. (Miller, GA)

**Qatar:** Qatar Broadcasting Service, 15285 at 0512 with mideast type music, man, woman in AA. Nothing on listed parallel 15395. (Moser, PA)

**Romania:** Radio Romania International, 9510 at 0419. (Smith, OH) 9520 at 0400 with news, "Romanian By Radio." (Shumaker, MI)

**Saudi Arabia:** BSKSA, 11810 at 1645 and 11935 at 1653, both in AA. (Bednarski, BC)

**Senegal:** ORTSA, Dakar, 4890 at 2300-2330 in FF with hhi-life music, mention of Senegal, ID and address. (Paszkie-wicz, WI)

**Solomon Islands:** SIBC on 5020//9545 at 0800 and 5020 again at 0910. (Bednarski, BC)

**South Africa:** Radio Orion, 4810 at 0217 with music and announcements in EE and Afrikaans. (Kalvelage, WI)

**South Korea:** Radio Korea on 11715 (via Canada) at 1022, in SS with Korea music. Off 1029. (Roseboro, NC) 15575 at 0015, Korean news, Korean pops. (Foss, AK) 0040 with Mailbag. (Shumaker, MI)

**Spain:** Spanish National Radio, 9630 at 0511. (Moser, PA) 11880 at 0000 with news, "Taste of Spain." (Paradine, ON) 0122. (Bailey, AR) 17870 in SS at 2051. (Kalvelage, WI)

**Sweden:** Radio Sweden, 11705 with domestic news at 0205. (Paradine, ON) 0355 with SWL program. (Vaage, CA) 17880 at 1548 with news, weather, sports, music, ID and sign off at 1557. (Roseboro, NC) 21500 at 1555 with "Mailbag". (Moser, PA)

**Switzerland:** Swiss Radio International, 6135 at 0400 with "Dateline". (Roseboro, NC) 9885 at 0212 and 12035 at 0204. (Bailey, AR) 0405. (Paradine, ON) 13635 at 2108. (Kalvelage, WI)

**Syria:** Radio Damascus, 12085 at 2157 with music, time check 2200 brief news and off 2208 with military music. (Zamora, ND) 2212 with WYFR QRM, better than /15095. (Moser, PA) 15095 at 2008 with news, music and features. (Shumaker, MI)

**Tahiti:** Radio Tahiti, 11825 at 0522 with island music and TT announcer. (Story, TX)

**Taiwan:** Voice of Free China, (via WYFR) 5950 at 0307. (Paradine, ON) 960 at 0332 with feature, CC lessons, off 0400. (Roseboro, NC)

**Thailand:** Radio Thailand, 9655 at 1230-1330 with easy listening music, ID, news at 1300. (Story, TX)

**Togo:** RT Togolaise, 5047 at 2311 in FF. (Kalvelage, WI) 0526 with chime IS. (Moser, PA)

**Tunisia:** RTT Tunis, 12005 at 2010 with music, AA talks. (Kalvelage, WI)

**Turkey:** Voice of Turkey, 9445 at 2312. (Moser, PA) 0400 with IS, news. (Roseboro, NC) 0410 with commentary. (Smith, OH)

**Ukraine SSR:** Radio Kiev, 15180 at 0034 with discussion about a Ukrainian currency. (Foss, AK) 17690 in EE. (Bailey, AR)

**United Arab Emirates:** UAE Radio, 15400 at 0332 with news, weather, tides, "Islam and Arabs in the West." Off 0356. (Roseboro, NC) 13675 at 0309 in AA. Into EE at 0330. (Foss, AK) 21605 at 1329 with ID, anthem, news. (Moser, PA) 1630 with news and weather. (Shumaker, MI)

**United States:** WRNO at 0015 on 7355. (Moser, PA)

WCSN on 13770 at 2003. (Shumaker, MI)

WINB on 15185 at 2101. (Shumaker, MI)

KTBN, 7510 at 0445. (Bailey, AR)

WWCR, 15690 at 1843. (Shumaker, MI)

**USSR** Radio Moscow, 7115 at 0249, 15180 at 0417, 15425 at 0226 and 17665 at 0237. (Bailey, AR) 7355 at 1735. (Foss, AK) 9685 at 1905. (Shumaker, MI) 13705 at 1315. (Northrup, MO) 17670 at 1419 with commercials about apartments and housing in Moscow, phone and fax numbers given. (Zamora, ND) 17675f at 0501. (Moser, PA)

Radio Peace and Progress, 7400 at 0130 with talks, ID. (Miller, GA)

**Vatican:** Radio Vatican, 6150 at 0103 with religious news and sign off at 0109. 9605 at 0030. (Paradine, ON) 9635 at 0310. (Roseboro, NC) 17710//17730//

1650 at 2103. (Moser, PA) 17710 at 2104. (Shumaker, MI)

**Venezuela:** Radio Tachira, 6075 at 0134-0201 with futbol, mentions of Caracas, San Cristobal, Tachira. //4830 and under Deutsche Welle. (Paszkie-wicz, WI)

Radio Maturin, 5040 at 0243 with music, SS announcement. (Kalvelage, WI)

Ecos del Torbes, 4980 at 0345 and 0905 in SS. (Bednarski, BC)

Radio Rumbos, 9660 at 2315 and 0900 in SS. (Bednarski, BC)

**Vietnam:** Voice of Vietnam, 4894.6 at 1306 in VV with vocals and drama //5019.7. (Paszkie-wicz, WI) 9840 at 1330-1350. (Story, TX) 1321 with ID, frequency, news. (Roseboro, NC) 1229, woman giving frequencies, ID, man with news. (Moser, PA)

**Yugoslavia:** Radio Yugoslavia, 11735 at 0109; 0113. (Bailey, AR; Moser, PA) 0200 in unidentified language. (Paradine, ON)

Kudos to the following reporters this month:

Sheryl Paszkiewicz, Manitowoc, WI; Dr. Bob Shumaker, Birmingham, MI; Kelly Bailey, Midland, AR; David Kalvelage, Waukesha, WI; John Miller, Thomasville, GA; Larry Zamora, Grand Forks, ND; William Moser, New Cumberland, PA; M.M. Northrup, Gladstone, MO; Brad Smith, W. Carrollton, OH; Bjorn Vaage, Granada Hills, CA; A.E. Bednarski, N. Vancouver, BC; Bill Paradine, London, ON; Kevin Story, Midland, TX; Marty Foss, Anchorage, AK and William Roseboro, Hamlet, NC.

Thanks to all and, until next month, good listening!

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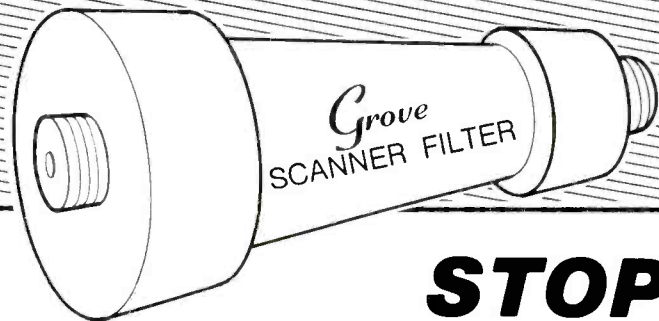
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\*\$54 plus shipping for BNC, Motorola, PL259 or N connector models. Please specify.

CIRCLE 13 ON READER SERVICE CARD

## INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

In May of 1988 we announced that the Soviet Union was going to build a new Amateur Radio Satellite, RS-12/13. This spacecraft would be identical to RS 10/11 which was launched in 1987. Then in February of 1989 we published a complete list of frequencies the new satellite would use. It was February 5 of 1991 that RS 12/13 finally reached orbit. Like the earlier RS 10/11 it was carried piggyback on a navigation satellite. The satellite is in Low Earth Orbit (LEO) with an inclination of 83°. It takes 105 minutes to complete an orbit and it moves in increments of 26.3° at an altitude of 621 miles.

RS 12/13 carries a standard 2 to 10 meter transponder. Like its predecessor, RS 10/11, it carries a 15 to 10 meter and a 15 to 2 meter transponder. Unlike the RS 10/11, however, it seems to be working well in all modes. This combination of frequency bands will allow the greatest number of Amateur Radio operators access to space communications with minimal changes in station equipment. The 15 meter uplink and 10 meter downlink are called the K mode. There are two other modes of operation that allow RS 12/13 to downlink both the 15 meter and 2 meter uplinks to the 10 meter band simultaneously. In addition, the 15 meter uplink can be downlinked on 2 and 10 meters simultaneously. These modes are known as KA and KT respectively. Amateur Radio satellites operate in the SSB or CW modes only. The satellites are not hard to hear. They have a 5 watt RF output which is high for this class of spacecraft. You can listen for the spacecraft by monitoring the beacon frequencies, they are numerous and can be found on the frequency chart that is shown. When you hear the beacon, you know the satellite is within range of your location. Then tune across the downlink bands and stand by for some good DX'ing.

RS 12/13 carries a robot, as have all the Soviet satellites. The robot is really an auto-answer transponder. It operates in the CW mode only. The Robot will announce its uplink frequency and listen for calls from ground stations. It will tell you if you are off frequency, sending CW too fast or to slow, or ask you to try calling again if QRM'ed. The robot must be addressed with the proper protocol. With each successful contact the robot will issue the Amateur Radio operator a QSO number with which to claim a QSL card for having talked with the spacecraft. This is the next best thing to talking to an astronaut or cosmonaut. All this activity will be heard on the 10 meter band if your receiver can tune SSB/CW.

If you don't know CW you may have a RTTY/CW program for your computer or an infotech data receiver, both would come in handy. The RS satellites also transmit tel-

RS-12/13 ORBIT CONFIGURATION			
Polar circular orbit with average height 1000 km (621 miles), inclination 83 degrees and period 105 minutes.			
FREQUENCY GUIDES			
	RS 12	RS 13	
Mode A Uplink	145.910 - 145.950	145.960 - 146.000	
Downlink	29.410 - 29.450	29.460 - 29.500	
Mode K Uplink	21.210 - 21.250	21.260 - 21.300	
Downlink	29.410 - 29.450	29.460 - 29.500	
Mode T Uplink	21.210 - 21.250	21.260 - 21.300	
Downlink	145.910 - 145.950	145.960 - 146.000	
Mode KA Uplinks	21.210 - 21.250	21.260 - 21.300	
	145.910 - 145.950	145.960 - 146.000	
Downlink	29.410 - 29.450	29.460 - 29.500	
Mode KT Uplink	21.210 - 21.250	21.260 - 21.300	
Downlinks	29.410 - 29.450	29.460 - 29.500	
	145.910 - 145.950	145.960 - 146.000	
Beacons	29.408 29.454	29.458 29.504	
	145.912 145.959	145.862 145.908	
	AUTOANSWER	ROBOT	
modes	A; K; T; KA; KT	A; K; T; KA; KT	
Uplink	21.129 and/or 145.831	21.138 and/or 145.840	
Downlink	29.454 and/or 145.958	29.504 and/or 145.908	
TECHNICAL DATA			
DC POWER			
All system OFF	4.6 W	3.5 W	
All system ON (max)	35 W	25 W	
RF output power			
Beacon and Robot (1/h)	0.45/1.2 W	0.45/1.2 W	
Transponder TX (29or145)	about 8 W	about 8 W	

Table 1

emetry. This is information on the spacecraft's condition, its temperature, etc. Decoding this information is usually done with simple mathematical formulas. (See Table 1)

In November of 1987, we told you about a new joint space project the Soviets were working on. At that time our information said that several Eastern Bloc countries were talking about joining the Soviet Union in building their first data satellite. Though fewer countries participated in the project than originally hoped, the satellite was constructed by Moscow with the help of West Germany. According to *Oscar Notes* author Andy MacAllister, WA5ZIB, the builders of the Soviet's first data satellite, now known as RS 14 were the *Moscow Adventure Radio Club*, the newly formed AMSAT-U-Orbita of Molodechno (USSR), and the DL/RUDAK groups of Munich, Hanover and Marburg, West Germany. This satellite is also in LEO, with the same orbital parameters as RS 12/13. It is, however, piggyback on a geological research satellite. RS 14 uses a 435 MHz uplink and a 2 meter downlink with two separate transponders.

Each is used for SSB and CW. RS-14 also carries a RUDAK-2 transponder. It has several different modes of operation for data communications, with four uplink and one downlink frequency.

We now have quite a fleet of international Amateur Radio satellites in orbit. The US is leading with 4, the Soviets have 3, the English 3 and Japan, Argentina, Brazil and Pakistan each have one. All are in LEO with the exception of two of the US satellites, which are in an elliptical orbit. So now is a very good time to try your hand at satellite communications. Whether a SWL or a licensed Amateur the Soviet's use of the 15 and 10 meter bands adds a bit of excitement to an already exciting hobby. Andy MacAllister WA5ZIB, publishes a regular newsletter on Amateur satellites. For more information on the newsletter drop Andy a SASE at 14714 Knightsway, Houston, TX 77083. Tell him POP'COMM sent you.

### Letters

David Torres of New York City wrote to tell us that his R-7000 and AH 7000 anten-



Regenerative Transponder RUDAK-2:

Two onboard computers with IPS operating system for packet radio (AX.25) (Mailbox, telecommunications experiment with digital signal processing up to nearly 20 kHz, etc.) 1 MegaByte RAM disk. Four separate uplink channels.

UPLINK:

- SAT-RX-1: 435.016 MHz +-10 KHz 1200 bps, FSK, NRZIC/Biphase-M (JAS, PACSAT)
SAT-RX-2: 435.155 MHz +-10 KHz (AFC) 2400 bps, BPSK, Biphase- S
SAT-RX-3a: 435.193 MHz +-10 KHz (AFC) 4800 bps, RSM, NRZIC/Biphase-M
SAT-RX-3b: 435.193 MHz +-10 KHz (AFC) 9600 bps, RSM, NRZI (NRZ-S)+Scrambler
SAT-RX-4: 435.041 MHz +-10 KHz (digital AFC) RX for RTX-DSP experiments

Output signals of RX-4 are the In-phase and Quadrature components, I(t) and Q(t), which are sent to the DSP RTX immediately after analog/digital conversion with 8 bit resolution. This supports various modulation modes depending on the software. All other receivers provide data (D) and clock (C) at their outputs.

DOWNLINK:

The downlink can be switched to the following operating modes:

Transmit frequency: 145.983 MHz
Output Power: 2 Watts nominal (10 Watts maximum)

- Mode 1: 1200 bps, BPSK, NRZI (NRZ-S) (like FO-20)
Mode 2: 400 bps, BPSK, Biphase-S (AMSAT mode for OSCAR-13 beacon)
Mode 3: 2400 bps, BPSK, Biphase-S (planned for OSCAR-13)
Mode 4: 4800 bps, RSM, NRZIC (Biphase-M) (like 4800 bps uplink)
Mode 5: 9600 bps, RSM, NRZI (NRZ-S) + Scrambler (like 9600 bps uplink)
Mode 6: CW keying (only for special events)
Mode 7: FSK (F1 or F2B), e.g. RTTY, SSTV, FAX, etc (only for special events)
Mode 8: FM modulated by D/A signals from DSP-RISC processor (e.g. speech)

na were giving him outstanding service. Dave passed along some interesting loggings and asks that other Satellite View readers do the same. Sounds like a great idea to me, Dave. His loggings include Raymond 24 and AWACS on 263.825 and Saudi forces on 249.325. Anti-drug forces use 262.100. Other active frequencies are

262.200, 261.825, 263.525, 262.425, 262.150. These are most likely signals from the Fltsatcom or SynCom satellites. Good work, Dave, and thanks for passing the information along.

Hermann Rehmeier of Sunnyvale, CA writes with some questions about shortwave radio and satellites. Hermann points out

RADIO-M1/RUDAK-2 Data Sheet

RS-14

AMSAT-DL/AMSAT-U joint Project

Linear Transponder 1:

Uplink: 435.102 - 435.022 MHz (80 KHz)
Downlink: 145.852 - 145.932 MHz (inverted)
Output power: 10 Watts maximum.
Beacon CW telemetry (8 parameters): 145.822 MHz 0.2 Watts
Beacon digital telemetry (30 parameters) 1200 bps PSK
R+Scrambler 2 kHz deviation: 145.952 MHz 0.4 Watts

Linear Transponder 2:

Uplink: 435.123 - 435.043 MHz (80 KHz)
Downlink: 145.866 - 145.946 MHz (inverted)
Output power: 10 Watts maximum
Beacon CW telemetry (8 parameters): 145.948 MHz 0.2 Watts

Beacon digital telemetry (30 parameters) 1200 bps PSK
R+Scrambler 2 KHz deviation 145.838 MHz 0.4 Watts.

Beacon digital telemetry (30 parameters) 1100 bps PSK
R+Scrambler 2 KHz deviation 145.800 MHz 2 Watts

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CIRCLE 27 ON READER SERVICE CARD

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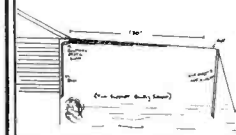


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Great scanner reception on all bands is yours with our new SCANNER STICK antenna. Receives all frequencies from 30 to 1000 MHz. Only 35" long and easy to install on masts up to 1.5" dia. Rugged and high quality. 25' of coax cable supplied with either BNC or Motorola connector for your scanner. (please specify)

SHORTWAVE ANTENNA

MULTIWIRE-4



This antenna brings in signals as only a large antenna can. 130' long and with four different length wire elements to optimize reception on all SWL bands. 0.3-30MHz. Comes with 50' coax feedline, 100' rope and a Static Bleed. Regularly \$100, INTRO PRICE \$90.

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CIRCLE 26 ON READER SERVICE CARD

that satellite guides are now listing foreign broadcast stations. Anik K1 for example lists DW, BBC, and Radio Canada. Hermann wants to know the antenna and receiver requirements and cost for a system that would allow him to hear these signals. I hope you found the April issue helpful. With any TVRO system you will need an 8 to 10 foot dish, a low noise amplifier (LNA) or a Block downconverter. These are the important pieces of equipment as they have to take the weak satellite signal and amplify it to a useable level. The receiver is the easy part. You can spend as much as you like on the equipment, from several hundred dollars on the used market or several thousand for new equipment. The shortwave signals you are interested in, Hermann, will be audio sub-carriers or dedicated SCPC channels. The audio subcarriers are simply tuned in with the audio tuning control. They are separate audio channels adjacent to the TV audio. The SCPC channels will require a scanner, an isolated through-tap or Heil SC-One SCPC receiver. These are connected in accordance with the diagrams in the April issue, so please refer to that issue for details.

Rene Matthijssen, a SV regular, from Edmonton, Alberta, Canada writes wanting information on any Satellite Nets on HF. Rene has just received his Advanced Ham license and new call sign, VE6WCA. To commemorate this event Rene is installing a new 60' tower and tri-bander. Congratulations, Rene! (Please see the information listed in Table 2.)

Douglas Robertson of Tacoma, Washington wrote in some comments on the December 90 issue. The Space Station Freedom was the topic, and it seems that Doug took exception to some of the more "political" comments in the column. Well, Doug, when I quoted Republican President Eisenhower I thought I was on safe ground: I thought everyone liked Ike. I promise to give Democrats equal space the next time anything smelling of politics shows up in a column.

I should further note that since that piece was published, Vice President Quayle, the head of the National Space Council, announced that total revamping of the space station program was necessary. Their work is now complete and the space station will be much smaller, simpler and affordable. According to NASA officials many of the station's goals have changed. The station will not be used, as originally planned, as a starting point for missions to the Moon or Mars. Many of the specialized compartments have also been sacrificed. It is unclear how this will effect our international space agreements. Even with these extreme measures the cost of the station is only lowered by \$6 billion. The original cost had risen to over \$40 billion. One other thing, the station will now be assembled on the ground and not in space as originally designed.

Remember your photos, loggings, comments and suggestions are always welcome.

See you next month.



