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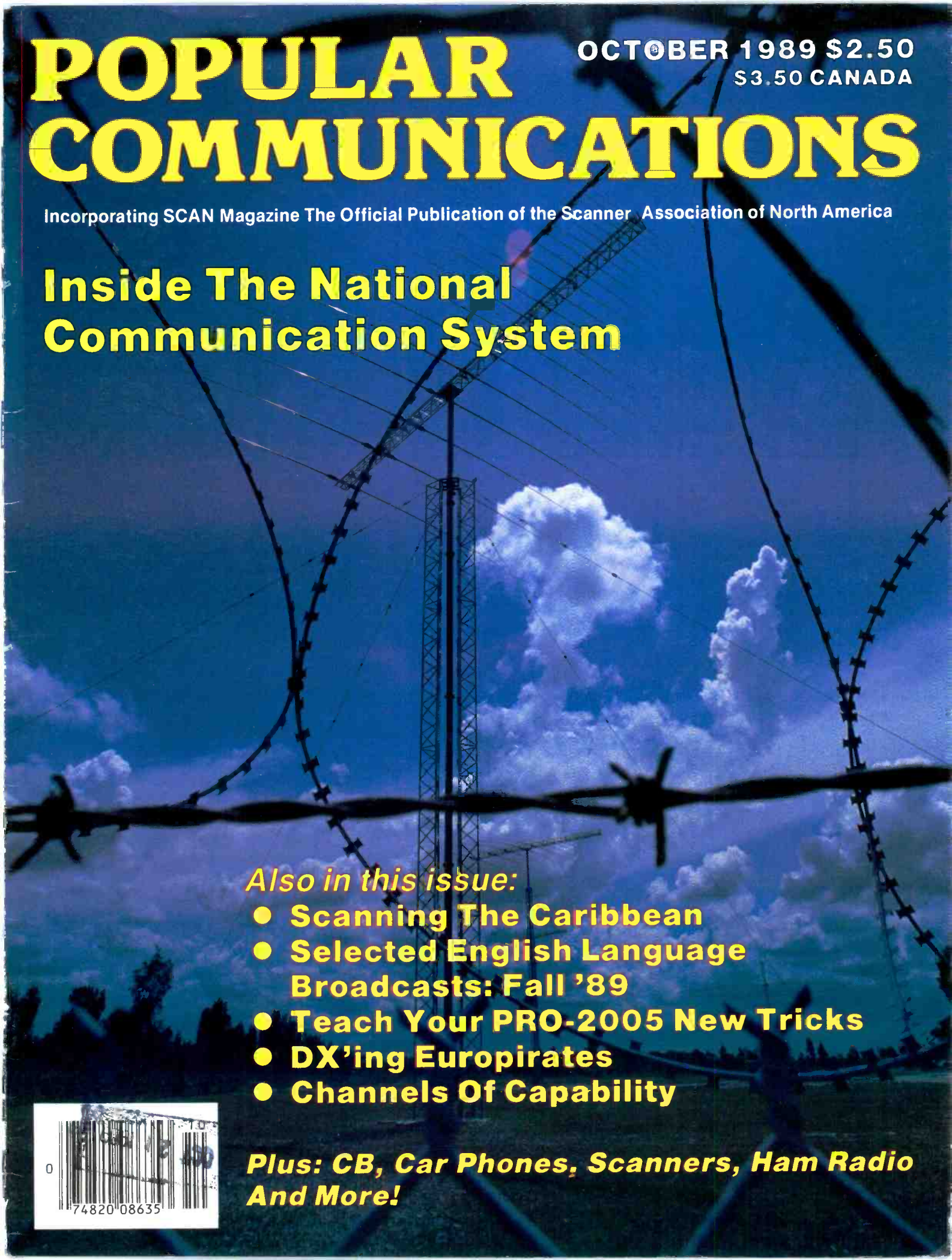

Inside The National Communication System

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- Scanning The Caribbean
- Selected English Language Broadcasts: Fall '89
- Teach Your PRO-2005 New Tricks
- DX'ing Europirates
- Channels Of Capability