**AMSAT**  
Radio Amateur Satellite Corporation

### ACTIVE AMATEUR RADIO SATELLITES

Satellite	Mode	Uplink (MHz)	Downlink (MHz)
RS-10 <sup>1</sup>	A	145.860-145.900	29.360-29.400
	T	21.160-21.200	145.860-145.900
	K	21.160-21.200	29.360-29.400
	K/A	21.160-21.200	29.360-29.400 and 145.860-145.900
	K/T	21.160-21.200	29.360-29.400 and 145.860-145.900
	Robot Beacons	21.120 and/or 145.820	29.403 29.357, 29.403 145.857, 145.903
RS-11 <sup>1</sup>	A	145.910-145.950	29.410-29.450
	T	21.210-21.250	145.910-145.950
	K	21.210-21.250	29.410-29.450
	K/A	21.210-21.250 and 145.910-145.950	29.310-29.450
	K/T	21.210-21.250	29.410-29.450 and 145.910-145.950
	Robot Beacons	21.130 and/or 145.830	29.453 29.407, 29.453 145.907, 145.953
Oscar 10	B Beacon <sup>2</sup>	435.050-435.155	145.850-145.955 145.810
Oscar 13	B	435.420-435.570	145.825-145.975
	J <sup>3</sup>	144.425-144.475	435.990-435.940
	L <sup>3</sup>	1296.330-1269.620	435.715-436.005
	S	435.601-435.637	2400.711-2400.747
	Rudak <sup>4</sup> B Beacon	1296.710	435.677 145.812 and 145.985
UoSAT-D (UO-14)	1200 bps AFSK/9600 bps FSK	not activated <sup>5</sup>	435.070
UoSAT-E (UO-15)	1200 bps AFSK/9600 bps FSK	not activated <sup>5</sup>	435.120
PACSAT (AO-16)	1200 bps PSK AX.25	145.900/920/940/960	437.025 437.050 (Sec.) 2401.100 145.825 2401.220 437.075
DOVE (DO-17)	1200 bps AFSK/digital voice <sup>6</sup>		437.100 (Sec.) 437.150 437.125 CW
WEBER (WO-18)	1200 bps PSK AX.25	145.900 <sup>5</sup>	435.900-435.800 435.795 CW 435.910 435.910
LUSAT (LO-19)	1200 bps PSK AX.25	145.900/880/860/840	
JAS-1b (FO-20)	JA (Analogue)	145.900-146.000	
	JA Beacon		
	JD (1200 bps PSK AX.25) JD Beacon	145.850/870/890/910	

### Amateur Satellite Nets

Day	UTC	Net	Frequency
Sunday	0900	AMSAT S/C/E African net	3.665/3.718/7.080/14.280 MHz
Sunday	0945	AMSAT Australia	3.685/7.064 mHz
Sunday	1015	AMSAT UK	3.780 MHz
Sunday	1100	AMSAT Pacific	14.305 MHz
Sunday	1300	SESAT S.E. US net	7.280 MHz
Sunday	1800	AMSAT International	21.280 MHz
Sunday	1900	AMSAT International	14.282 MHz
Sunday	1900	AMSAT Espanol	14.227 MHz
Monday	0000	AMSAT Argentina	3.737 MHz
Monday	0300	AMSAT Argentina	14.227 MHz
Monday	1900	AMSAT UK	3.780 MHz
Tuesday	2330	W1AW RTTY Kaplerian Elements	3.635/7.095/14.095/21.095/ 28.095 MHz
Wednesday	0200	AMSAT E. Coast US (Tuesday night)	3.840 MHz
Wednesday	0300	AMSAT Mid-States US	3.840 MHz
Wednesday	0500	AMSAT West Coast US	3.840 MHz
Thursday	1830	AMSAT S. Africa	3.665/3.718 MHz
Saturday	0900	AMSAT Sustria	7.070 MHz
Saturday	1000	AMSAT Europe	14.280 MHz
Saturday	1200	USSR Sputnik net	14.290 MHz
Saturday	2200	AMSAT S.W. Pacific	28.878 MHz
Saturday	2230	AMSAT S.W. Pacific	21.280 MHz
Saturday	2330	W1AW RTTY Kaplerian Elements	3.625/7.095/14.095/21.095/ 28.095 MHz

Table 2

# SCANNING VHF/UHF

BY CHUCK GYSI, N2DUP

## MONITORING THE 30 TO 900 MHz "ACTION" BANDS

It's the height of the summer season across the country. If you're taking the scanner—handheld, mobile or base—along for the trip, be sure to take a lot of notes and pass along the frequencies to us here at POP'COMM for the benefit of others.

From Bill Barr of Montrose, New York, comes a tip for high-band monitoring. If most of your listening is in the 138-174 MHz band, Bill says that you should try a ship-to-shore boat antenna for your scanner. He says that the seven-foot used antennas can be bought at many marinas at a reasonable price. While the VHF marine band is 156-162 MHz, the antennas will cover the entire VHF high band. The antennas are made of lightweight fiberglass and can withstand the weather. They also can be erected higher than a metal ground plane antenna, Bill says. Attach the existing coax to a PL-259 connector and then run RG-8/u cable to the scanner, Bill says. If the antenna can be had for a song and a dance, then it might be worth trying!


Chris Krupczyk of Tonawanda, New York, says he's been a POP'COMM reader for two years now and enjoys this column. He's been monitoring the Los Angeles Fire Department on 33.70 and 33.82 MHz during skip and hears reference to "tac" channels. I didn't have anything specifically listed in my notes as tactical channels for LAFD, but I bet it's probably some of their UHF channels referred to as "tac."

Chris uses a Realistic PRO-2005, a Bearcat 210XLT and a Realistic PRO-34. His base scanners are hooked up to an Antenna Specialists 801 antenna which provides excellent low-band reception. Some interesting low-band loggings from Chris include: 30.45 MHz, Fort Hood, Texas, range control; 41.10, range control (location unknown); 42.12, California Highway Patrol; 34.31, aircraft in dogfight (unknown location).

Val Moldoveanu of Ridgewood, New York, also writes to inquire about local directories. The best bet for metro New York and northern New Jersey is the new 560 page 4th edition of the *Scanner Master New York Metro Guide*, available from some scanner suppliers. The directory includes all public safety frequencies and data, includes unit numbers and radio codes. It also is available by mail from CRB Research, P.O. Box 56, Commack, NY 11725. Check with them if your local shop doesn't carry it.

John Schmid of Line Lexington, Pennsylvania, passes along some frequencies of interest for Naples Municipal Airport in Florida: 119.75, approach (Fort Meyers); 118.00, remote; 128.25, center (Miami when approach is inoperable); 128.50, control tower; 121.60, ground; 123.60,

<b>THIS CONFIRMS RECEPTION</b>			
CALL SIGN _____			
LOCATION _____			
FREQ. _____	TIME _____	DATE _____	
ANT. _____	MODE _____	POWER _____	
SIGNATURE _____			
AGENCY: _____			



These are the QSL-type cards Ed Bair uses with success in an effort to obtain verifications from agency's stations. The "This confirms reception" card helps snare QSL cards from agencies that don't have their own verification cards. The "prepared QSL" makes it easy for agencies to respond to hobbyists.

Fort Myers Flight Services; 123.00, Unicom; 128.50, CTAF (when tower inoperable); 108.60, Collier County VOR (CCE); and 117.60, Fort Myers VORTAC (FMY).

From overseas comes a letter from Walter Liu of Taipei, Taiwan. Walter says he is a college student and is a newcomer to scanning. He says he can buy POP'COMM at two bookstores in his city, but has found information on scanning in Taiwan to be scarce. Walter asks about a scanner shopping guide, however, there is none currently available by any book publisher to my knowledge. Outside that, one could obtain needed information by writing to scanner manufacturers since there aren't too many around these days. He also asks about Digital Voice Protection. Very briefly, DVP is a way to scramble communications digitally. Voice signals are converted to binary, and, on the air, the signals sounds like static with a tone at the end of the the transmission. Because of the millions of possible ways to encrypt this information, it is virtually impossible to descramble. DVP is a more secure form of scrambling than, for instance, standard voice inversion scrambling, which could be decoded when descramblers were legal.

Walter also asks about what frequencies are used by cordless phones and whether they vary by country. Yes, cordless phones

could be used on different frequencies in different countries. In the United States, the base set operates on any one of 10 frequencies in the 46 MHz band, while the handsets operate on any one of 10 frequencies in the 49 MHz band. It is not difficult to tune in cordless calls knowing the correct frequencies. However, because of the short-range nature of these communications, you usually won't hear cordless calls outside your own neighborhood. It's best to tune in the base side of the calls so you can hear both sides of the call. On the handheld set side of the call, it sometimes is difficult to hear the party to whom the cordless user is talking.

Ed Bair of Collingswood, New Jersey, saw the Registered Monitor's card in the February issue of POP'COMM and sent copies of cards he has prepared. One card is used to send along with reception reports while the other is a "prepared QSL" he has had good success with in trying to obtain verifications from agencies without their own QSL's. Ed says he gets his cards printed on heavy stock at local quick printers at a reasonable price.

Eric Pekarek of Riverside, CA, sends in frequencies used in his town:

Police: 460.175, south, F-1; 460.350, traffic stops, F-2; 460.325, north, F-3; 460.475, car to car, F-4; 465.175, car to car outside city, F-5; 465.300, car to car outside city, F-6; 460.250, detectives drug surveillance, F-7; 465.250, detectives talk-around, F-8.

Fire: 460.575, F-1; 460.600, fireground, F-2; 460.625, alternate fireground, F-3.

Ambulance: 155.295, dispatch to ambulances; 155.265, ambulance to hospitals.

University of California-Riverside: 155.505, F-1; 154.445, F-2.

California Baptist College: 464.0375, F-1; 464.375, F-2.

Convention Bureau of Riverside: 464.500, F-1; 464.5375, F-2; 464.3875, F-3.

Riverside Tyler Mall: 464.775, F-1; 464.375, F-2; 464.4125, F-3.

Eric has several scanners to hear all the action in Riverside: Regency MX5000, Bearcat 760XLT with tone board; Bearcat 800XLT, Realistic PRO-30, Realistic PRO-2005 and AOR AR900.

Dino Bloisse of Jersey City, New Jersey, asks where he can get the distinctive ID's issued to Registered Monitoring Stations. Ask for information from: CRB Research Books, Inc., (see address in text).

We welcome your input here at POP'COMM. Send your questions, comments, frequency lists, and any and all photographs to: Chuck Gysi, N2DUP, Scanning VHF/UHF, c/o Popular Communications, 76 North Broadway, Hicksville, NY 11801-2909. ■

## DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

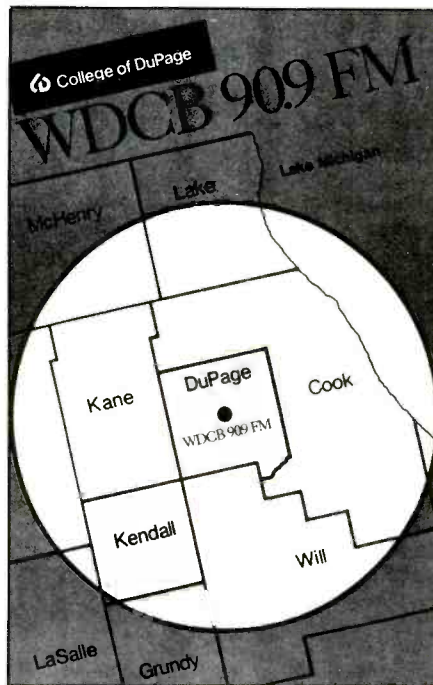
**THIS DX Challenge:** A card from Joel M. Rubin, of San Francisco, clues us in on some low-power AM stations to try for. One is at Candlestick Park and operates on 530 kHz only on days and nights when there's a game there. Another one on 530 kHz is at the Oakland Coliseum Complex and Joel can copy it from 25 miles away when Candlestick Park (8 miles away) isn't using the frequency. On 1610 kHz, he copies WNSV220, with emergency information. This is a station thirty miles from him in San Leandro he picked up at about 2 a.m. local time. It runs 8 watts into a monopole 40 ft. high.

Finally, Joel tells us that San Francisco's KDBK/98.9 runs parallel to San Jose's KDBQ/99.1 MHz.

**Desert Storm Stuff:** Harold Ort, who recently retired from the US Army after a twenty year hitch, was in the big sandbox during *Desert Storm*. He tells us that, despite all of the info that emerged from the area relating to AFRS broadcasts, one of the most popular stations was a pirate! The station was operated by a couple of GI's with the tacit approval of their commanding officer. The station had better music and commentary than the "official" stations. It had no callsign or ID. It operated on 53.25 and 106.5 MHz. The 53.25 MHz channel was so that it could be picked up on military manpacks and vehicle two-way radios, which is another reason it was so popular. It could be monitored while on patrol! Best of luck in civilian life, Harold!

**DX Tests?:** We have received several letters asking if we have received any information from AM broadcasters willing to run nighttime DX tests for POP'COMM readers during the coming DX season. These would be from stations that are normally daytimers, or that run low-power at night. We haven't, but we would be pleased to publicize such broadcasts from stations that are interested in running such a test during their regular program schedule, or as a special.

Any AM stations interested in dedicating some after-midnight programming, preferably during a weekend between December and March, for seeing how many POP'COMM readers around North America can copy them are invited. Whether it's 30 minutes, an hour, or two hours, or until local sunrise, we're interested! Write to us as soon as possible, letting us know the date and time, QSL'ing requirements, and if it's possible for your station to transmit a modulated tone CW identification at least several times an hour during the test. The CW identification cuts through interference and helps a lot. The CW isn't absolutely necessary, but the assurance of verifying correct reception reports is needed. Listeners can



Here's a coverage map of WDCB/90.9, Glen Ellyn, IL. It was sent in by Charlie Warfield, KA9OFN, who is the overnight deejay at the station.

be asked to enclose return postage upon request.

**Newsy Items:** A few words about QSL's is appropriate here. We received a letter from Mike Hawk, KB0GXE, of Omaha, NE. He observes that AM QSL's are harder to get now than ever before, as noted by many DX'ers. He has been DX'ing on the BCB for six years and has logged 1,285 stations. Within the past year, his own return rate has dropped from 80% to about 55%, and follow-up reports don't offer much help. Our own suspicion is that this has come about as a result of reduced staffs at many stations, coupled with increasing operating and postage costs.

Mike also mentions that CBC budget cuts are taking their toll. CBOF/1250 is going over to FM only on 90.9 MHz. Other CBC stations are expected to do similar, or reduce their hours of broadcasting. With AM taking hits from all sides, Mike reports that KFAB/1110 still managed to top the ratings last fall in the Omaha market. He found it curious that WKZN/870 in Gorham, ME swapped call letters with WLAM/1470, Lewiston, ME. The stations are reported to be simulcasting under the general banner of WLAM, except when they ID on the hour, which he feels is strange.

Mike is 14 years old, by the way, and writes the column for beginners in the publi-

### New FM Callsigns Assigned

KBSO	Corpus Christi, TX
KCLG	St. George, UT
KYIX	Oroville, CA
KYIY	Moorhead, MN
KYIZ	Hutchinson, KS
WCFI	Lajas, PR
WCYI	Canandaigua, NY
WDMT	Eufaula, AL
WKOA	Murrell's Inlet, SC
WLJP	Monroe, NY
WLVB	Morrisville, VT
WONB	Ada, OH
WXLQ	Lebanon, VA
WYGD	Jacksonville, TN
WYGE	London, KY
WYGF	Carterville, IL
WYGG	Asbury Park, NJ
WYGH	Paris, KY

### FM Callsign Changes Approved

New	Former	
KAMA-FM	KLTO	El Paso, TX
KBLT	KIXK	El Dorado, AR
KBMB	KBHS-FM	Hot Springs, AR
KEZK-FM	KEZK	St. Louis, MO
KFXS	KDJQ	Red Bluff, CA
KGBY	KAER	Longview, TX
KIIZ-FM	KIFX	Killeen, TX
KLKL	KDKS	Benton, IA
KRMX-FM	KKYY	San Diego, CA
KRNB	KHUL	Memphis, TN
WGKY	WYHC-FM	Wickliffe, KY
WMRY	WSNL	E. St. Louis, MO
WQOL	WMMY	Solana, FL
WZRZ	WZRQ	Hamilton, OH

### AM Callsign Change Requests

Now	Seeks	
KTFS	KHSP	Texarkana, TX
WDKC	WJNX	Ft. Pierce, FL
WSIX	WYFN	Nashville, TN

### AM Callsign Changes Approved

New	Former	
KDOV	KHUG	Phoenix, OR
KDOX	KLGV	Longview, TX
KECN	KBLI	Blackfoot, ID
KEZK	WCEO	Wood River, IL
KFIV	KASH	Modesto, CA
KICN	KTEE	Idaho Falls, ID
KMXN	KRVE	Santa Rosa, TX
KVAN	KMJK	Vancouver, WA
WCEO	WCRT	Birmingham, AL
WKQG	WPXY	Rochester, NY
WSNI	WSTT	Thomasville, GA

cation of the National Radio Club. His equipment includes a Kenwood R-1000, Hammarlund HQ-180A (a blast from the past), a Sangean ATS-803, and a Kenwood TS-440S.

For those who aren't familiar with the NRC, it's a fine old-line club (since 1933) dedicated exclusively to DX'ing the AM

broadcast band. The club publication, DX News, is issued 30 times per year. Membership is \$24 in the USA, and US\$25 in Canada. Membership and information is available from: National Radio Club, P.O. Box 118, Poquonock, CT 06064-0118. Be sure to mention that you read about them in POP'COMM.

*Lab In Low Power:* Lawrence Livermore National Laboratory, in CA, has put a 10 watt station on the air under the callsign KKG291. The station, operating on 1610 kHz, was installed to send out recorded announcements. It is operating daily during commuting hours, and will also operate during emergencies and at other times of

special need. Under certain circumstances, live updates of rapidly changing situations can be transmitted.

This info came courtesy of Cliff Richey, Registered Monitor KCA6KW, of Livermore, CA.

*Native American Station:* Bob Homuth, KB7AQD, of Phoenix, AZ, tells us he had

### Applications to Change FM Frequencies

KCPR-FM	Bowling Green, KY	100.9 MHz seeks 94.1 MHz, 25 kW
KQLA	Ogden, KS	103.9 MHz seeks 103.5 MHz, 50 kW
KSBH	Coushatta, LA	92.3 MHz seeks 94.9 MHz, 25 kW
KWHI-FM	Brenham, TX	106.3 MHz seeks 106.1 MHz, 50 kW
(new)	Fairfield, ME	93.3 MHz seeks 93.5 MHz, 13.5 kW
WKXH-FM	Alma, GA	95.9 MHz seeks 104.3 MHz
WSLY	York, AL	99.3 MHz seeks 104.9 MHz, 50 kW
WWWZ	Summerville, SC	93.5 MHz seeks 93.3 MHz, 50 kW

OH	Piketon	100.1 MHz	6 kW
OK	Alva	104.7 MHz	100 kW
OR	Lincoln City	95.1 MHz	
OR	Newport	92.7 MHz	
PA	Ephrata	90.7 MHz	190 watts
SC	Clemson	104.9 MHz	3 kW
SC	Loris	105.9 MHz	3 kW
UT	St. George	95.9 MHz	93 kW
WA	McCleary	96.9 MHz	25 kW
WI	LaCrosse	106.3 MHz	

### FM Frequency Changes Approved

KBBQ-FM	Ft. Smith, AR	100.9 MHz to 100.7 MHz, 24 kW
KDYC	Grant, NM	97.9 MHz to 100.9 MHz, 800 watts
KNBU	Baldwin City, KS	92.5 MHz to 89.7 MHz, 100 watts
KYPG	Girard, KS	101.1 MHz to 99.1 MHz

### Construction Permits Granted for FM Stations

AZ	Holbrook	92.1 MHz	3 kW
AZ	Oro Valley	97.5 MHz	3 kW
CA	Lindsay	103.3 MHz	528 watts
CA	Soledad	105.3 MHz	630 watts
FL	Lecanto	88.3 MHz	3.8 kW
FL	Panama City	89.9 MHz	100 kW
HI	Kahaluu	106.1 MHz	35 watts
KS	Norton	106.7 MHz	51 kW
MA	South Yarmouth	103.9 MHz	3 kW
MA	Webster	98.9 MHz	3 kW
MI	Whitehall	102.5 MHz	2 kW
MN	Spring Valley	104.3 MHz	3 kW
NY	Monroe	89.3 MHz	200 watts
OH	Ada	94.9 MHz	3 kW
OH	Harrison	104.3 MHz	3 kW
OK	Wilburton	103.7 MHz	6 kW
OR	Banks	107.5 MHz	2 kW
PA	Mansfield	92.3 MHz	417 watts
PR	Lajas	103.7 MHz	50 kW
SC	Murrell's Inlet	94.5 MHz	3 kW
SC	Socastee	99.5 MHz	3 kW
TX	Corpus Christi	94.7 MHz	3 kW
UT	Salt Lake City	88.3 MHz	500 watts
WA	Ellensburg	90.7 MHz	5 kW
WV	Barrackville	93.1 MHz	3 kW
WV	Montgomery	93.3 MHz	400 watts

### AM Facilities Changes Granted

KBEC	Waxahachie, TX	1390 kHz Add nites 270 watts
KKAR	Bellevue, NE	1180 kHz Increase days to 25 kW
KKXX	Paradise, CA	930 kHz Add nites 500 watts
KTRT	Claremore, OK	1270 kHz Add nites 1 kW

### FM Callsign Change Requests

Present	Seeks	
KITM	KVTY	Mission, TX
KTFS-FM	KHSP-FM	Ashdown, AR
WBVD	WTKB	Huntingdon, TN
WBZD	WKDZ-FM	Cadiz, KY
WHHR-FM	WFXH	Hilton Head, SC

### Requests Withdrawn For FM Callsign Changes

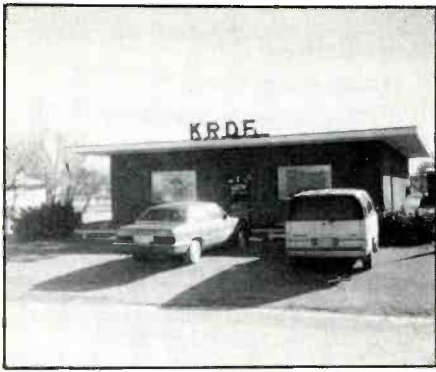
Present	Wanted	
KITM	KDOV	Mission, TX
KTUS	KHCB	Galveston, TX

### Applications For New FM Stations

AL	Selma	88.3 MHz	3.7 kW
AR	Fayetteville	90.1 MHz	3 kW
AR	Lake Village	103.5 MHz	6 kW
AR	White Hall	104.5 MHz	3 kW
CA	Merced	94.1 MHz	3 kW
CO	Grand Junction	104.3 MHz	100 kW
CO	Meeker	89.1 MHz	100 kW
GA	Brunswick	89.1 MHz	100 kW
GA	Fort Gaines	90.9 MHz	100 kW
GA	Tennille	99.9 MHz	6 kW
ID	Boise	91.5 MHz	4 kW
IN	Garden City	102.9 MHz	1.43 kW
KS	Great Bend	90.9 MHz	50 kW
MD	Hagerstown	89.1 MHz	900 watts
MD	Ocean City	106.9 MHz	
MI	Ashley	92.5 MHz	6 kW
MN	Duluth	101.7 MHz	3 kW
MO	Chillicothe	88.9 MHz	38 kW
NH	Gorham	107.1 MHz	
NJ	Pemberton	88.9 MHz	120 watts
NM	Roswell	104.7 MHz	50 kW
NY	Brockport	105.5 MHz	
NY	Chateaugay	89.7 MHz	400 watts
NY	Port Jervis	88.9 MHz	500 watts

### FM Construction Permits Deleted or Forfeited

KASF	Alamosa, CO	90.9 MHz
KBMV	Birch Tree, MO	107.1 MHz
KCKS	Concordia, KS	95.3 MHz
KCSS	Turlock, CA	91.9 MHz
KDNO	Delano, CA	98.5 MHz
KDXL	St. Louis Park, MO	106.7 MHz
KGSP	Parkville, MO	90.3 MHz
KINI	Crookston, NE	96.1 MHz
KJAE	Leesville, LA	92.7 MHz
KRVH	Rio Vista, CA	101.5 MHz
KQFC	Boise, ID	97.9 MHz
KUFM	Missoula, MT	89.1 MHz
WBBY	Westerville, OH	103.9 MHz
WFRB-FM	Frostburg, MD	105.3 MHz
WKMY	Princeton, WV	100.9 MHz
WMLV	Ironton, OH	107.1 MHz
WNDN-FM	Salisbury, NC	102.7 MHz
WNLA-FM	Indianola, MS	105.5 MHz
WPNR-FM	Utica, NY	90.7 MHz
WVKC	Galesburg, IL	90.5 MHz
WVVV	Blacksburg, VA	104.9 MHz
WWLR	Lyndonville, VT	91.5 MHz
WWSN	Dayton, OH	107.7 MHz
WXCW	Homosassa Spr., FL	95.3 MHz
WXDU	Durham, NC	88.7 MHz



KRDF/98.3, Spearman, TX operates from these digs. They run a beautiful music format. Have been operating since 1963. (Photo submitted by Paul Origlio, Esq., Aurora, CO.)

≡ *The Oldies Channel* ≡

**WQWM**



**AM 1050**

This sticker from WQWM/1050, Kaukauna, WI, has a commercial tie-in with Coca-Cola. (Sent in by Steve Schmidt, Registered Monitor KW19AN, of Kaukauna, WI.)

received a very nice QSL letter from KTNN/660, Window Rock, AZ, just after it went on the air back in 1986. He enjoyed seeing a recent letter in the POP'COMM Mailbag about this Native American station. KTNN wrote that the 50 kW station was the "most exciting, adventurous undertaking. the Navajo Tribe has engaged in," and went on to describe the "pride and inspiration that KTNN has instilled" in the staff, and that they appreciated reception reports.

*New Beginnings Department:* About two years ago, WQMR/98.3 in Mechanicsville, MD, was put on the air as "98 Star." Last March, the owner of WQMR was the highest bidder (\$65,000) for AM'er WSMD at a public auction. The bid transferred ownership of the transmitter, tower, amps, racks, cart racks, and other studio equipment, plus the station's license. WSMD, in LaPlata, had been on 1560 kHz. Thanks to J.D. Delancy, K1ZAT/3, of Bryantown, MD, for this information.

In 1966, San Francisco's legendary KFRC ("The Big 610") began operation as a

Top 40 rocker. In recent years the station de-emphasized its call letters as it went into a Classic MOR format and became popularly known on the air as "Magic 61." New owners took control in March, and also purchased San Francisco's KXXX/99.7 "X-100," a Top-40 station. The new owners, Bedford Broadcasting, promptly ditched the KXXX call letters and replaced them with KFRC-FM. The FM format was also changed a bit to help satisfy those who longed for the flavor of that "original" great KFRC of the 1960's.

That information passed along by Walter Schivo, Novato, CA.

*Overheard:* We hear the world news feed from the Sun Radio Network being carried over shortwave WWCR/7520 kHz, Nashville, TN. This aggressive network looks to be making a good name for itself as it continues to pick up affiliates. The network is headquartered at 2857 Executive Drive, Clearwater, FL 34622. Lots of interesting features.

FM Translators: New FCC rules govern-



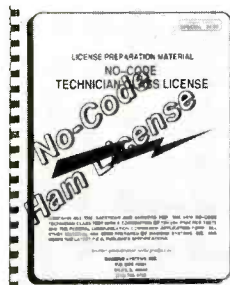
This photo shows WFTL talk show host Craig Worthing (standing), and his program's producer, Al Knight. It was taken at the WFTL studios in Fort Lauderdale, FL. (Thanks to Gary K. Hamlin, KNY2AAW, Utica, NY.)

ing many aspects of FM Translator stations became effective on May 1st. They reflect a comprehensive re-examination of this service and clarify and revise a number of subjects, including ownership and financial support of these stations; methods for selecting among translator applicants; defining a "major change" in translator coverage areas; use of commercial and auxiliary band frequencies; and technical requirements for translators. The new rules are contained in FCC Report and Order (5 FCC Rcd. 7212 (1991), and may be obtained for a fee from the Downtown Copy Center, 1114 21st Street NW, Washington, DC 20036. The telephone number is (202) 452-1422 for further information. Operators of, or applicants for, FM translators are required to have this information. The FCC office that can furnish additional information on the new rules is at phone number: (202) 634-6307.

*Sign off:* We hope to hear from you next month. If you have anything related to AM or FM broadcasting, send it along. That includes photos, bumper stickers, news clippings, recent QSL's, etc.

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CIRCLE 25 ON READER SERVICE CARD

## GETTING STARTED AS A RADIO AMATEUR

### Hand-Helds: Three Rigs In One!

If you're like most hams nowadays, your Amateur Radio pocketbook isn't exactly bulging with extra cash. And if you're a newcomer, the vast array of "megabucks" transceivers can be overwhelming. Don't be discouraged, though. There is a way to get on the air without breaking the bank. A hand-held FM rig will get you going in style, and its versatility will pay off in more than just dollars!

Hams call them HTs, handie-talkies, walkie-talkies and bricks. And countless amateurs select pocket-sized hand-held VHF/UHF FM transceivers as their first rigs. Hand-held transceivers save money over buying separate mobile and base units, and they work fine for FM simplex, repeater or packet operation. That's a lot of versatility for such a small package!

No currently available units offer SSB or CW, or coverage of bands below 2 meters, so you'll be limited to FM simplex and repeater voice operation and packet. Most VHF and UHF operation is on FM, however, so there's plenty of activity in your area: In the US there are more than 6000 repeaters on 2 meters, 1600 on 220 MHz, 4100 on 440 MHz and 200 on 1.2 GHz. There are even FM repeaters that are linked to 10 meters, opening up the possibility of long-distance contacts.

Single-band hand-held transceivers cover 2 meters, 220 and 440 MHz and 1.2 GHz. Multiband rigs may include 2 meters and 220 MHz, or 2 meters and 440 MHz.

#### Portable

If you've attended a hamfest, you've seen plenty of people walking around with hand-held rigs. They conveniently hang from your belt or slip into your shirt pocket.

It's great to keep your radio nearby, whether you're in the living room, in your backyard or out for a walk. Hand-held transceivers can be used to talk to the ground crew while you're working atop a 100-foot tower or to keep in touch with friends as you browse at a flea market.

To get the most from portable operating, be sure your battery's charged and keep a spare on hand. The "rubber duckie" antennas supplied with hand-held transceivers are adequate, but you can substitute a telescoping whip for increased performance.

#### Mobile

A hand-held rig can become a mobile unit if you have a cigarette-lighter power adapter and a magnetic-mount or trunk-lip mount antenna. Using VHF/UHF FM, you can ask



*This hand-held FM transceiver covers 144 and 440 MHz and is representative of today's top-of-the-line mini rigs. Earlier rigs have fewer bells and whistles, but their basic radio performance is still okay—and they cost a lot less, too!*

for direction, call for help (for yourself or another stranded motorist), exchange information on road conditions or enjoy a pleasant chat during your daily commute. A lonesome road through unfamiliar terrain is safer if you can contact other hams.

If you use a hand-held rig in your car, it's worthwhile to invest in a remote speaker/mike to avoid having to hold the transceiver up to your face when you transmit. In noisy vehicles, hand-held transceivers may not put out enough audio to be heard clearly. This can be remedied by connecting an extension speaker with a built-in 12-V audio amplifier to boost the sound level.

If you use your hand-held transceiver in your car, be sure both sides of the power cable are fused. The manufacturer may offer a power adapter with this feature or you can make the cable yourself. Secure the radio so it doesn't fly off the console during quick maneuvers or conk you in the head if you have to stop quickly. Keep it shielded from direct sunlight, but mount it near your line of sight. Better yet, get to know your rig well enough so you don't need to look at it to make adjustments while driving. Don't leave your rig inside your car on a hot summer day.

#### Base

Do you enjoy traffic handling? Do you like to chat with friends while burning dinner or watching *The Simpsons*? Bring your

hand-held into the house, connect it to a 12-V power supply and you're all set. You can mount a high-gain antenna on your roof, tower or inside the attic. Plop a mobile mag-mount antenna on top of the refrigerator or a cookie sheet. In urban areas, almost anything will get you on the air!

#### Packet

Standard AX.25 or TCP/IP packet radio operation on FM works fine with your hand-held transceiver. You can use it in the field or in your car with a laptop computer, or in your shack with a desktop PC or terminal. All you need is a source of power (a battery or a power supply) and a cable to connect your rig to your TNC. Almost every type of hand-held radio has been used for packet, so it shouldn't be difficult to get information on how to wire the mike and speaker connections.

#### Foxhunts

Participating in hidden-transmitter hunts without a hand-held transceiver is inconceivable! You need to cruise around in a vehicle sniffing for bearings and poke around on foot when you get close. Why switch rigs, antennas, meters and other direction-finding gear when one transceiver will do it all?

#### Price Tags

You can invest \$75-\$600 for a hand-held VHF/UHF FM ham transceiver. It all depends on features, whether you buy new or used, single band or multiband, and other variables. Older models cost less and are easy to find at hamfests and flea markets, but may be crystal-controlled, put out less power and lack fancier features. It's also difficult to find battery packs and accessories for older types.

Modern units are computer-controlled with dozens of features, put out more power than mobile rigs of a decade ago and may include more than one band. These miniature FM stations can last longer than it takes you to learn how to use all their buttons and knobs!

The best strategy in selecting a rig is to talk to other hams, ask to try out their radios, browse through used-equipment classified ads and haunt local hamfests. Sooner or later, you'll locate the perfect all-purpose hand-held rig. Good luck!

Send your photos, comments and questions to me at ARRL, Department PCN, 225 Main Street, Newington, CT 06111. ■

## 27 MHz COMMUNICATIONS ACTIVITIES

**W**e have all gotten used to the FM transceivers made for 49 MHz, but here's one for 27 MHz! Midland International didn't supply us with a wealth of specs on their Model 75-160, except to say that it's ultra-compact, operates on three channels (crystals for one channel are supplied), and has an operating range of 1/2 kilometer (which means roughly just over 1,500 feet). It has a squelch, a telescoping antenna, an ear-phone jack, low-battery indicator, and it operates on an internal 9V battery.

No information was supplied regarding the power output of the Model 75-160, but it's obviously not very high. We assume it meets the FCC Part 15 technical specs. And we don't know which channel comes supplied in the unit. Luckily it has a short range because the FM certainly isn't going to mix well with the AM or SSB signals it comes up against on 27 MHz.

No explanation as to why Midland decided to produce this FM device for operation on 27 MHz instead of on 49 MHz, where all of its brothers are. On 49 MHz it would have been compatible for communications with the many other devices of FM persuasion, thus making it more useful. On 27 MHz, it will be able to communicate only with other Midland Model 75-160 units, or additional FM models that go on the market.

Unless the FCC begins allowing regular CB operation in FM mode (not much chance of that), it doesn't seem like a good idea to begin FM adding communications devices to these frequencies where AM and SSB already have a hard enough time coexisting.

More information on Midland's unusual new Model 75-160 FM unit for 27 MHz can be obtained from Midland Consumer Communications Division, Midland International, 1690 North Topping, Kansas City, MO 64120.

### Useful Project

REACT of Greater Long Beach, Inc. (C-59), in California, came up with a worthy project. They felt that people probably have lots of operable but unused old 1970's CB equipment still sitting around in closets, basements, and attics. It seemed that this worthwhile equipment was going to waste when it could be put to purposeful public safety uses, for instances by a group of volunteers connected with the Tijuana Fire Department, and other agencies in Mexico where CB is in heavy use.

The idea was to announce this need in a local newspaper and request that those who had such equipment call REACT and offer it the gear as a donation. Calls came in, and three REACT volunteers went out to harvest the items. Sometimes this required



*Oh, wow! A 27 MHz handheld in FM mode. It's the Midland 75-160.*

their having to climb around on roofs to take down antennas that were being donated.

At the end of the drive, the tally consisted of thirty CB transceivers, four UHF radios, one VHF radio, three ham radios, four scanners, fifteen antennas, plus power supplies, answering machines, a tape recorder, coax cable, a microphone, test equipment, a shortwave receiver, and more.

All equipment received a check-out by technicians, and the serial numbers were recorded. Almost all of the equipment was in operating condition, and four CB rigs were still new and in their original cartons. REACT members enjoyed reminiscing over some of the old CB sets that showed up.

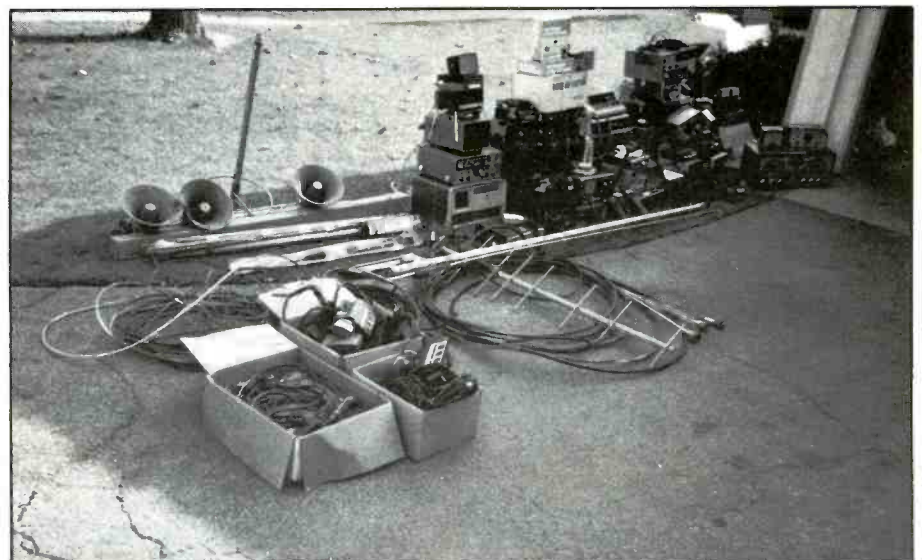


*Our overseas QSL of the month is from Math, 19-AT-303, of Heerlen, Holland. Thanks to Jim, SSB-9, of SSB Network HQ's, for passing it along.*

Arrangements for crossing the border were coordinated by Southwestern REACT, and a caravan of REACT delivery vehicles crossed into Mexico and was enthusiastically welcomed by the Tijuana Fire Department. After the equipment was presented, the REACT people were taken on a tour of the facilities there, and were then treated to a festive buffet of delicious Mexican food served by the Fire Department, Red Cross and other volunteer agencies. New friendships and contacts were established.

REACT of Greater Long Beach, Inc. tells us that they suspect that lots of old CB equipment lies dormant throughout the US and Canada. They suggest that it could be resurrected as a team or club project in order to be put in the hands of those who might put it to good use in the public benefit.

A tip of the hat to this REACT team for this project, and to Bob Leef, Andy Dodson, Mark Schneider, Gary Frantz, Dave Carpenter, and the other members who



*REACT of Long Beach collected a lot of unused CB equipment for a good cause.*





The REACT donations were loaded into a caravan and driven to Tijuana to be put to good use. Nice going!

made it work so well. The address of this REACT team is P.O. Box 8632, Long Beach, CA 90808.

### **Hello From Northern Ireland**

Via George W. Wessell, SSB Network member SSB-777C, of Bridgewater, Nova Scotia, we received a photo of CB'er John McShane, 3-HP-29, of Northern Ireland. John is a big fan of POP'COMM, and has loads of friends on this side of the Atlantic. John specifically passes along his 73's to Ray (Straight Shooter 001) of Carbondale, IL; Diane and Jim (Straight Shooters 777 and 579) of Corina, ME; Bert (SSB-35F) of TX; Bob (202) of Goulds, NF; Gerald (Straight Shooter 590) of Grand-Le-Piere,

NF; and Bob (Straight Shooter 133) of Ottawa, ON.

John, 3-HP-29, runs a Cobra 148-GTL into a 4-element Rake mounted 55 feet up. He collects photos of CB'ers and their stations, also state map post cards, and QSL's. Any readers who'd like to get in contact with John can write to him at: John McShane, 14 Anna Hugh Road, Loughgall, County Armagh, Northern Ireland, United Kingdom BT61-8PQ.

### **Middle East**

During the Gulf crisis, we received a lot of inquiries asking about CB activity in Kuwait. We do know of the old *Desert DX'ers* Kuwait CB Club group that had been active for



Chuck Hurley, who operates from Hamburg, NY, has a great looking station.

## Kuwait C.B. Club



Unit No DD.2

Club Frequency 27.980LSB

Ever see a QSL from Kuwait? Here's the genuine article, as issued by the *Desert DX'ers*/Kuwait CB Club. We appreciate it being submitted here by old timer Chuck Hurley, of Hamburg, NY.

many years. The club frequency: 27.980 MHz (remember, it's not operating under FCC regs) and a member popularly monitored in the USA was Tom, DD-2, also known as 102-WW-008 on the bands. Tom used a Cobra 148-GTL into a two element quad, 50 feet up. Of course, that was before Iraq invaded and took virtually all of the CB and ham stations off the air.

So far as we have been able to ascertain, the only station that was able to manage to remain in operation throughout the war was ham 9K2DZ, Abduljabbar Mansoor Maarafie, a 53-year old businessman from the Selwa area of Kuwait City. He risked his life to send exiled Kuwaitis messages about their families.

CB'er Tom, DD-2, before the war, was an aircraft engineer, British. He started the *Desert DX'ers* with his son, Gary (DD-1) in 1980. We don't know the present status of Tom, Gary, or the club, in the aftermath of the hostilities.