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Aug. 21, 1987

Wilson Antenna Company Inc.
3 Sunset Way Unit A-10
Green Valley Commerce Center
Henderson, Nevada 89015

Subject: Comparitive Gain Testing of Citizen's Band Antennas
Ref: Rye Canyon Antenna Lab File #870529

We have completed relative gain measurements of your model 1000 antenna using the K-40 antenna as the reference. The test was conducted with the antennas mounted on a 16' ground plane with a seperation of greater than 300' between the transmit and test antennas. The antennas were tuned by the standard VSWR method. The results of the test are tabulated below:

FREQUENCY(MHZ)	RELATIVE GAIN(dB)	RELATIVE POWER GAIN(%)
26.965	1.30	35
27.015	1.30	35
27.065	1.45	40
27.115	1.60	45
27.165	1.50	41
27.215	1.60	45
27.265	1.75	50
27.315	1.95	57
27.365	2.00	58
27.405	2.00	58

58% MORE POWER GAIN THAN THE K40

A complete description of this test is contained in file #870529. Excerpts of this report are enclosed.

Louis Wilson, Antenna Engineer
Electromagnetics Laboratory

Approved:
W. C. Weikel, Group Engineer
Antenna/ATS Support Laboratory

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INTERNAL VIEW
Wilson 1000

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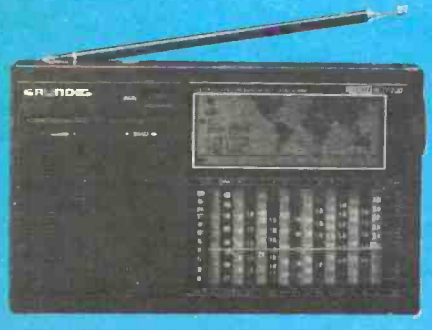

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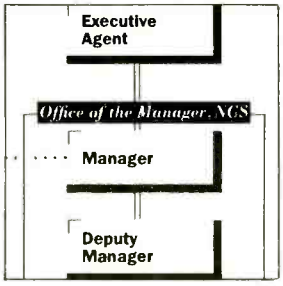

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54

FEATURES

This month's cover: *Transmitter facility, regional communications activity — national communications system. West of Miami, Florida. Photo by Larry Mulvehill.*

DEPARTMENTS

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BEAMING IN

AN EDITORIAL

BY TOM KNEITEL, K2AES

Frequency Crunching

One of the things we in communications hear lots about is the alleged shortage of frequencies. The land mobile two-way services, in particular, are growing and have displayed a voracious appetite for more and more VHF/UHF space allotted for their growing needs. These are services that have displayed the fact that they've got lots of influence where it counts. While it can't be denied that their needs for spectrum now and in the immediate future are increasing, it's also apparent that they don't have manicured nails when it comes to whose frequencies they decide they want next.

New frequency space can't be created in a lab. Virtually all of the usable communications spectrum above 30 MHz has been allocated or dedicated for specific purposes and radio services, such as public safety, FM broadcasting, TV broadcasting, ham, federal, aeronautical, broadcast auxiliary, business, industrial, relay press, taxicabs, railroad, maritime, radio paging, car phones, etc. When one service feels it needs more frequencies in which to expand, it really has no choice but to cast a beady eye around to see which frequencies allocated for other purposes would be the easiest to convince the FCC to reallocate.

While developing technologies in recent years have resulted in two-way equipment for commercial and public safety applications at 800 MHz and above, the actual operating frequencies to accommodate this equipment were scavenged from the remains of former UHF-TV Channels 70 through 83 (806 to 890 MHz) which the FCC took away from the TV broadcast industry.

This isn't the first time in recent years this has happened. It wasn't that long ago that the TV industry was forced to share spectrum with two-way services. That's when the FCC decided that TV stations wouldn't be licensed in certain metropolitan areas on UHF-TV Channels 14 through 20. In those metro areas, two-way services are permitted to use these frequencies (470 to 512 MHz), thus creating the so-called "UHF-T" (T = Television) scanner band.