Thanks to Chuck Hurley, an old time SSB Network member from Hamburg, NY for letting us show you his QSL from the Kuwait CB Club.

### **Odd CB Rig**

We got a letter from John C. Thomas, Parma, OH, with information about an unusual transceiver he purchased at the Dayton Hamvention. He thought it was a regular CB unit, but when he got it home he was surprised to find that the Japanese-made set was a 40-channel FM rig that operated between 27.60125 and 27.99125 MHz, 4 watts output. There was no schematic, and



This dapper guy is CB'er John McShane, who hails from Northern Ireland. Courtesy George Wessell, SSB-777C, of Nova Scotia.

the only identification on the unit was "Communicators NI-4400X for use in the Citizens Band Service." A paper explained that Channels 1 to 8 and 10 to 40 were for units of the same license, while Channel 9 is for safety, emergency, and aid to motorists.

On the rear of the transceiver there is a 10 dB attenuating switch that cuts transmitter power if the antenna height exceeds 7 meters (about 21 feet).

John asks if we know anything about where this unit was intended for use. The literature mentions a "Home Office," but no specific nation. Our guess is that it's a CB rig manufactured for use in England.

John tells us that the tailgate dealer had about a dozen of these sets, which he was offering at \$40 each, and representing as ordinary American CB rigs. John doesn't intend using the set, and thinks he got a pretty good conversation piece. But he does think it raises some questions about the circumstances of their sale at Dayton.

## Misunderstood Meter

We have always felt that no CB base or mobile station should be put on the air without the installation first being checked out on an SWR meter. Moreover, it's a good idea to perform this quick check on a regular basis at least a couple of times a year in order to confirm that nothing unpleasant has taken place anywhere in the antenna system to cause a mismatch between the transceiver and its antenna.

The degree of matching between the transceiver and antenna is indicated on an SWR meter (or SWR bridge, as it sometimes called). The lower the reading, the better the match. The better the match, the better things are.

But things like corroded or broken connections, broken antenna elements, shorted out loading coils, damaged coaxial cable, a poorly tuned antenna or its matching system, and other factors can result in a mis-

match. This shows up on an SWR meter as a high reading. The higher the reading, the greater the mismatch. The greater the mismatch, the lower your station's effective signal output, the shorter your transmitting range, the more chances there are for TV interference, and even damage to your transceiver.

So, the trick is to use an SWR meter for a new installation to ensure that everything is connected and tuned properly. Then, keep checking from time to time to make sure it is still suitably operational. It should be rechecked any time you replace or repair any component in your antenna system (connectors, cable, antenna).

Most new CB installations require some small amount of on-site tweaking and antenna tuning to bring the SWR (standing wave ratio) down as low as possible. This can't be done by the dealer while the set and antenna are in their packing. It can only be done when everything is in place and hooked up, ready to operate.

An SWR meter isn't very extensive, nor is it hard to use. Some of them will give you an SWR rating, and also let you know your station's output in watts.

An SWR meter is usually connected as shown in Fig. 1. Its input is connected to the transceiver output through a short coaxial jumper cable made from RG-58/U or RG-8/U with a PL-259 plug at each end.

When connected in this manner, you calibrate the meter with the meter's switch in the "forward" position until you get a full-scale meter reading on the meter face while you are transmitting in the center of the band while using AM (not SSB) mode. Scale adjustment is accomplished by a knob on the meter. Then you switch the meter to "reverse" position to see your reflected power (SWR). The reading in that position indicates the part of your station's signal that is not being accepted by your antenna system.

If the reading is high (above 2:1), check to make certain that all of your connections are

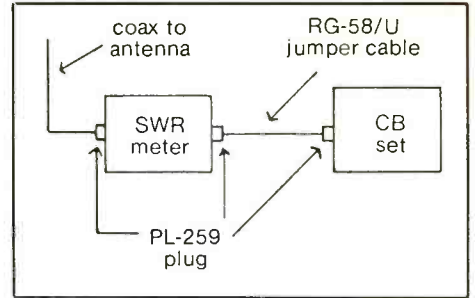


Fig. 1. Usual setup for checking antenna system and tuning transceiver to antenna system.

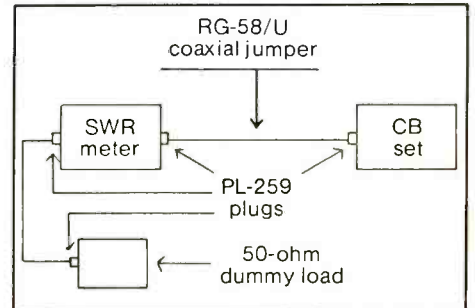


Fig. 2. Setup for measuring power loss of coaxial cable.

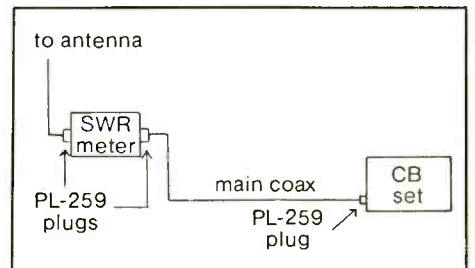


Fig. 3. Setup for measuring SWR of the antenna.

good. See if any matching circuits in the antenna can reduce the reading, or else trim the length of the antenna in 1/4-inch increments (or per the antenna manufacturer's instructions) to see if the reading can be brought down. You may find that these efforts bring down the reading, and then the reading begins to inch up again. That's when you stop trimming.

If these efforts don't bring down the SWR to below 2:1, it could be the fault of the antenna. To find out, disconnect the antenna from its coax and hook up a 50 ohm dummy load in place of the antenna, as shown in Fig. 2. If the SWR reading is significantly lowered, then there's something amiss in the antenna itself.

To measure the SWR of the antenna itself, connect the SWR meter at the antenna end of the coaxial cable (Fig. 3). The SWR should be 2:1 or less if the antenna impedance is closely matched to the coax impedance.

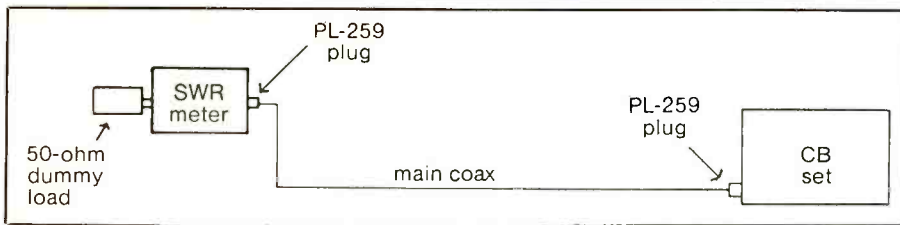


Fig. 4. Setup for comparing antenna with a dummy load.

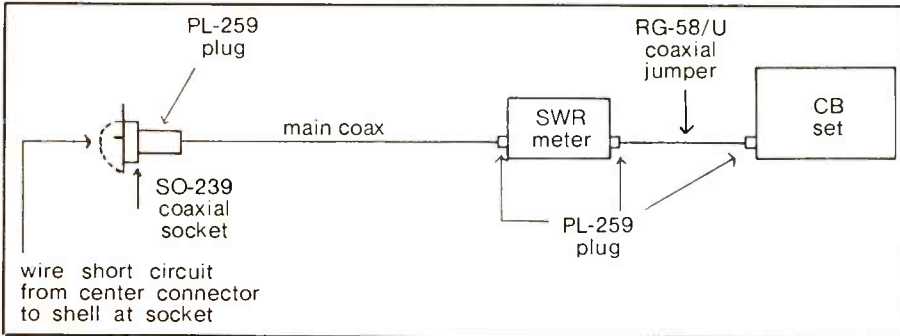


Fig. 5. Method of checking out old coaxial cable. The far end of the cable is connected to a short-circuited SO-239 socket through a PL-259 plug.

The loss caused by the coaxial cable can be easily checked by connecting the SWR meter to the far end of the coax with the antenna disconnected and a dummy load in its place (Fig. 4). When set to measure RF output, the SWR meter will indicate the amount of transmitter output power, minus the attenuation loss of the coax.

Another way to check coaxial cable is shown in Fig. 5. Disconnect the coax from the antenna and short the far end. This can be done by soldering a short jumper across an SO-239 socket, and then placing it on the PL-259 at the far end of the coax. Now, look for a high SWR reading. If the reading is 10:1, the coax loss is about 1 dB (good). If

the loss is 1.5:1, the coax loss is about 6 dB (bad), since 6 dB is a 4-time power loss.

Coaxial cable and most antennas can deteriorate when exposed to the elements for a long time. Replace either or both if the SWR is high, except when making the test in Fig. 5. If the coax run is greater than 50 feet, use low-loss cable such as foam-filled RG-8/U or other similar types.

About the best match you can hope for would read 1.1:1 on an SWR meter. Many operators are satisfied with a 1.25:1 reading. If your reading is higher than you'd like, you can still reduce the SWR reading to about 1.1:1, which is as close to perfect as anybody can get. The way of doing this is with an antenna matcher.

You insert the matcher in your coax, then rotate the two tuning knobs slowly as you watch the SWR meter reading. At some point you'll find the right combination of knob settings and the meter reading will dip to about 1.1:1. A matcher is an inexpensive gizmo that easily compensates for and seemingly corrects a multitude of minor antenna system mismatches. Of course, if your initial reading (without the matcher inserted) is a total disaster, such as 3:1 or above, then you've probably got something wrong somewhere in your antenna system that must be traced down and corrected before you do anything else.

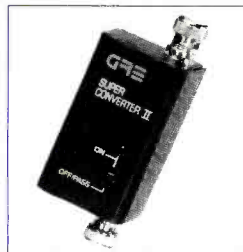
Last month's *Emergency* column, here in *POP'COMM*, had some additional thoughts on antenna tuning to lower SWR readings.

## Improve Your Scanning Coverage!

GRE America is proud to introduce a new family of products to enhance your scanning pleasure! First, GRE has designed the new **Super Converter 9001** for base model scanners. The 9001 converts 810 MHz - 950 MHz down to 410 MHz - 550 MHz. The 9001 is the perfect alternative to buying a new, expensive scanner covering the 800 MHz band. Next, GRE announces the new **Super Amplifier 3001** for base model scanners. The 3001 will increase gain by as much as 20 dB, and is engineered to help scanners with low sensitivity pull in weak signals. Both products use BNC connectors, (1) 9 volt battery and have an off/pass switch for returning to normal operation.



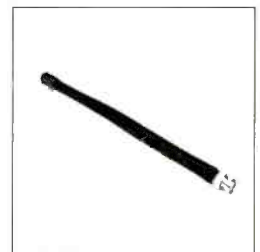
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## VHF/UHF Super Range

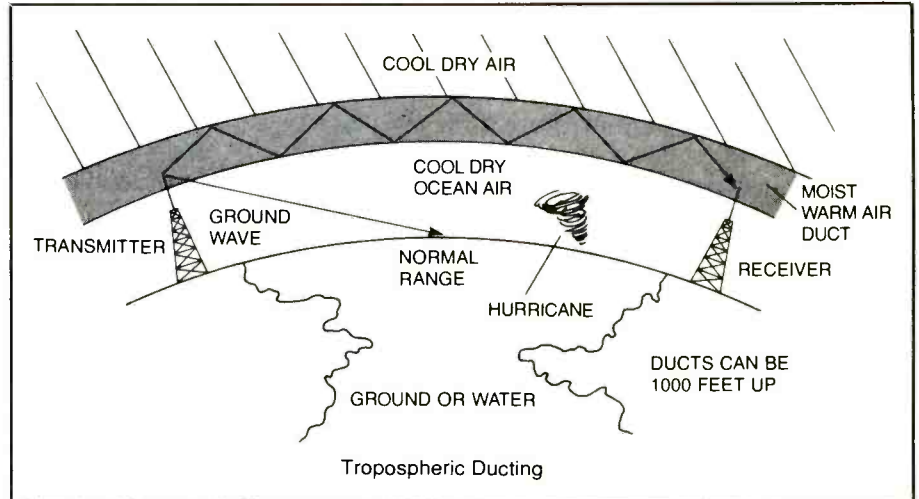
The months of July and August may bring you some big surprises when operating on low band (30-50 MHz), high band (140-160 MHz), and on UHF (440-500 MHz, 800-960 MHz). You pick up the mike, call into dispatch, and get a reply from another dispatcher hundreds or thousands of miles away. Are you the only one in the world with an extra powerful radio to make this long-distance transmission? Nope, it happens all the time.

Extra long-range VHF and UHF communications may be attributed to ionospheric skip, or atmospheric super refraction. Both conditions are prevalent during the months of July and August, and understanding why it occurs may help you better forecast when you might be getting some bizarre dispatches from a base station 8 states away!

### Low Band Skip

If you operate on low band, 30 to 50 MHz, ionospheric skip will be the most likely cause of this extra long-range phenomena. Your low band mobile and base station signals are refracted by the E-layer in the ionosphere approximately 70 miles up. Ultraviolet radiation from the overhead sun is the responsible mechanism for creating an E-layer strong enough to refract your low band signals back to a distant station, between 800 miles to 1,500 miles away. Experts call this "short skip," and this condition is independent of the 11-year solar cycle.

Low band short skip communications occur when radio waves enter the E-layer, and

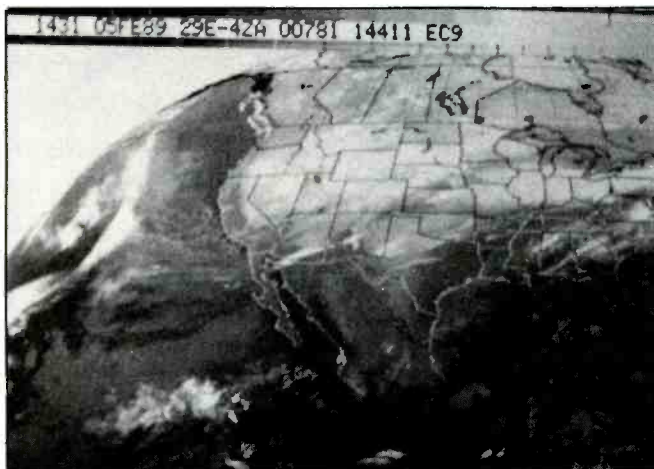


The weather as it effects long range VHF/UHF signals.

are refracted by wind shears or intense ionization back to earth hundreds of miles away. The skip usually takes place in the direction of the rising or setting sun. If you were in the Midwest, you first might hear East Coast stations coming in in the morning, and then West Coast stations late in the afternoon. The skip usually disappears when the sun sets.

Before the band begins to "open" with ionospheric skip, you will generally hear on an open-squelch system quick bursts of stat-

ic which crack your squelch circuit. Hams refer to this as 6-meter "spit". This occurs approximately 1 hour before you'll begin to hear distant skywave stations coming in on your normally quiet frequency. If your emergency communications system employs CTCSS, your closed squelch system will normally remain silent even though there may be other distant stations coming in on your same frequency. But if you run with no tone-controlled squelch, get ready for E-skip signals this summer.



Tracking the leading edge of storm fronts may let you predict an up coming VHF/UHF tropo band opening.



Author West watches the weather fax imagery for signs of a VHF/UHF band opening.

The signals will usually build to exceptionally strong levels sometimes drowning out your local mobile units on your base station. Skip signals usually fade in and out, just like waves breaking on the beach. E-skip can last all day long, so be prepared to hear some mighty interesting conversations on "your channel" this summer.

### VHF And UHF Super Range

On the 150 MHz and 460 MHz public service bands, sporadic-E skip is rare. It's never been heard on the 460 MHz band, but sporadic-E skip on the 150 MHz band is a fairly common "rare" occurrence. It's extremely short-lived when compared to low band: instead of hours that you hear interference from a station 1,500 miles away, on VHF high band this interference may only last for 1 or 2 minutes. All of a sudden, out of nowhere, distant station signals may override local signals and your frequency will be cluttered

with multiple stations hundreds, maybe thousands, of miles away for a minute or two. And then, as quickly as it came, it disappears.

VHF E-skip on 150 MHz may sometimes be associated with extremely strong thunderheads located between you and the distant station you are hearing. It normally takes tornado-like conditions to also spawn 150 MHz E-skip, so look at the weather maps, and this may be a clue as to what's in store for you the very next day on your dispatch channel. If the cloud tops are above 50,000 feet, get ready for some exciting long-range, short-lived, 150 MHz radio conditions!

Another condition which effects 150 MHz, 460 MHz, and 800/900 MHz signals is the temperature inversion tropospheric duct. Tropospheric ducting has absolutely nothing to do with the ionospheric layers. Rather, it's local weather conditions which will trigger a tropospheric duct and extend your normal 100-mile, line-of-sight communications out to 1,000 miles.

Tropospheric ducting sounds altogether different than E-layer skip. You will hear a distant dispatch center slowly build in signal strength during the morning hours, and then remain strong throughout the day, and many times throughout the night. There is usually a high pressure system sitting between both of your stations, and a warm air inversion is triggering a radio-mirror-like boundary level between both your stations. You can sometimes see this boundary level as a well-defined haze hanging on the horizon with clear air below it.

Well-defined weather fronts may also trigger a tropospheric duct where your VHF and UHF communications are sometimes accidentally interfered with by dispatchers 5

states away. Unlike sporadic-E interference that comes and goes like ocean waves, tropospheric ducting remains fairly constant, and can be strong enough to drown out local mobile units.

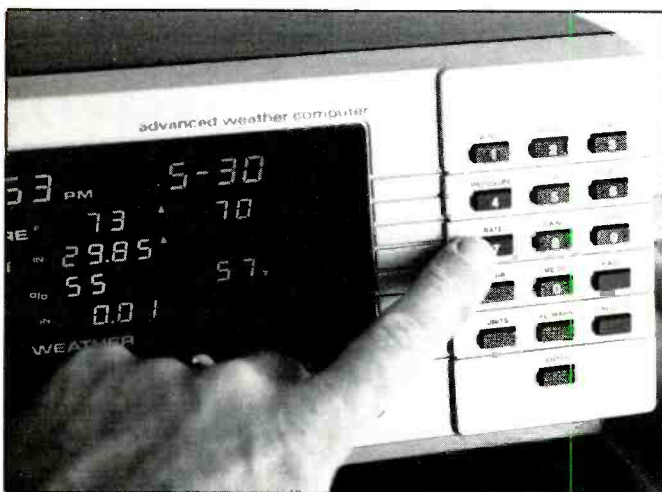
If your communications system employs tone-coded squelch, you won't necessarily hear the distant station because it's probably using a different sub-audible tone. But once you take your mike off hook, this opens the CTCSS circuit in your radio, and chances are you'll hear a lot more out of your radio system than you ever expected.

Here's one final type of long-range phenomena that the lonely dispatcher might hear on a very quiet channel in the middle of the night: it's called meteor burst reception. Commonly heard on the 30-50 MHz frequencies, it may also be received on the 150 MHz band.

What you do is turn off your CTCSS decoder on your base station, and set the squelch at the noise floor threshold where every now and then it will pop open. Your big, outside, omnidirectional, base station antenna will now be ready to capture momentary signal reflections from the tales of falling meteors. The reception may only last a second or 2, but you should hear distant stations relatively well on FM with each meteor burst. If you are on the same channel as a big municipality 400 miles away that you normally never hear, chances are you'll get bits and pieces of their conversation throughout the early morning hours via meteor burst.

These long-range conditions are a fun way to explore the fascinating world of VHF and UHF radio wave propagation, especially if you're sitting in your emergency unit with absolutely nothing else to do but to listen to the background noise. Listen carefully, it could get very exciting this summer. ■

Rising and falling air pressure may cause a tropo band opening.



## THE EXCITING WORLD OF RADIOTELETYPE MONITORING

San Jose, Costa Rica, is a transmission site for some of the North Korean Embassy RTTY traffic in the Western Hemisphere that has been seen in recent years, monitoring by this columnist showed.

The recent discovery was made while viewing messages in Romanized Korean on 20904 kHz, I saw that they were signed "ssanhossei," which is obviously San Jose. This was the first time I had ever seen the name of a city, with the exception of Pyongyang, the North Korean capital, used in such context in North Korean traffic. Two days later, I was viewing some Korean text on the nearby frequency of 20906.7 kHz, but did not see any location indicated.

We now have one location in our backyard that has been established for North Korean embassy traffic. There may be other transmitter sites in use in other Central and South American countries, so more observations will be necessary. Let us know if you learn where they are.

January's RTTY column highlighted a RTTY intercept that was logged on 1742.5 kHz, in which data, concerning such statistics as date, time, latitude, longitude, height, horizontal and vertical velocity, elevation and azimuth, were released from an unidentified station in the United States.

The answer to what the transmission was all about was to be found, I was later surprised to learn, in Gordon West's "Emergency" column, in the Dec. 1990 POPCOMM. His article referred to the Navstar Global Positioning System, in which a number of satellites are used as a navigation aid in determining land, sea, and air positions. In February, *The New York Times* had an article about the G.P.S. systems used by the U.S. military during the war in the Persian Gulf to guide missiles to their targets. The system also has non-military uses such as studying earthquakes, determining the heights of mountains, and as a navigation tool for motorists and oceangoing vessels.

Three readers of that RTTY column responded to my call for help in deciphering the various bits of data that were being sent over the radio. They were Douglas Stingley of Oregon, a cartographer and photogrammetrist; Hank Walters of Alaska, who is a civil engineer for the Federal Aviation Administration; and Richard Chabot of Maryland, who works at the Goddard Space Flight Center, Greenbelt, Maryland.

The data shown in the RTTY transmission printout dealt with the position and times given by each of the Navstar satellites that the Defense Department has had launched into semi-polar orbits 10,900 miles above Earth. Times are given by onboard atomic clocks on each satellite. Receivers on

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NR031 CHUGZENGEN
PYENGQYANG
ZOSENQINMINQUI CHINGAIHAMEUV ZIDOZA GIM ZENG QIL DONGZIGBEI
CHINGAIHANEUN ZIDOZA DONGZI
QULI LATINQAMEILIKAEUI ZUCHEISASANG SINBONGZADEULQUN DANGSINDEUI
TANSAING 49 DLSQEI ZEUGUEMHAQYE DANGSINGGEI MANSUCHUGQUENDEUI
QINSALEUL QOLLIGEI DOIMQEUL KEDALAN GIBBEUMODA QX MAMGDEULO
SAINGGAGHABNIDA QULQDEULQUN QIGIHOIQ_I_X_XSINGGEISE BALZEN
PUNGBUHDHASN QUIDAIHAN ZUCHEISASANGQEUL GGQSEUDDALIGGALEUL
BILOSHAN LATINQAMEILIKA NALADEULQEI DEQUG GOANGBEMHI SENZEN
BOGUBHAGIQIHAQYE MODEUN NOLYEGDEUL DAHALGESDEUL DANGSINGGEI
HOAGGENHAMYENSE DANGSINGGEISE MANSUMUGANGHASILGESQEUL SAMGA CHUG
QUENHA NIDA
SUNGGOHANGYENGQUEILEULPYOHABNIDA
LATINQAMEILIKA ZUCHEISASANG QYENGUSO QUIQUENZANG
HOSSEI PEULAN_PV_MI__LQAGILLALEU BULGAELLI
GGQSEUDDALIGGA ZUCHEIBN__X_QYENGUSO QUIQUENZANG
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MF62-61 NR34 W264
18513 QPDIE QUTQT WIOPR UOUDU RIYIP RPPRU RODPP YQURP PUIPIQ
19790 IPEYT QYYUD RORUI YOITY IWYTE RWTUQ WYWIT YDUER FWYQT
26237 YEPIT RIPEY DEPUQ TEEWW TIQEI TYWRQ_Q_L_MC__V_YI
00066 PTRQY PYQR RRUPT PQEQR PEPQY FOTQQ EPRQR UTIPY FYIUE
87721 YTPPR TOWTE YQWIT RYDQI QUUTI IQOPT DQTEU TIPPW EERYI
90288 YPYDE TWUUI YWEIW UIEEE RTWPU RTYU RUDUQ EYQYW WIUWW
46589 RWIR QYTWI RWRWR QYQY PIIEU PIOFE TETIU TOETR IPUPQ
35830 EYTUD PUIP QDRFQ DUPY TTRWY PYYDQ PPFWD UDTMU_M_PP
50643 YRITP PQEQR PQTWD EEDY YWUP QUWRD RIWI EYYDQ YUDY
    
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*San Jose, Costa Rica, is the first city in the Western Hemisphere that was determined to be a transmission site for North Korean diplomatic RTTY traffic. The city's name, "ssanhossei" in Korean, can be seen between the Romanized Korean text and the five-figure groups.*

*Logged by the RTTY column editor on 20904 kHz.*

Earth listen to the signals emitted by three or more of the satellites to calculate latitude, longitude and altitude to within about 100 feet, and even down to fractions of an inch, in some cases. The system works on the principle of triangulation.

As of last November, 16 or 21 planned satellites, and three orbiting spares, were launched with the remainder to be launched during the next two years.

Stingley tells us that all the zeroes he saw in the printout illustration may indicate that the RTTY intercept was a test transmission.

Walters and Stingley both said that the latitude and longitude of Sunnyvale, California, that were given in the RTTY transmission, is the geographical location of Trimble Navigation Ltd. and Ashtech, Inc., both having Government contracts to supply G.P.S. navigation receivers to the Pentagon.

One nagging question persists. What was the transmitting station and where is it located?

### RTTY Intercepts

**2280:** LRN62, SyN, Buenos Aires, Argentina, w nx in SS, 75 baud at 2308. (Jerry Domokur, OH)

**2750:** LRN66, DyN, Buenos Aires, w nxd in SS at 2321, 75 baud. (Domokur, OH)

**3196:** Prague Meteo, Czechoslovakia, w coded wx, 50 baud at 0319. (Ed.)

### Abbreviations Used in The RTTY Column

AA	Arabic
ARQ	SITOR mode
BC	Broadcast
EE	English
FEC	Forward Error Connection mode
FF	French
foxes	"Quick brown fox . . . "test tape
GG	German
ID	identification/led
MFA	Ministry of Foreign Affairs
nx	News
PP	Portuguese
RURY	"RURY . . . "test tape
SS	Spanish
tfc	Traffic
w/	With
wx	Weather

**3229:** "KAWN," Elk Horn AFB, NE, w coded wx, 75 baud at 0502. (Mark Gribble, VA)

**3622:** "RPTL," Portuguese Navy, Ponta Delgada, Azores, w tfc at 2330, 75 baud. (Domokur, OH)

**4004.5:** LRO2, Telam, Buenos Aires, Argentina, w nx in SS, 50 baud at 0123. (Harold Manthey, NY)

**6336:** GYA, Royal Navy, London, England, w a test tape, 75 baud at 0329. (Ed.)

**6496:** WLC, Rogers City R., MI, w ARQ tfc at 2300. (Fred Hetherington, FL)

**6771.7:** Un-ID in Tunis, Tunisia, w msg in FF to "enam/bio," with a dupe to "w.dia." Was ARQ at 0155. (Hetherington, FL)

**6825:** U.S. Army MARS sta AAT4JK w a MARS-grams to AAT4JR, & AAT4CY w one to AAT4UJ, 300-baud packet at 0143. (Ed.)

**6989:** 8Q9, Male Aero, Maldives w "zczc vrmn qjh vvvv" + RURY, 50 baud at 2300. (Hetherington, FL)



U J S BY- STBY-PX STBY-PX STBY-PX STBY-PX STBY-PX STBY-PX STBY-PX STBY-PX STBY-PX  
 STBY-PX STBY-PX STBY-PX STBY-PX STBY-PX STBY-PX STBY-PX STBY-PX STBY-PX STBY-PX  
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 ZC ZCZC  
 SAX SAX SAX DE SAG SAG SAG  
 FARTYGSRESS FRÅN TT FREDAG FJÄRDE JANUARI. ITEM  
 MIDDAGSVÄRDRET VAR I STOCKHOLM MULET PLUS TV\* GRADER, GÅTE ORG  
 VÅXL NDE MOLNIGHET FYRA, MALM\* UPSPRICKANDE MOLNÄCKE FYRA.  
 SUNDSVALL NÅSTAN KLART MINUS FYRA OCH LULE\* SN#FALL MINUS SJU  
 GRADER. ITEM  
 REGERINGEN HAR TRÖTTNAT P\* ATT FÖRETAG H JER SINA PRISER MED  
 HÄNVISNING TILL SKATTEOMLÄGGNING. DÄRFÖR HAR STATENS PRIS- OCH  
 KONKURRENSVERK SPK FÖTT I UP DRAG ATT KONTROLLERA OM

SAB63, Goeteborg R., Sweden, is telling its subscribers to stand by for a news broadcast, followed by a transmission of news in Swedish. Logged on 12818 kHz at 1700 in FEC by the RTTY column editor.

**13665:** 6VU73, Dakar Meteo, Senegal, w coded wx at 0411, 50 baud. (Ed.)  
**13687.5:** Un-ID w garbled ID, & a msg marked "un-class" that contained foxes, RYRY + the alphabet. Was FDM ARQ-M2/96, channel B, at 0502. (Ed.)  
**14340.5:** BAF47, Beijing Meteo, China, w coded wx at 0929, 50 baud. (Ed.)  
**14367:** BZP54, Xinhua, Yuryumqi, China, w nx in EE, 75 baud at 0931. (Ed.)  
**14372:** VER, Canadian Forces, Ottawa, ON, w encryption at 1330, ARQ-M296, channel A. (Ed.)  
**14376:** BZT34, Xinhua, Yuryumqi, China, w nx in RR, 50 baud at 0935, and "KAC" w RYRY, foll by 5F & 5L msgs, 75 baud at 1335. "KAC" also logged on 7783.2 kHz. (Ed.)  
**14397:** "DOR," MFA, Sofia, Bulgaria, w nx in Bulgarian, 75 baud at 0940; and w crypto after DDDDD to Teheran, Iran, 75 baud at 1340 on another day. (Ed.)  
**14452:** HMF57, KCNA, Pyongyang, North Korea, w nx in FF at 1321, 50 baud. (Ed.)  
**14478.5:** OEC, MFA, Vienna, Austria, w tfc at 1337, SI-ARQ/96, 5 character mode. (Ed.)  
**14510:** RIC75, Tass, Moscow, USSR, w nx in EE, 50 baud at 0946. (Ed.)  
**14512:** ABM6USA, U.S. Army MARS, Schofield Barracks, HI, w MARSgrams to AAA0USA, 300-baud packet at 1700. (Ed.)  
**14530:** Several USAF MARS stas w tfc, 300-baud packet, at 1434. (Ed.)  
**14531.7:** Un-ID Egyptian diplo, w tfc in AA, ARQ at 1407. (Ed.)  
**14546.5:** IPG20, MFA, Rome, Italy, w 5L msgs to Mideast embassies, ARQ at 0740. (Ed.)  
**14573:** Jana, Tripoli, Libya, w nx in AA, 50 baud at 0928. (Ed.)  
**14593:** JWT, Stavanger Navrad, Norway, w tfc in Norwegian to LBL1, Norwegian Forces w the UN in Beirut, Lebanon. Was ARQ at 1450. (Ed.)  
**14597:** SOO259, PAP, Warsaw, Poland, w nx in Polish, FEC at 1813. (Manthey, NY)  
**14606.7:** "RFVI," French mil., Le Port, Reunion, w "controle de voie," ARQ-E3/100 at 1837. (Ed.)  
**14670:** "DFZG," MFA, Belgrade, Yugoslavia, w RYRY w/o ID, 1012, adding the DFZG c/s at 1017; foll by crypto after XCXCXC at 1018, 75 baud. (Ed.)  
**14676:** "DFZG" w RYRY, 1440-1444, foll by crypto after XYXYXY at 1459, 75 baud. (Ed.)  
**14690:** Un-ID w 5L & 5F msgs, w RYRY btwn msgs, 75 baud, 1545-1603. (Ed.)  
**14700:** REB24, Tass, Alma Ata, USSR, w nx in EE, 50 baud at 1019. (Ed.)  
**14718.4:** "RFHI," French Navy, Noumea, New Caledonia, w "controle de voie," ARQ-E3/100 at 1426. (Ed.)  
**14719:** OST58, Oostende R., Belgium w nx in EE, FEC at 0345. (Gribble, VA)  
**14760:** CNM61, MAP, Rabat, Morocco, w nx in FF at 1025, 50 baud. (Ed.) BAT93, Xinhua, Beijing, China, w nx in EE, 50 baud at 1816. (McFerrin)  
**14786.5:** 9PL, Kinshasa Aero, Zaire, w RYRY aty 0646, 50 baud. (Ed.)  
**14801.5:** "RFVI," French mil., Le Port, Reunion, w "controle de voie," ARQ-E3/100 at 1537 & 2042. (Ed.)  
**14817.5:** OEQ27, Interpol, Vienna, Austria, w police records in EE & FF to Tokyo, Japan, ARQ at 2354; and to Islamabad, Pakistan at 0210. (Ed.)

**14856:** PL, Havana, Cuba, w nx in SS, 5 baud at 1448. (Ed.)  
**14909.7:** Un-ID Egyptian embassy w tfc in AA, ARQ at 1624. (Ed.)  
**14928:** CLN452, PL, Havana, Cuba, w nx in EE, 50 baud at 1739. (Ed.)  
**14930.5:** A msg center for U.S. Army MARS members served by Ft. Leavenworth, KS, in op at 1743, 300-baud packet. Included AAA6USA, AAB6USA, & AAT7USF. (Ed.)  
**14932:** APS, Algiers, Algeria, w nx in EE, 50 baud at 1312. (Ed.)  
**14936.7:** NNNONUW, USN MARS aboard the USS Whidbey Island (LSD 41), w MARSgrams in ARQ at 1822. The vessel is a dock landing ship. (Ed.)  
**14964:** "RFFXL," French mil., Beirut, Lebanon, idling at 1315, ARQ-E/72. (Ed.)  
**14970.5:** SAM, MFA, Stockholm, Sweden, w a 5L msg at 1302, SWED-ARQ. (Ed.)  
**14989:** TNL77, ASECNA, Brazzaville, Congo, w RYRY + QRK 5 GA TFC, 50 baud at 0643. (Ed.)  
**15637.5:** IPG20, MFA, Rome, Italy, w nx in II, FEC at 1849. (Ed.)  
**15661:** Un-ID French diplo w lots of 5L msgs, FEC-A/144 at 1420. (Ed.)  
**15667:** FDY, French Air Force, Orleans, France, w le bricks, 10 count, RYRY & FDYFDYFDY, 50 baud at 1355. (Ed.)  
**15675.8:** Hungarian Embassy, Havana, Cuba, w a msg in HH, DUP-ARQ at 1833. (Ed.)  
**15751.9:** CNM66, MAP, Rabat, Morocco, w nx in EE at 1230, 50 baud. (Manthey, NY)  
**15801.5:** French Embassy, Fort de France, Martinique, w a telex & a 5L msg to Caracas, Venezuela, ARQ6-90/200 at 1411. "RFGW," MFA, Paris, France, w 5L msgs & a telegram at 1740, ARQ-90/200. (Ed.)  
**15808:** "F8C" w RYRY & foxes, 1333-1336, foll by crypto after JJJJJ, 75 baud. (Ed.)  
**15821.5:** IPG20, MFA, Rome, Italy, w 5L msgs, ARQ at 1700. (Ed.)  
**15856.7:** DMK, MFA, Bonn, Germany, w encryption, ARQ-E/96 at 1404. (Ed.)  
**15910:** Un-ID French mil., w tfc, 1336-1341, foll by s/off w "bye bye et bon courage..." Was 75 baud. (Ed.)  
**16006.8:** Un-ID w telexes in AA, ARQ at 1434. (Ed.)  
**16031.2:** RBI75, PTT, Moscow, USSR, w encryption to Kabul, Afghanistan, ARQ-M2/96, channel A, at 2052. (Ed.)  
**16040:** RTT40, APN, Moscow, USSR, w nx in AA, 100 baud at 0536. (Ed.)  
**16057.5:** NNN0TLM, USMC MARS, region 5, w msgs to NNN0BSP, 300-baud packet at 1730. (Ed.)  
**16067:** IRO30, ANSA Rome, Italy, w RYRY & QRA, 50 baud at 1739. (Ed.)  
**16106:** FZM62, DIPLO, Noumea, New Caledonia, w nx in FF, 50 baud at 0530. (Ed.)  
**16111.2:** HBD20/3, MFA, Berne, Switzerland, w a msg in FF & 5L msgs to the American interest section at the Swiss Embassy in Teheran, Iran, ARQ at 1745. The U.S. does not have diplo relations w Iran, so Switzerland handles its affairs w the Iranian govt. (Ed.)  
**16117.7:** Santa Maria Aero, Azores, w msgs in PP & aero wx, ARQ at 2140-1145. (Ed.)  
**16120:** HBD20, MFA, Berne, Switzerland, w nx in GG & FF, + a telex in FF, ARQ at 1218. (Ed.)  
**16131.7:** Egyptian Embassy, Rome, Italy, w 5L

msgs to Cairo on a Sunday, ARQ at 1739. (Ed.)  
**16136:** BZR66, Xinhua, Beijing, China, w RYRY, 75 baud at 1305. (Ed.)  
**16140:** RGW28, Tass, Moscow, USSR, w nx in EE, 50 baud at 1311. (Ed.)  
**16149-16151:** MKD, RAF, Akrotiri, Cyprus, w RYRY's & foxes on 9 FDM channels, 50 baud at 1814. (Ed.)  
**16165:** "RFFA," Mindefensed, Paris, France, w 5L msgs, ARQ-M2/200 at 1755. (Ed.)  
**16204:** STK, Khartoum Aero, Sudan, w coded & plaintext wx in EE, 75 baud at 2301. (Scalzo, PQ)  
**16260:** "RFGW," MFA, Paris, France, w 5L msgs & msgs in FF to "D6P," FEC-A/192 at 1634-1745. (Ed.)  
**16232.5:** "RFTJ," French Navy, Dakar, Senegal, w a 5L msg at 2120, ARQ-M2/96, channel A. (Ed.)  
**16427.7:** Santa Maria Aero, Azores, w aero wx at 2140, ARQ. Was // 16117.7. (Ed.)  
**17162.5:** PWZ33, Rio de Janeiro Navrad, Brazil w plaintext wx, 50 baud at 2205. (Scalzo, PQ)  
**18005.7:** MFA, Cairo, Egypt, w ARQ tfc that was too weak to decode, at 1517. (Ed.)  
**18007.7:** MFA, Cairo, w telexes in AA & EE, ARQ at 1403. (Ed.)  
**18050:** REM57, Tass, Moscow, USSR, w RYRY, 50 baud at 1547. (Manthey, NY) Correct c/s here is RQV70, REM57 is on 16260 kHz. (Ed.)  
**18054.5:** "DFZG," MFA, Belgrade, Yugoslavia, w nx in SC, 75 baud at 1525. (Ed.)  
**18087:** Un-ID w 5L msgs, 75 baud at 1335; s/off at 1337. (Ed.)  
**18128:** "YBU" w 5L grps, 1750-1757, 50 baud. (Manthey, NY)  
**18374.5:** "RPFN," Monsanto Navrad, Brazil, w foxes & RYRY at 0128, 75 baud. (Scalzo, PQ)  
**18425:** Un-ID w a 5F msg at 1500, 50 baud. Off the air at 1505 w no s/off. (Ed.)  
**18439.5:** Un-ID w nx in AA at 1358, 50 baud. Also found on 18440 at 1854. (Ed.)  
**18443:** IPG20, MFA, Rome, Italy, w nx in II at 1453, ARQ-E/96. (Ed.)  
**18612:** Un-ID idling, ARQ-M2/96 at 1713. (Peter T., England)  
**18615:** Un-ID w ARQ tfc in SS at 1534. (Peter T., England)  
**18648:** SOT265, PAP, Warsaw, Poland, w nx in Polish at 1413, FEC. (Ed.) Same at 1812. (Peter T., England)  
**18746:** SOT274, PAP, Warsaw, w nx in Polish, FEC at 1813. (Peter T., England)  
**18810:** SAM, MFA, Stockholm, Sweden, w telexes to Havana, Cuba, SWED-ARQ at 1608 & nx in Swedish, FEC at 1637. (Ed.)  
**18986.7:** "RFHJ," French Navy, Papeete, Tahiti, w 5L msgs & "non protege" msgs, ARQ-E3/100 at 0705. (Ed.)  
**19008:** U.S. Army MARS sta AAR2CF w MARSgrams to AAA6USA, 300-baud packet at 1522. (Ed.)  
**19016.7:** MFA, Cairo, Egypt, w a 5L msg to Bogota, Colombia, at 1345, and another one to Guatemala City, Guatemala, at 1348, ARQ. (Ed.)  
**19027.3:** AEMIUSA, U.S. Army MARS, Heidelberg, Germany, w MARSgrams to AAA3USA, 300-baud packet at 1455. (Ed.)  
**19061.7:** Un-ID w badly broken up ARQ tfc in EE at 1436: "consecutive . . . alarm . . . allow . . . press . . . if you need . . ." These fragments appear to be part of some instructions for operating a computer-controlled msg center. (Ed.)  
**19091:** MFA, Jakarta, Indonesia, w nx in Indonesian, 50 baud at 1425. (Ed.)  
**19091.5:** MFA, Jakarta, w nx in EE, 50 baud at 1528. (Ed.)  
**19102:** "RFLI," French Navy, Fort de France, Martinique, w "controle de voie," ARQ-M2/96, channel A, at 2030. (Scalzo, PQ)  
**19119:** MFA, Warsaw, Poland, w 5F msgs & political nx in Polish. Was 75 baud at 0543. (Ed.)  
**19127:** RMC21, Tass, Moscow, USSR, w nx in PP, 50 baud at 1500. (Ed.)  
**19151:** Un-ID w "YBU YBU YBU 1/371" + RYRY at 1313, foll by a 5L msg, 75 baud. (Ed.)  
**19154:** Un-ID w msgs in II, ARQ-E/96 at 1610. (Hetherington, FL)  
**19210:** RCC79, Tass, Moscow, USSR, w RYRY at 0559, foll by nx in FF at 0600, 50 baud. (Ed.)  
**19227:** "DFZG," MFA, Belgrade, Yugoslavia, w crypto after XYXYXY, 75 baud at 1504. (Ed.)



**19235:** RWW70, Tass, Moscows, w nx in FF, 50 baud at 0610. (Ed.)

**19293.5:** Un-ID w text in AA, 1505-1540, ARQ. (Ed.)

**19234.5:** "KAWN," Elk Horn AFB, NE, w aero wx, 75 baud at 2305. (Ed.)

**19441.8:** LOR, Puerto Belgrano Navrad, Argentina, w 5L msgs, 75 baud at 2312. (Ed.)

**19529:** JMG5, Tokyo Meteo, Japan, w coded wx, 50 baud at 0620. (Ed.)

**19532:** Several U.S. Army MARS stas w either tfc or MARSgrams at 0023, 1331, 1734 & 2330. (Ed.)

**19576:** ORI59, PTT, Brussels, Belgium, w a msg in FF at 1334, ARQ-M2-242/96, channel A. (Ed.)

**19604.5:** CLP1, MFA, Havana, Cuba, w prensa-minrex, 50 baud at 1527. (Manthey, NY)

**19725:** APN, Moscow, w nx in FF at 0628, 100 baud. (Ed.)

**19731.7:** Un-ID Egyptian diplo sends nothing but TVVV & TVMV selcals for two hours. Was ARQ at 1313. (Ed.)

**19750.5:** 6VU79, ASECNA, Dakar, Senegal, w RYRY, 50 baud at 2326. (Scalzo, PQ)

**19827:** UN-ID w ARQ tfc in an in-ID Scandinavian language, 2034-2100. (Ed.)

**19845:** RWZ74, Tass, Moscow, w nx in EE, 50 baud at 0630. (Ed.)

**19860:** GYA, Royal Navy, London, w a test tape at 1359, 75 baud. (Ed.)

**19865.5:** YZJ4, Tanjug, Belgrade, Yugoslavia, w nx in SS, 50 baud at 1634. (Ed.)

**19914.5:** Un-ID Egyptian Emb., possibly in Washington, DC, w telexes to Cairo, ARQ at 1540. (Peter T., England)

**19921.7:** Egyptian Emb., Washington, DC, w a brief msg in AA to the Egyptian Emb. at Rabat, Morocco. Was ARQ at 1430. (Ed.)

**19993:** Un-ID w foxes + "LR sending," 75 baud at 0348. (Scalzo, PQ) It's the VOA relay sta at Monrovia, Liberia. (Ed.)

**20001.5:** IPG20, MFA, Rome, Italy w 5L tfc to Mid-east embassies, & msg in II, ARQ at 1341. (Ed.)

**20005.5:** IPG20 w 5L msgs to Mideast embassies, ARQ at 1454. (Ed.)

**20013.5:** HGX21, MFA, Budapest, Hungary, w tfc in HH, DUP-ARQ at 1449. (Ed.)

**20014.5:** HGX52, Hungarian Embassy, Washington, DC, w a 5F msg at 1406, DUP-ARQ. (Ed.)

**20017.7:** A possible Egyptian diplo w brief ARQ msgs in EE at 1337. One ment'd Ankara, Turkey. (Ed.)

**20022.4:** DFU20H3, MFA, Bonn, Germany, w nx in GG, FEC-A/96 at 1448. (Ed.)

**20041.7:** Un-ID Italian diplo w a 5L msg at 1614, ARQ, & a s/off msg in II at 1645. (Ed.)

**20068.3:** "PHWR," Hickam AFB, HI, w aero wx at 1330, 75 baud. (Ed.)

**20101.7:** MFA, Cairo, Egypt, w rpt of selcal KKVA, ARQ at 1320. (Ed.)

**20114.5:** CLP1, MFA, Havana, Cuba, w RYRY & a 5L msg to Algeria, 50 baud at 1418. (Ed.)

**20132:** "DFZG," MFA, Belgrade, Yugoslavia, w nx in SC, 75 baud at 0634. (Ed.)

**20139.5:** Un-ID w 5F msgs, 50 baud, 1817-1824, foll by a s/off in CW. (Ed.)

**20179.7:** "RFFA," Mindefense, Paris, France, w 5L msgs at 1426, ARQ-E3/100. (Ed.)

**20190:** AGA7RM, USAF MARS, Rhein Main AB, Germany, w MARSgrams, 75 baud at 1605. (Ed.)

**20240:** French mil., Port Bouet, Ivory Coast, w "controle de voie" and "non protege" msgs, ARQ-E/48 at 1804. S/off msg at 1917. (Ed.)

**20262:** KNY32, Bulgarian Embassy, Washington, DC, w crypto after DDDDD, 75 baud at 1546. (Ed.)

**20296-20297.5:** GXQ, Royal Army, London, England, w foxes & RYI's, FDM 50 baud, all channels, at 1640. (Ed.)

**20418.5:** German Embassy, Managua, Nicaragua, w crypto between VVVVV & KKKKK, to MFA, Bonn, & w msgs in GG. Was ARQ-E/96 at 1850. (Ed.)

**20420:** Possibly CLP1, MFA, Havana, Cuba, w a msg in SS, re a visa, 50 baud at 1450, & s/off at 1451. (Ed.)

**20584:** Un-ID Italian diplo w a s/off msg in Italian at 1500, ARQ. (Ed.)

**20607:** SAM, MFA, Stockholm, Sweden, w a 5L msg to Damascus, Syria, SWED-ARQ at 1625. (Ed.)

**20633.8:** "RFVI," French Navy, Le Port, Reunion, w a service msg, ARQ-E3/100 at 1621. (Ed.)

**20729.5:** Un-ID w RYRY, 1522-1524, 50 baud, foll by CW tfc using letters A,D,G,I,M,N,R,T,U,W. (Ed.)

**20734:** UN High Commissioner for Refugees, San Jose, Costa Rica, w a bill of loading, given several rpts, to UNHCR HQ, Geneva, Switzerland, ARQ, 1959-2033. (Ed.)

**20738:** CLP6, Embacuba Baghdad, Iraq, w msgs at 1430, 50 baud. (Hetherington, FL)

**20742:** "GMN" w RYRY at 1745, & a 5F msg at 1747, 50 baud. (Ed.)

**20743:** Un-ID w end of 5F msg at 2238, 50 baud. QRU SK at 2239. (Ed.)

**20807.7:** Possibly "RFQP," French mil., Djibouti, w "controle de voie," ARQ-E3/96 at 2005. (Ed.)

**20844.3:** "RFQP," w "controle de voie," ARQ-M2/200, channel A & B, at 1642 & 1644, respectively. (Ed.)

**20872.2:** AGA7RM, USAF MARS, Rhein Main AB, Germany, w MARSgrams, 75 baud at 1850. (Ed.)

**20904:** North Korean Embassy, San Jose, Costa Rica, w telexes in KK & 5F msgs. San Jose ID'd as SSANHOSSEI. Was 50 baud, 2043-2100. (Ed.)

**20906.7:** North Korean Embassy, QTH not learned, w 5F msgs & a manually typed text in KK. Was 50 baud at 1927. (Ed.)

**20919.4:** SAM, MFA, Stockholm, Sweden, w nx in Swedish, SWED-ARQ at 1629. Someone continually jams the sig w a high-pitched tone every 5 seconds, so that just a few words occasionally can be seen. (Ed.)

**20921.3:** U.S. Army MARS sta AAR3NAA w MARSgrams to AAE1QF, 300-baud packet at 1700. (Ed.)

**20952.5:** PTT, Lubumbashi, Zaire, w telexes to Brussels, Belgium, at 1610, ARQ-M2-242, channel B. (Ed.)

**20968:** Polish Embassy, Havana, Cuba, idling, 1445-1557, then sends a s/off msg in Polish, POL-ARQ. (Ed.)

**20975:** U.S. Army MARS sta AFA1JN w tfc to AEM3XM, 300-baud packet at 1626. (Ed.)

**20980:** Un-ID w 5L msgs, 75 baud at 1602. Severe QRN at 1617 made plaintext impossible to read, so lang couldn't be ID'd. CLP1, MFA, Havana, Cuba, has been noted as having used this freq in the past. At 1647, I heard 2 OM speaking SS on 20980.3, during the RTTY xmsn. (Ed.)

**21857.7:** Guessing French mil., N'djamena, Chad, w 5L msgs, 1834-1914, ARQ-M2/200. (Ed.)

**21876:** Un-ID w 5F grps, 100 baud at 1932, then to CW at 1635 for s/off. (Ed.)

**21882:** "DFZG," MFA, Belgrade, Yugoslavia, w nx in SC, 1947-1950, 100 baud. (Ed.)

**22459:** PWZ33, Rio de Janeiro Navrad, Brazil, w tfc at 2105, 50 baud. (Scalzo, PQ)

**22550.4:** GYA, Royal Navy, London, England, w a test tape, 75 baud at 1614. (Ed.)

**22562:** GKE7, Portishead R., England, w ARQ tfc at 1618. (Ed.)

**22728.9:** MKD, RAF, Akrotiri, Cyprus, w RYRY, 50 baud FDM at 1409. (McFerrin)

**22854:** French Embassy, Managua, Nicaragua, w a msg to Fort de France, ARQ-6-90/200 at 1729. (Ed.)

**22882:** "DFZG," MFA, Belgrade, Yugoslavia, w crypto after VCVVCV, 75 baud at 1548. (Ed.)

**22900:** GPA7, Portishead R., England, w telex tfc at 1419, ARQ. (Ed.)

**22904.5:** DMK, MFA, Bonn, Germany, w telex tfc to La Paz, Bolivia, & Recife, Brazil, ARQ-E/96 at 1424. (Ed.)

**22955:** ISX22, ANSA, Rome, Italy, w nx in FF, 50 baud at 1431. (Ed.)

**22967.2:** HBD20, MFA, Berne, Switzerland, w 5L msgs, ARQ at 1432. (Ed.)

**22975.5:** HBD20, MFA, Berne, w nx items in FF & GG, ARQ at 1511. (Ed.)

**23234.3:** "RFFA," Mindefense, Paris, France, w "controle de voie," ARQ-M2/200, channel B, at 1654; & tfc on channel A at 1656. (Ed.)

**23245.7:** Un-ID French mil., w msgs/FF & 5L msgs, 1713-1800, ARQ-M2/200, channel A. (Ed.)

**23263.5:** Un-ID Hungarian diplo ends xmsn at 1825, DUP-ARQ. (Ed.)

**23405:** SOY240B, PAP, Warsaw, Poland, w nx in Polish, FEC at 1442. (Ed.)

**23972:** JMG6, Tokyo Meteo, Japan w coded wx & plaintext wx in EE, 50 baud at 2317. (Ed.)

**23977:** LOR, Puerto Belgrano Navrad, Argentina, w 5L msgs, 75 baud at 2011 & 2322. (Ed.)

**24871.7:** "RFHJ," French Navy, Papeete, Tahiti, in ARQ-E3/96 mode 2346 & 0016. "Controle de voie" msg says it's "de RFLI" (Fort de France, Martinique), but circuit ID "HJL" indicates Papeete as the actual xmtng sta. (Ed.)

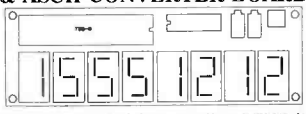
**26158:** UJY, Kaliningrad R., USSR, w RYRY & a list of QTC freqs, 50 baud at 1621. (Ed.)

**26208:** "DFZG," MFA, Belgrade, Yugoslavia, w nx in SC, 75 baud at 1544. (Ed.)

**26441.7:** "RFFA," Mindefense, Paris, France, w 5L msgs & msgs in FF at 1627, ARQ-E3/100. (Ed.)

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### Cellular Tell-A-Phony

Let's face it, cellular telephone technology is the type of thing that attracts many who would defraud the system. About \$100-million unbillable fraudulent cellular calls are placed each year.

Several years ago, in larger cities, it was possible to take a cellular phone to an underground tinkerer and have a few chips changed that would provide the instrument with a totally new image, including a new serial number and a different telephone number. These new numbers might be legit numbers belonging to others, and when the cellular phone sent out those numbers, they were sufficient to allow calls to be placed without the callers being billed. Those who did get billed were less than pleased.

By leaning on the persons to whom the fraudulent calls were placed, it was possible to find out the identities of the callers. After that, the trail leading to the shops supplying the illicit chips was a cinch.

Systems technology begins checking on the billing status as soon as a call is placed. The cellular phone sends out its two sets of identifying numbers, and that data begins processing. In the case of a roamer (caller operating outside his/her normal service area), that could take some time to be sent

to another area and grind through the system, especially during peak hours when systems are busy. It takes so long, in fact, that a cellular phone using completely fraudulent identity numbers has time to complete one call before the decision comes back with a thumbs-down on that instrument's ability to place billable calls. After that, the system won't take additional calls from that phone.

This weak point in the system was quickly spotted by cheats as something that could be exploited. They devised a new bootleg chip that can keep coming up with a virtually endless stream of different legit-looking fake numbers each time a call is placed, thus fooling the cellular network into perceiving each call placed from a doctored phone as being the first one from that unit ever placed into the system.

Those who wanted the ability to do this were willing to shell out up to \$5,000 each to have the bootleg chip installed in their cellulars. The idea worked until the New York City Police Department happened to confiscate one of these phones. They turned it over to the U.S. Secret Service, which let their own experts put it through its paces while connected to a lot of exotic computerized equipment. When they got finish-

ed, they knew the code that generated the different numbers in the chip. This enabled the writing of a program that cellular carriers could use to detect and reject calling attempts from phones with these chips.

Did the idea work? Upwards of 5,000 phony cellular calls were blocked the first day the program was put on line in Los Angeles, last February. In New York City, where the situation is even worse, the improvement was even more significant.

### Portable Computers With Cellular Modems

According to a clipping from the *Wall Street Journal*, submitted by James Brown, of Ridgefield, CT, small portable computers with built-in cellular modems are now upon us, thanks to *Toshiba*. By fall, many other companies are expected to also be in this market.

The *WSJ* envisions such units performing many useful functions such as automatically taking messages, updating programs and files, acting as an electronic memory prompter for appointments, and also displaying stored data.



NEC America's Portable Cellular Workstation has everything you need for an executive office except a water cooler and a corner location.

The NEC M3800 Pack-phone offers some useful features.





That looks like King Kong's cellular on the counter. The amazing non-working display handset is an 11 by 3 foot model at the new NYNEX Cellular Center, 310 Madison Avenue, New York, NY. The walk-in consumer center sells a complete line of mobile, portable, and transportable cellulars. Browsers are welcomed.

The ability to be connected to the home office's mainframe by means of a pocket computer with a cellular connection suggests many potentials.

### Cellular System Standards

Motorola, Inc. and Northern Telecom Limited are getting together to develop major enhancements to their existing products for global markets, based on new open system standards. They intend to jointly specify, develop, and implement (in connection with the appropriate standards bodies) open cellular interface standards that will allow systems to purchase compatible components (such as switches and cell sites) from a number of vendors.

The standards will be based upon existing international switching and cellular standards, such as CCS7, GSM, ISO, and ISDN. Northern Telecom is the second switching vendor to join Motorola in establishing open standards. Previously, an agreement had been announced with DSC Communications, and Motorola anticipates that other switching vendors will also participate.

With cellular technology in the midst of turbulence and rapid change, and looking towards an eventual change from analog to digital systems, the hope is that certain constants will be established to maintain a degree of uniformity that will benefit the industry as a whole.

### New Ways of Staying in Touch

The National Dispatch Center, Inc., of San Diego, CA, announced two new optional services for alphanumeric paging sub-

scribers. These feature toll-free 800 telephone numbers for the subscriber.

The two new services, *Personalized Alpha Messaging*, and *Customized Alpha Messaging*, are available for resale by paging service providers throughout the United States. Customers must use one of the company's regular services in order to avail themselves of either of the optional services.

Paging services interested in obtaining further information on these new options, and how to become an NDC services retailer, should contact NDC at (800) 800-8449, or (619) 481-9500.

### New Hardware

No grass is growing under the feet of the folks at NEC America, Inc. They let me know about two new cellular products that are quite good.

First is the NEC Portable Cellular Workstation. This is a carry-along office containing a P300 portable phone, an RJ-11 cellular interface, and the 6.5 lb. *UltraLite 286V* (or 6.8 lb. 286F) notebook computer.

Both computers run at 12 MHz with a 286 processor and have a 20 megabyte hard drive and 1 megabyte of memory (expandable to 5 megabytes). The 286V computer has a 10-inch backlit VGA display for graphics-oriented applications. The 286F computer has a display just under 9-inches in b/w with VGA fonts for text-oriented applications.

There are two outboard interfaces in the Workstation. A simple interface allows users to manually operate the system. An intelligent interface permits automatic operation.

The P300 phone can be powered from a

cigarette lighter adapter, AC power lines, or a 9V battery. The computer has its own batteries which may be recharged via optional cigarette lighter accessory.

The other new product is NEC's M3800 *Pack-phone*. This mobile/battery pack phone has selectable dual power output of 3 watts or 1.4 watts. With its portable battery pack, it has 80 minutes time in low power mode, or 40 minutes in high power mode. It will run for 18 hours on standby before needing a recharge.

Standard features include hands-free operation, programmable DTMF automatic tone overriding to access various electronic services while in conversation mode, and programmable key to allow the user to operate several functions simultaneously.

It comes with 40-number memory speed-dial, a large LCD display, repeat dial button, last number recall, and an optional voice recognition (built-in TRX) for fully hands-free operation. The M3800 has a dual NAM option for use in two cities without having to pay roamer charges.

For information on these NEC products, contact NEC America Inc., Mobile Radio Division, 383 Omni Drive, Richardson, TX 75080.

We'd like your input here. Send along your questions, suggestions, anecdotes, news clippings, or other items relating to car phones, beepers, marine radio, and similar. We'd also like to hear from companies with new services and products in these fields. ■

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# COMMUNICATIONS CONFIDENTIAL

## YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

**R**egarding the photos submitted by Anonymous, Cuba: The "Guardia Fronteras" (Border Guard) are subordinate to the Ministry of the Interior and have a strength of approximately 3000 troops. They are primarily concerned with the prevention of unauthorized entry to or exit from the country by sea or air and they have about 20 small patrol craft. (Info from "Armed Forces of Latine America", by English, published by Jane's Publishing, Inc.)

An engineer friend examined photos and offered the following comments: The tripod device on top of the glassed-in enclosure is some type of radar. On the corner of the other enclosure on the roof you can see what may be a VHF vertical antenna (next to the taller support mast). Finally it appears that there are two HF antennas. One of them is a dipole with traps (center connector is visible just to the left of the support mast.) The other HF antenna seems to be a long-wire installed in inverted V fashion as is the dipole.

A suspected Border Guard CW net operates on 2955 kHz from roughly 2130-1100 UTC and on 7409 kHz from 1100-2130 UTC. Callsigns recently heard include GCA, WHY, AVO, IGK and INU with this latter station being net control. The callsigns do change periodically. Sloppy sending is prevalent among operators although some seem to have very good fists. Some traffic has been in 5F groups while other traffic has been in 5 character groups using letters A-Z plus Spanish nyeh (MW) and figures 2, 3, and 8. The latter messages always seem to be sent in 30 group sections.

In the April '91 column we mentioned a Vietnamese Havana/Paris link which had been observed over a period of time. Here

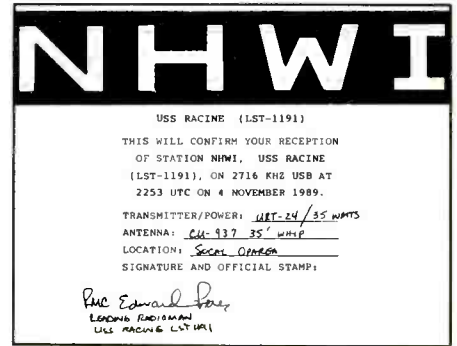
are some additional details for recognition of the activity. The message heading is usually a 5 figure message number followed by the group count indicated by CK ## and then BT. Traffic seen to date has included 5 letter cipher, and Vietnamese plaintext which sometimes is mixed with 2L, 3L and 4L code groups. Operator chatter is frequently Vietnamese PT mixed with the coded groups. In the past cut number (1-0 equals ANDUWRIGMT) traffic has been passed. Frequent PT words were COOS, PHATS, TANGYF, ALI, CHUNGS, TRONGJ, TRAAN, CWONGF, CWOCS, plus NGAYF (means Day), OANGS (month) and NAM (year). When sending QRX times, the letter R separates the hour from the minutes as in an example of QRX 21ROO. The zeros are sent as letter O's. One other point is that sometimes French PT words mixed in with Vietnamese words.

My sincere thanks to Dave White, ME for his valuable assistance not only in copying some of the schedules but also in taking many DF shots of the stations.

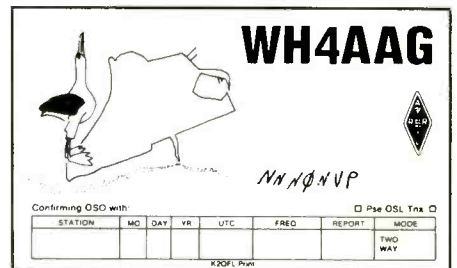
Now let's dig into the mailbag and see what our readers are saying.

Charlie Edmunds, FL wrote, "I'm a long-time reader of POP'COMM. I use an ICOM 755 and Yaesu FRG 7700 for HF listening. Antennas are a couple of off-center dipoles, a long wire and a horizontal loop".

A nice letter was received from Ken Miles, NY who wrote in part "I have been interested in SWL'ing for over 20 years and have owned several radios over that period. My primary interest lay in listening to international broadcasting. However, over the past 6 to 8 months I have become more and more interested in the utility stations. I am currently using a Japan Radio NRD-525



PFC returned to Dave Sabo, CA.



Andy Gordon, CT received this QSL from Midway Island which confirmed he had heard Midway calling the USS California which was at Midway for repairs.

with a Sony AN-I powered antenna or a wire loop antenna."

Operator DP, NC asked about callsign NUKO which he heard used by MNM on 7706 kHz. DP, NUKO stands for "All ships copying MERCAST."



Cuban Border Guard station.



Another view of the Cuban Border Guard station. Photos supplied by Senor Anonymous, Cuba.



Rudy Quackenbush, MD sent in these photos of the FEMA/VIP Support facility at Mt. Weather, VA. The photo at right shows the helo-pad and the tower/antenna for beacon XPZ on 265 kHz.

From John Parker, NC we learn "I am an active ham and communications enthusiast who enjoys the type of loggings the column has to offer. My interest in military comms re-ignited with the commencement of operation Desert Storm."

A letter from Simon Mason, England had an update on numbers activities he follows. "Another number station has disappeared. This is one that was very well heard in the US. Havana Moon called it *Bulgarian Bette*. It was an almost permanent fixture on 4030 and 4882.5 kHz all night long. In a recent Radio Netherlands program the language was said to be Macedonian."

Simon continued, "There seems to be an increase in the YL/EE 4F and 5F "counting stations" along with the warbler jammers. During the afternoon here (1300-1600 UTC) sometimes three different broadcasts have been sent (different texts). The German equivalents have all but ceased though."

First time contributor Riley Grieb, IN tells us, "My receiver is a 1976 vintage Drake R4-C using a long-wire antenna. The R4-C

is part of my amateur radio station, which I operate as KC9OP."

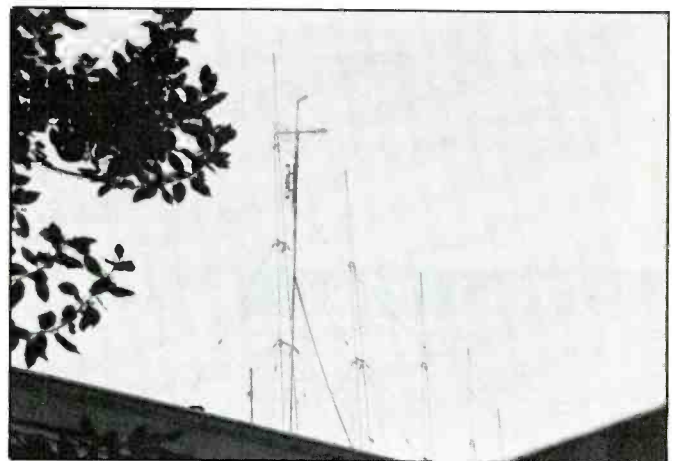
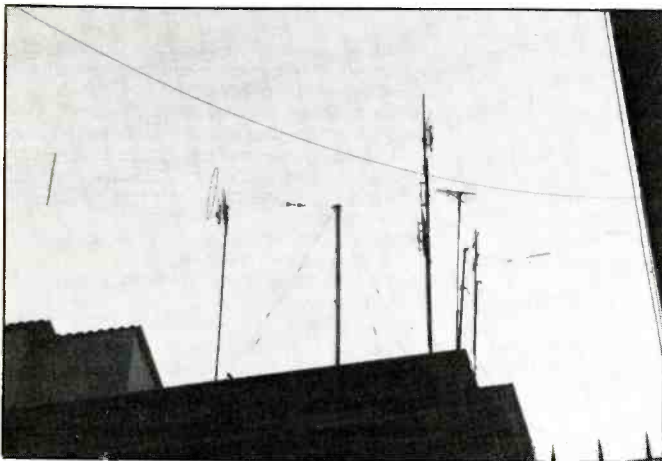
Another first time contributor, Brian Keegan, NJ, sent a note indicating he had returned to the hobby of SWL. "After the dozen or so years that have gone by much has changed. My equipment includes a Kenwood R-5000 w/75' dipole in the attic. On occasion I use a Dressler active antenna but being only 20 miles west of New York City it tends to pick up a lot of AM broadcast splash. I plan to add a Datong audio filter in the near future and hope to have a new dipole outside by Spring."

RMC Paul Caruso on Guam forwarded an article from the Pacific Daily News which described the MARS station at the Camp Covington Seabee base in Santa Rita. The MARS callsign in NNN0NWE and the facility is manned by EO3 Noel C. Stasiak, a reservist from St. Louis, MO and ET2 Allen Busiek, from Springfield, MO.

News has been received indicating a contract was awarded by the Defense Communications Agency for the National Communications System (NCS) involving COM-

SAT Systems Division and Bell Atlantic Mobile Systems for a "National Transportable Telecommunications Capability (NTTC)." The system is a leased telecommunications service consisting of commercial off-the-shelf cellular and satellite equipment and is transportable, being completely self-contained and is of a size which will fit in a C-130. Use of the NTTC is intended for disasters or civil emergencies to augment government communications. It is designed for deployment within 24 hours by air and/or ground transportation to any designated area when directed by NCS. COMSAT and Bell Atlantic will maintain the NTTC in a state of "operational readiness" in Clarksburg, WV. When an emergency occurs, a five member team will deploy within 24 hours to either Andrews AFB in Maryland or Dulles Airport in Virginia to be flown to the emergency area.

Before we dig into the loggings for this month here is a final item which may be of interest to some SWL'ers. AT&T has a service called "Language Line" which offers translation of written documents and of for-



Two views of antennas on roof of Soviet Embassy in Rome, Italy.

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Ute Loggings And Intercepts

- 200: Beacon UAB, Anaheim Lake, BC, Canada at 1207. (Arens, BC, Canada)
214: Beacon LU, Abbotsford, BC, Canada at 1219. (Arens, BC, Canada)
230: Beacon CCD, Concordia, Brazil at 1238. (Arens, BC, Canada)
258: Beacon ZSJ, Sandy Lake, Ont, Canada at 0317. (Crabill, VA)
269: Beacon MRH, Beaufort, NC at 0246. (Crabill, VA)
272: Beacon XS, Prince George, BC, Canada at 1242. (Arens, BC, Canada)
304: Beacon F, Moncton, NB, Canada at 0346. (Crabill, VA)
318: Beacon X, Sandusky Harbor, OH at 0354; beacon HFY, Indianapolis, IN at 0358. (Crabill, VA)
320: Beacon AE, Point Atkinson LS, BC, Canada at 1304. (Arens, BC, Canada)
327: Beacon G8, Maniwaki, PQ, Canada at 0408. (Crabill, VA)
332: Beacon WC, Abbotsford, BC, Canada at 1315. (Arens, BC, Canada); beacon YFM, La Grande 4, PQ, Canada at 0140. (White, ME)
338: Beacon ZEM, East Main River, PQ, Canada at 0416. (Crabill, VA)
339: Beacon RYP, Cumberland, MD at 0249. (Ed.)
344: Beacon XX, Abbotsford, BC, Canada at 1318. (Arens, BC, Canada); beacon JA, Jacksonville, FL at 0247. (Ed.); beacon LNT, Minnickocket, ME at 0140. (White, ME)
347: Beacon ANQ, Angola, IN at 0350. (Grieb, IN)
350: Beacon LE, Raleigh/Durham, NC at 0243. (Ed.)
351: Beacon YKQ, Fort Rupert, PQ, Canada at 0140. (White, ME)
353: Beacon YAW, Shearwater CFB, NS, Canada at 0140. (White, ME)
354: Beacon Z, Sept Iles, Ps, PQ, Canada at 0140. (White, ME)
364: Beacon TZ, Winchester, VA at 0242. (Ed.)
368: Beacon V, Vancouver, BC, Canada at 1330. (Arens, BC, Canada); beacon OH, Chicago, IL at 0437. (Crabill, VA)
376: Beacon YAG, Ft. Frontier, Ont., Canada at 0442. (Crabill, VA)
378: Beacon AP, Active Pass, BC, Canada at 1334. (Arens, BC, Canada)
379: Beacon GKQ, Newark, NJ at 0222. (Ed.)
382: Beacon IRS, Sturgis, MI at 0350. (Grieb, IN)
397: Beacon J, St. John, NB, Canada at 2000. (White, ME)
404: Beacon YSL, St. Leonard, PQ, Canada at 0245. (White, ME)
405: Beacon 7L, La Sarre, PQ, Canada at 0509. (Crabill, VA)
413: Beacon YHD, Dryden, Ont., Canada at 0514. (Crabill, VA)
414: Beacon BC, Baie Comeau, PQ, Canada at 0310. (White, ME)
432: Beacon IZN, Lincolnton, NC at 0225. (Ed.)
482: WSC, Tuckerton, NJ in CW at 0226 w/tfc list. (Ed.)
515: Beacon OS, Columbus, OH at 0217. (Crabill, VA)
521: Beacon GM, Greenville, SC at 0230. (Ed.); beacon TO, Topeka, KS at 0321. (Crabill, VA); beacon ORC, Ozone City, IA at 1153. (Crabill, VA)
524: Beacon ZLS, Stella Maris, Bahamas at 0232; beacon HEH, Newark, OH at 0234. (Ed.)
526: Beacon CYV, Camp Blanding AAF, Starke, FL at 0237. (Ed.)
530: Beacon YCH, Chatham CFB, NB, Canada at 1110. (Crabill, VA)
2182: USCG Boston at 0440 and USCG Port Angeles at 0540, both w/announcement re marine info best upcoming on 2670 kHz. USCG Humbolt Bay at 0604 w/mrg re overdue vessel. USCG Long Beach at 1238 and USCG Kodiak at 1240, both w/mrg re vessels xmtg auto alarm signals. All in USB. (Webb, CA)
2285: SXGZ sent continuously in CW, hrd at 2351 and A6DX sent continuously in CW, hrd at 2205. (Bo-

Abbreviations Used For Intercepts

Table with 2 columns: Abbreviation and Meaning. Includes AM (Amplitude Modulation mode), BC (Broadcast), CW (Morse Code mode), EE (English), GG (German), ID (Identifier/location), LSB (Lower Sideband mode), OM (Male operator), PP (Portuguese), SS (Spanish), tfc (Traffic), USB (Upper Sideband mode), w/ (with), wx (Weather report/forecast), YL (Female operator), 4F (4-figure coded groups), 5F (5-figure coded groups), 5L (5-letter coded groups).

- ender, Netherlands)
2331.5: U/i stns in USB at 0546 w/conversation in Japanese. (Webb, CA)
2622: Booster recovery vessels "Liberty Star" and "Freedom Star" testing HF radios via Booster Retrieval Director (BRD) at Thiakol Marine at 0100. (Stuart, DE)
2625: L790 sent continuously in CW and then KOM-PROMIS82 at 0203. (Boender, Netherlands)
2716: TR825, Autec Ops torpedo retriever at 1100 wkg Autec Ops and Snapper Base. TR825 also called Snapper 825; NBMR, USS Kirk FF1087 wkg Long Beach Control 2 at 0330; NIEN, USS Memphis SSN691 using callsign "Inbound US Naval Unit" clg QHM Halifax at 1035. Sub on visit to Shearwater RCN Base; NCOW, USS Cowpens CG63 clg Portland, Oregon Harbor Control at 0045; NCHO, USS Chosin CG56 clg Naval Station Panama Canal, Port Services at 0950. The just built Chosin was headed west through the Canal to new homeport at Pearl Harbor. All xmins in USB. (Stuart, DE)
2870: U/i stn in CW at 0219 sent NR 83364 NR 6U two times and then QRU QRU. Stn vly weak and drifting. (Ed.)
2955: CW activity at 0208 involving callsigns AVO, WHY, CGA, IKG w/all being cld by INU (control stn). (Ed.)
3262: SLHFB "P" hrd at 1900. Also hrd on 4030 kHz. (Mason, England)
3592: SLHFB "P" in CW. Sent some 5F grps then goes into high speed xmsn. Taped tfc at high speed and played back at slow speed and could determine that 5 element grps were being sent. Simulcast on 4042 kHz. Hrd at 0133. (Ed.)
3732: U/i stn sending 578 in CW at 2158 foll by 5F grps. Simulcast on 8333 kHz. (Boender, Netherlands)
3933: U/i CW stn sending FS4G continuously. Hrd at 0058. Next day ZOU4 at 0049 foll at 0103 w/mrg W6HW QTC 720 25 0202 BT 471 AOU4 BT and into 5L grps. Another msg sent at 0111. Several days later YKJM cld repeatedly at 2225 foll by msg in 5L grps, then 2nd msg in 5F grps, then 3rd msg in 5L grps. (White, ME)
4023: Stn sending "N" repeatedly for 5 mins in CW. (Underneath is weak voice w/either numbers or letters tfc. Hrd 2100-2110. (White, ME)
4028: Cut nbr tfc in CW at 0001. (White, ME)
4033: YL/? language in USB at 2150. Sends 2 characters (x2) foll by characters (x2). (White, ME)
4035.2: U/i stn in CW at 0108 sends XN28 DE 8MNR and into msg heading. QRM from another CW net. (White, ME)
4042: SLHFB "P" checked at 2259/2303/0001. Sent 5F grps at 2259. (White, ME)
4058: 3PIQ DE 3INP and HVYX DE 3INP at 0112. (Boender, Netherlands)
4066.1: NQQY, USS Bristol County LST1189 wkg San Diego CSS1 at 0130 for a p/p. (Stuart, DE)
4134.4: NJVF, USS Forrestal CV59 clg USCG COMSTA Portsmouth at 0950. (Stuart, DE)
4506: Bluebird 10 in USB at 0001 opening Missouri CAP Wing HF net & wrking other Bluebird units. Prev day another CAP net hrd w/North Central 4 wkg Corn State 4 at 2355. Also in USB. (Symington, OH)
4515: NCGP, USS Jesse L. Brown FF1089 wkg

Charleston Test Control (SESEF) at 1825. (Stuart, DE)

**4585:** OM/Rumanian in USB at 0000 w/"terminal" repeatedly plus 5F grps. Simulcast on 5430 kHz. (Boender, Netherlands)

**4585.6:** Kittyhawk 13 from Kittyhawk 150 in USB at 0233. Nothing further hrd. (Ed.)

**4586:** U/i stn in CW at 0235 w/5F grps. Sends each msg 3 times. Automatic Morse w/bad spacing. Hrd on Mondays and Thursdays. (Ed.)

**4627:** Sooner 35 wkg other Oklahoma CAP units at 0030; Eagle Nest 1329 wkg other Texas CAP units at 0025; Magnolia 30 (NCS) wkg other Louisiana CAP units at 0100. All in USB. (Symington, OH)

**4760:** U/i stn in USB at 0000 clg 819 + 5F grps in EE. (Boender, Netherlands)

**5091:** YL rptng VLB2 on wrong freq at 1845. At 1847 changed to correct JSR. VLB2 then appeared on 4665 kHz. (Mason, England)

**5415:** Cut nbr grps in CW fm 0035-0040. At 0100 sends another msg, finishing at 0107 and down w/AR AR AR SK SK SK. (White, ME)

**5500:** CW stns sending 274 at 2100 in AM mode. At 2105 sends 00000 and off. At other times odd knocking noises can be hrd here usually from 0000-0500. (Mason, England)

**5696:** CG 1713 wkg COMSTA Miami & San Juan along w/Burtonque Radio (P. Rico) re distress signal hrd on Maritime Ham net prev. evening. COMSTA Portsmouth wkg CG 1704 w/pp to Norfolk Rescue re status on search for vessel sending Mayday. USCG Dade Operations w/CG 209 who tracking ELT xmsn. Dade requested 209 have oil rig in area check all rdo equip for poss malfunctions. (Keegan, NJ) No times given!

**5758:** Cut nbr grps in CW at 0135. Down w/AR AR AR SK SK SK. (White, ME)

**5771:** YL/SS w/5F grps in AM mode at 0814. (Sabo, CA)

**5835:** U/i stn in CW clg 835 foll by 5F grps at 2225. (Boender, Netherlands)

**5993:** VCS, Halifax CG in CW at 0051 w/marker. (Grieb, IN)

**6012:** River boat comms in SSB at 0044 re pickup of loads. (Grieb, IN)

**6200:** ADSV, US Army vessel C.P. Grass LSV5 (Vehicle Landing Ship) wkg USCG COMSTA San Francisco CAMSPAC at 0150. Shore stn on 6506.4 kHz. (Stuart, DE)

**6383:** EAD2, Aranjuez, Spain in CW at 0248 w/mkr. (Grieb, IN)

**6428.6:** VHP, Canberra Naval, ACT, Australia w/mkr at 1142. (Ed.)

**6506.4:** USCG Honolulu w/wx at 1156. (Keegan, NJ); NBSZ, USNS Mississinewa T-AO-144 wkg Algerian vessel Setif-II at 0145. Setif-II had lost of their screws & needed assistance into port. (Stuart, DE)

**6683:** SAM 205 wkg Andrews AFB on USB at 0020 making numerous pps for VIPs to their homes as well as State Dept., White House and destination locations. Flight itinerary was Andrews, RAF Mildenhall, Sigonella, and Tel Aviv. (Parker, NC)

**6738:** King 58 in USB at 0918 wkg Elmendorf AFB for pp to Mete. (Symington, OH)

**6756:** SAM 31681 & SAM 31683 w/pp thru Andrews reporting departure & arrival info for various flts. (Keegan, NJ)

**6784:** YL/EE w/1-0 count and "616" between 2200-2210. At 2210 "Count 148" and into 5F grps. Also on 5413 kHz. At this time warbler jammers wkg on these two freqs & also on 7887/8464/9251 which is another YL/EE stn. (Mason, England)

**6786:** Cut nbr grps in CW at 0203. Callup was WAM TW foll by ARM TW and into 5L grps. Off at 0217 w/AR x3 SK x3. At 0030 hrd Foghorn signal. Approx 2 sec bursts every k30 secs till about 0325. Once, about 0314 it sounded like a "warble ray gun." (Penson, MN)

**6786:** 5F grps in CW at 2315. Went down w/T T T. On another date 5L (cut nbrs) grps noted at 0207. (White, ME)

**6792:** U/i stn in MCW at 0030 has daily sked and sends short msgs of cut nbr grps (4F grps). Msgs vary between 2-6 grps.

**6790:** HFSLB "V" at 0203 in CW. Stops & sends RFL2 OK OK then back to V's again. (White, ME)

**6809:** Foghorn signal at 0252 w/3 sec bursts. Last half of burst more like a "warble." At 0316 it takes on classic foghorn sound. Last burst at 0337. Then short tone 15 secs later. At 0338 OM/SS w/brief 10 sec announcement. (Penson, MN)

**6810:** U/i stn at 2100 w/288 141 callup foll by 5F grps in EE. USB mode. (Boender, Netherlands)

**6832:** "Skylark" gypsy tune at 2100 in USB. At 2112 OM/Rumanian says "Terminat" x3. (Mason, England)

**6841:** YL/SS at 0230 t/ten beeps then into 4F grps. Carrier had been on for more than an hour before sked. (Penson, MN)

**6851:** U/i stn in CW at 0244 w/approx 45 secs of "dashes" then 541 x3 154TT x3 foll by about 30 secs of "dits". Sequence hrd twice then nothing after 0249. (Penson, MN)

**6926:** KKN50, US State Dept in CW at 0056 w/mkr. (Grieb, IN)

**6934:** YL/SS in AM at 0496 w/callup foll by 4F grps. (Grieb, IN)

**7371:** U/i stn in CW at 2130 w/378 4454 75 & into 5F grps. (White, ME)

**7422.4:** YL/SS w/4F grps at 2317. Again at 0328 same date, same format w/diff id triad. (JMS, MO)

**7475:** CONSTRUCT in USB at 0415 w/calls to DILIGENT for rdo check on SAC W-104 channel. BILLBOARD answered at 0416 & advised that DILIGENT was monitoring W-109 (13247 kHz) primary, X-904 (9017 kHz) secondary. (Sabo, CA)

**7535:** Newport News Shipyard testing 2 HF emitters through Norfolk SESEF at 1830. NOKB, USS Champion MCN4 wkg Norfolk SESEF at 1700 for emitter test. (Stuart, DE)

**7850:** YL/SS at 0520 w/5F grps. (Concluded w/Final. (Smith, OH)

**8150:** OM/SS at 0505 rptng Atencion 456 00 then into 5F grps, concluded w/Final. (Smith, OH)

**8418:** YL/SS w/4F grps in AM at 0346. Simulcast on 9220 kHz. (Sabo, CA)

**8645:** HFSLB "S" at 1855. Also on 5305/6801 kHz. (Mason, England)

**8855:** 9YC, Piarco Aeradio relaying position of Argentina 327 to PZP, Paramaribo in USB at 0435. (Sabo, CA)

**8867:** Polynesian-742 wkg Nandi (3DN) and Auckland Aerodios fm 0645-0647; at 1055, Qantas-101 w/calls to Tahiti, but answered by Auckland. Honolulu also made contact w/Qantas-101, asking if he had entered Honolulu FIR (he hadn't; he had just entered Tahiti

FIR). All in USB mode. (Sabo, CA)

**8891:** VFC, Cambridge Bay, Canada wkg u/i a/c w/position report at 0129 in USB. (Dubea, WA)

**8942:** Air Hong Kong 541 wkg Hong Kong ATC w/position report at 1116. (Dubea, WA)

**8951:** Tokyo Aeradio wkg Evergreen-102 (which was over Shemya & enroute to Anchorage) and Japan Air-66. Good sigs on all stns. USB at 0845. (Sabo, CA)

**8984:** COMSTA Miami wkg A7S re radar search for suspect vessel A7S only had 30 mins of daylight left, requested should they go to lower altitude to make visual inspection of any contact vessels; CG 1502 w/pp thru COMSTA Boston to RCC Atlantic (NY) re status of search for source of ELT xmsns. 1502 had strong reading but was low on fuel. RCC reqstd standby while arranging for back-up a/c. 1502 subsequently made contact w/merchant vessel in area & it was revealed that vessel had faulty equip on board & was responsible for ELT sig. USCG Group Corpus Christi w/CG 2113 re search for 3 people in water w/flashlights. 2113 in contact w/2 fishing vessels. Helo coming from shore stn. (Keegan, NJ) No times given!

**8989:** AKA5, USAF Elmendorf AFB, AK in USB. YL opr w/aerol wx at 1108. (Dubea, WA)

**10090:** Khabarovsk VOLMET in USB from 0837-0839. (Sabo, CA)

**10125:** Cut nbr tfc (ANDUWRIGMT=1-0) in CW at 0335. Also hrd on other dates 1225, 0200, 0300 & 1234. (White, ME)

**10190:** YL/SS w/5F grps in AM at 0710. Very odd, machine-like delivery, and Final Final within the minute. Diff YL/SS w/5F grps on 8056 and 8544 kHz at same time but not simulcast. Same YL came back up at 0712 w/rpts of Atencion 435-05 til 0715, then 05-85 x3 & into 5F grps. (Sabo, CA)

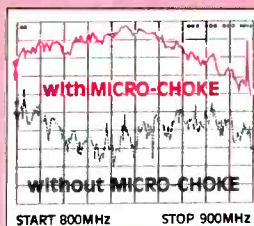
**10493:** WGY 986, FEMA stn at u/i location wkg WGY 912, FEMA Special Facility, Berryville, VA. QSY'd to Foxtrot 25 (10194) kHz. WGY 986 broadcasted a "Mystic Target Test" msg. Both stns returned to Foxtrot 26 (10493 kHz). USB mode at 1600. (Anonymous, WV)

**10857:** U/i stn in CW at 1205 w/5L grps (cut nbrs). Down w/AR AR AR SK SK SK. This was Sunday sked. Next day msg rptd on 10850 kHz at 1200. (White, ME)



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**11129.9:** Mexican military net in USB 2312-2320. Hrd mention of cities Aguas Prietas, Caborca & Hermosillo and also talk re troops, cavalry and a radio stn. (Webb, CA)

**11176:** MAC 2698 wkg Ascension at 0104 w/pp to Phantom; AirEvac 67945 at 2147 wkg Ascension w/pp to Format. USB mode. (Symington, OH)

**11179:** Aussie 019 w/pp to Hickham AFB for wx & parking instructions. (Keegan, NJ) No time given!

**k11475.3:** 5F grps sent in FSK CW. Upon completion of msg stn sends UHF3 (Yeysk Staro, USSR) then into high speed dits. Hrd at 1049. (White, ME)

**11633:** YL/SS in AM at 0611 rpts Atencion 687-01 from 0611-0613, then 01-100 x5 & into 5F grps. (Sabo, CA)

**12600:** PPR, Rio de Janeiro, Brazil in CW at 0013 w/mkr. (Grieb, IN)

**12162:** Cut nbrs (5L grps) in CW at 1216. On another date noted same stn w/1900 sked. Signs off w/AR AR AR SK SK SK. (White, ME)

**12185:** CW stn at 1132 w/5L grps (cut nbrs. (White, ME)

**12215:** WARRIOR wkg u/i stn w/morale calls in USB 0502-0506. Warrior & ANGRY WARRIORd calls seem be Customs Service related and have also been hrd on 4500 kHz, also USB (Sabo, CA)

**13247:** READINESS wkg PUSH BAR w/sig check in USB at 2025 on SAC W-109 channel. (Sabo, CA)

**13273:** United 805 wkg Tokyo w/position report in USB at 0619. Tokyo specified this freq primary, 10048 kHz secondary. (Sabo, CA)

**13312:** RANCH HOUSE w/unanswered calls to SLINGSHOT in USB at 0956 on Customs Service YE channel. (Sabo, CA)

**13315.7:** WCC, Chatham, MA in CW at 1634. His tape or keyer is fouled up. (Ed.)

**13375:** U/i stn in CW at 1405 w/5F grps, down at 1415 w/T T T. At 1430 5L grps (cut nbrs) w/callup of WNI TI foll by TI ADT BT and into text. (White, ME)

**13380:** HCRF, vessel Paquisha (Ecuadorian fruit carrier) from TIM, Limon, Costa Rica in CW at 1331 passing msg re cooling of refrigerator storage space on

board 48 hrs prior to arrival. Vessel belongs to Flota Bananera Ecuatoriana (FLOTA) in Guayaquil, Ecuador. (Ed.)

**13389.6:** Two OM/SS in USB at 1319 in conversation. Possibly Venezuelan Military. Officer title "Coronel" noted and located of Caracas mentioned. On sign-off one of oprs used "Cambio y Fuera" (over & out). Seeing this reminded me that some US service personnel during WWII referred to this as "Forwarded Area Procedure"!! (Ed.)

**13406:** Bubbling tones at 1316. Piccolo? (Ed.)

**13890:** YL in USB at 0711 w/5F grps, each x2, in Yiddish. (Sabo, CA)

**13938.5:** USN tracking net w/stns AY, AX & other single-ltr phonetic calls in USB at 0130. Noted several other evenings. (Sabo, CA)

**14359:** KWS78, US Embassy, Athens, Greece in CW at 2238 w/mkr. (Penson, MN)

**14362:** U/i stn in CW at 1915 sending "T" at 2 sec intervals. Was very weak and tucked away on the low side of another sig which was a series of 4 or 5 dits and a dash. Sounded like "DIT DIDDLE-DIT DIT DIT DAH." (Penson, MN) The latter sign sounds like the raspy multi-dits/dah sigs I and others have noted throughout the HF range. (Ed.)

**14383:** NNN0NZK, USS Vreeland at 2130 wkg NNN0ZTI w/pp; NNN0CSE, USS Elmer Montgomery at 2043 wkg NNN0MCL, Camp Lejeune w/pp; NNN0CVK, USS Nashville at 2207 wkg NNN0MCP, Camp Pendleton w/pp. All in USB. (Symington, OH)

**14417:** Very rapid series of random notes, sounds like electronic "babbling brook". At 0237 changes from continuous sig to short bursts. At 0239 notes change slowly as if hand typed. Off at 0241. (Penson, MN)

**14426.1:** CASA UNO from CASA CUATRO in USB at 0133. U/i stn in Acapulco, Mexico answers and the two oprs converse for few moments. Then CASA 4 again calls CASA 1. CASA 4 indicated he located in Fort Lauderdale, FL and he spoke in EE and SS but SS is his native language. (Ed.)

**14458:** CIW2104, HMCS Provider wkg CIW216; CIW2101, HMCS Huron wkg CIW216. All comms were pp's and in USB at 2104 & 0030. (Symington, OH)

**14463.15:** NNN0FMN, Omaha, NE wkg NNN0CTH (NHKB, USS Ranger CV61) in USB at 0219. (Sabo, CA)

**14485:** AEM3USB (Saudi Arabia) wkg AAR4CSS in USB at 2145 for pp; at 2245 AEMUSB wrkd AARUSB (Ft. Huachuca) w/general t/c. USB mode. (Symington, OH)

**14945:** YL/GG rptng "Lima Alfa" w/electronic tones 1100-1105. Then 5F msgs for 873 and 355. Rptd on 12314 kHz at 1130. (Mason, England)

**14968:** UMFE, u/i Soviet vessel from CMU967, Santiago de Cuba, Cuba in CW at 2024. Calls ship several times. (Ed.)

**150000:** WWVH, Honolulu at 0249 very loud. Was blowing away WWV in Ft. Collins. (Keegan, NJ)

**15938:** YL/EE sending 4F grps at 1440. Very loud warble jammer on freq also and on 13518 kHz where same YL is sending 5F grps. Both jammers off at 1448. YL on 15938 started up again and finally said "End" at 1451. (Mason, England)

**16055:** YL/Yiddish rpts Bravo Uniform + 20-note music mkr. Foll by 3 + 2F grps. (Margolis, IL)

**17937:** American 954 in USB at 2050 helps American 968 w/comms to Lima. (Ed.)

**18002:** Andersen AFB, Guam (AIE2) w/EAM t/c at 0514; at 2153 McClellan AFB, CA (AFI) wkg a/c OTIS-19 w/pp to MCAS El Toro Base Ops. (Sabo, CA)

**18414.5:** 8BY (Indonesian alloc) in CW at 2144 w/mkr. (Ed.)

**19914:** u/i stn in CW w/callup of 873 and into 5F grps at 1345. (Boender, Netherlands)

**20936:** NNN0NIM wkg NNN0CXT (USS Thorn DD988 w/pp's in USB at 2021. (Sabo, CA)

**20994:** Various US Army MARS stns wkg in net w/E. Coast USA & German stns in USB at 1424. (Margolis, IL)

**20997:** NNN0NRI (Port Hueneme, CA) wkg NNN0NRD (Roosevelt Roads, PR) w/pp in USB at 0016. (Sabo, CA)

**23716:** U/i stn in CW 1637-1642 w/5L grps. (Webb, CA)

**25307.3:** CQ DE LGW, Rogaland, Norway in CW at 1656 w/mkr. (Ed.)

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## Beaming In

(from page 4)

as life jackets or flares, although VHF radio is optional aboard small pleasure-craft.

Even though an FCC license form is packed in with every marine radio, and every boater qualifies to have a license, it isn't always the case that boaters are interested in bothering with this bureaucratic formality. Same as with the FCC license forms packed in with business band handheld transceivers. The marine radio licenses were once free, and now that they cost \$35, they seem less appealing than ever. I'd guess that about a third of the boaters I know never applied for a license. Another group took out a license, assumed it was permanent, and never bothered to renew the thing. Most of those with licenses don't use their callsigns on the air and may not even know the callsign.

So, there are a lot of boaters out there without valid FCC licenses. These are the people that are now going up on the rack as the government's announced quick-cure to end the problem of bogus distress calls on VHF Channel 16. This summer is a grace period when boaters are only being reminded and warned that they are required to have these licenses, and that operating without a license could bring forth fines and jail terms.

Next year, no more "Mr. Nice Guy." Boaters found to have unlicensed radios aboard will be subject to penalties. I agree that this is a fine way of getting boaters to take out licenses, assuming that such are really necessary in light of the fact that people using CB sets and cellualars don't have to bother with getting licenses, and that most people with business band handheld systems don't bother to take out licenses and nobody is chasing them down. I further agree that, with marine licenses now pegged at \$35 a throw, the FCC sees an ocean filled with dollar signs coming in on the next high tide.

Boaters who don't yet have a Ship Station License are certainly advised to obtain an application from the Federal Communications Commission, Gettysburg, PA 17325.

However, notwithstanding the financial boon that licensing will offer the government, I'm not buying one bit of the notion that this is going to offer any significant relief to the problem of hoax distress calls, nor do I see any rationale as to how or why it might. Any boater without a license who is going to send out a false distress call isn't going to be dissuaded by having shelled out \$35 for a license he'll have lost or forgotten about within a month after it arrives.

If it's just a move to get boaters FCC licensed, then just say so and be done with it. Stow the bilge about it being the way bogus

distress calls are going to be stopped, or even reduced. That's just plain nonsense. Several decades of lackadaisical FCC enforcement and monitoring, and a wholly indifferent attitude towards the communications problems of recreational boaters, has made the agency a very remote and unimportant factor in the perception and priorities of most boaters.

What with countless thousands of unau-

thorized marine radios already in the hands of the non-boating public, and the ability of thousands and thousands more of these radios to keep feeding out into this underground market, putting the screws on legitimate boaters to actually end the hoax distress call problem seems like so much piffle.

This is a real problem, but not one that can be cured with smoke and mirrors. Let's see a realistic solution put on the table. ■

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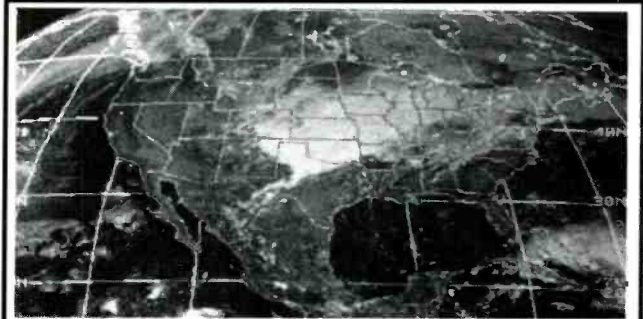
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## Advertiser's Index

AMC Sales, Inc.	23
ARRL	74
Ace Communications, IN	80, Cov. III
Acme Enterprises	72
Alpha Delta Communications	4
Antenna Specialists	73
Antennas West	72, 76, 78
Antique Radio Classified	69
Barry Electronics	72
CBC International	72
CRB Research	35, 47
Cellular Security Group	29
DECO	76
Datametrics	46
Delta Research	13
Diamond Systems	54
Drake, R.L. Company	7
Electrolert	7
Electron Processing	49
Electronic Engineering	13
Electronic Equipment Bank	1
Excellent Technology	13
Future Scanning Systems	72
G&G Electronics	46
GRE America, Inc.	61
Grove Enterprises	47
ICOM	Cov. II, 42
Japan Radio Company	21
JoGunn Ent.	29
Kenwood U.S.A. Corp.	Cov. IV
Lentini Communications	78
MFJ Enterprises, Inc.	17
Moonbeam Press	78
MoTron Electronics	67
OEI OPTOElectronics	5, 39
Pacific Cable Co.	69
Palomar Engineers	76
POP'COMM Bookshop	77
React International	30
Republic Cable Products, Inc.	67
Scanner World, USA	8
Signal Engineering	23
Software Systems Consulting	49, 75
Universal SW Radio	3
Xandi Electronics	78

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- Backlighted LCD display.
- 10 Scan Banks, 10 Search Banks.
- Selectable Priority Channel.
- Delay, Hold Features.
- Selectable Search Increments, 5-955KHz.
- Permanent memory backup.
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- Extended Warranty. 2/3 yrs \$45/\$55

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- Speed: 20 ch/sec. scan. 40 ch/sec. search
- IF: 561.225, 58.075, 455KHz or 10.7MHz
- Increments: 5 to 955KHz selectable/ 5 or 12.5 steps.
- Audio: .4 Watts
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- Antenna: BNC
- Display: LCD
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**Specifications:**

- Coverage: 27-54, 108-174, 406-512, 830-950MHz
- Sensitivity: .4uV Lo,Hi. .8uV Air. .5uV UHF. 1.0uV 800
- Scan Speed: 15 ch/sec.
- IF: 21.4MHz, 455KHz
- Increments: 10,12.5,25,30
- Audio: 1W
- Power: 12.8VDC, 200MA
- Antenna: BNC
- Display: LCD w/backlight
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**Standard Features**

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RS232 Control Package	SCS2	\$295.00
(software & cable) offers spectrum display and database.		

**Specifications:**

Coverage:	1 MHz - 1500MHz
Sensitivity:	.35uV NFM, 1.0uV WFM, 1.0AM/SSB/CW
Speed:	38 ch/sec. scan. 38 ch/sec. search
IF:	750.00, 45.0275, 5.5MHz 455KHz
Increments:	5,12,5,25 KHz
Audio:	1.2 Watts at 4 ohms
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Antenna:	BNC
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Dimensions:	2 1/4H x 5 5/8W x 6 1/2D Wt. 1lb.

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- Telescopic Antenna.

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External Speaker. Mobile Mount.	MS190	\$19.50
Extended Warranty. 2/3 yrs.		\$65/75
Mobile Mounting Bracket.	MM1	\$14.90
RS232 Control Package	SCS3	\$295.00
(software & cable) offers spectrum display and database.		

**Specifications:**

Coverage:	100KHz - 2036MHz
Sensitivity:	.35uV NFM, 1.0uV WFM, 1.0AM/SSB/CW
Speed:	20 ch/sec. scan. 20ch/sec. search
IF:	736.23, (352.23) (198.63) 45.0275, 455KHz
Increments:	50Hz and greater
Selectivity:	2.4Khz/-6db (SSB) 12KHz/-6db (NFM/AM)
Audio:	1.2 Watts at 4 ohms
Power:	Input 13.8 V. DC 500mA
Antenna:	BNC
Display:	LCD
Dimensions:	3 1/7H x 5 2/5W x 7 7/8D Wt. 2lb 10oz.

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### Optional Accessories R-2000:

- VC-10 VHF converter
- DCK-1 DC cable kit for 12 volt DC use.

### R-5000:

- VC-20 VHF converter
- VS-1 Voice module
- DCK-2 for 12 volt DC operation
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- YK-88SN SSB filter
- YK-88C CW filter
- MB-430 Mounting bracket.

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- SP-50B Mobile speaker
- HS-5 Deluxe headphones
- HS-6 Lightweight headphones

super easy! Other useful features include programmable scanning, large, built-in speaker, 110 volt AC or 12 volt DC operation (with optional DCK-2 cable), VHF capability (108-174 MHz) with the VC-20 option, dual 24-hour clocks with timer, and even voice frequency readout with the VS-1 option.

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- Optional Accessory**
- PG-2N Extra DC cable

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