Next came the radio astronomy people who said they were collecting valuable scientific data at 611 MHz. They didn't want the FCC cluttering up that frequency by licensing TV broadcasters near there. As a result, *adios* to UHF-TV Channel 37 (608 to 614 MHz)!

It is considered bad form to lose frequency allocations. Sometimes, it's just a matter of "loss of face," other times it's a genuine hardship, or threat to the existing or planned needs of the service that lost the use of the frequencies. Invariably, there's a loud squawk and, more or less, there's some effort put forth by the victim to stop the reallocation process. It's never a pretty sight. This is why we hear about a shortage of frequencies.

Frankly, there isn't any real shortage of frequencies. There are more frequencies than *Mickey D* has hamburgers. The key thought here is that there's a definite shortage of *available* frequencies; frequencies that can be captured with a minimum of resistance from the FCC and the services that stand to lose their exclusive use.

Ham radio has lost frequencies, as in the case of the old 11 meter band. In the late 1950's, it was reallocated for Class D CB radio use, despite considerable effort on the part of the hams to prevent the FCC action. It was such a traumatic experience for many hams (including those who never even bothered to operate on 11 meters) that it immediately caused a resentment towards the band's new residents. Today, thirty years later, this resentment still surfaces. Sad, too, since the CB'ers themselves had nothing whatsoever to do with the selection of those frequencies for their operations, it was wholly an internal FCC decision. Moreover, based upon the FCC's concept of what the CB service was supposed to be, 27 MHz was the worst possible place for CB to be located. That it established a lasting tension between the two largest factions in hobby communications has been counterproductive for all concerned.

More recently, the lower 2 MHz of the 220 to 225 MHz ham band got caught up in the jaws of the reallocation monster. This was certainly a hairy matter fraught with lots of petty political undercurrent that made for a bad situation all around.

The point here is that all the fuss is over land mobile services trying to weasel every slice, speck, wedge, and spot of spectrum into which they can sink their teeth. Here is part of a band that, now apparently lost to hams, will be unavailable for many emergency communications services hams perform for the community during floods, storms, earthquakes, power blackouts, and other threats to the community at large.

Long before the point where they have to lower themselves to reallocating bits and pieces of such bands, you'd think there would have been other courses of action that could have been taken.

For instance, many more stations could efficiently utilize existing frequencies. Two examples that immediately come to mind in my own local area are undoubtedly typical of what's taking place elsewhere in the nation. One of our county police (155 MHz band) channels is also used by a police agency located at least 75 miles away. The distant agency comes in so strong that it provides full quieting on even a handheld scanner. The county sheriff, on another 155 MHz frequency, has a similar problem with a municipal police agency on his frequency from 60 miles away.

Fact is that, many stations in most communications services are putting out far more signal than they require to adequately meet their coverage needs. Maybe if two-way users were effectively restricted to using no more radiated power than required to cover their normal operating areas, many more stations could be placed on the available frequencies, and new frequencies could be created with closer spacing than presently used in the VHF bands.

Next, with all due respect to the fact that the UHF-TV channels have already been riddled with holes by the land mobile services, let's not forget that each single TV channel occupies 6 MHz of spectrum, with the prospect of HDTV technology requiring even more space than that. Each TV channel holds the potential for hundreds of NBFM voice channels. Of course, this is one of the reasons why the UHF-TV channels have been the cause for lip smacking and sharpening of knives from within the halls of the land mobile services.

Hold that thought, and let's go one step further. think about the future need for TV channel space. Statistics point to the fact that most American TV homes are already receiving their signals via cable and not from off-the-air VHF/UHF signal reception. A year and a half ago it was about 52% and growing steadily. It does seem prudent to project that this is a trend which, at some point in the foreseeable future, will require serious thought about how much UHF spectrum we can continue to justify setting aside for the exclusive use of TV broadcasting when the trend is towards cable. We are talking about a swath of spectrum that is 282 MHz wide.

The FCC should establish a framework for limited-area two-way radio usage of UHF-TV Channels 22 to 36, and 38 to 69, on a shared basis with TV broadcasters and translators located at least 200 miles from

(Continued on page 72)

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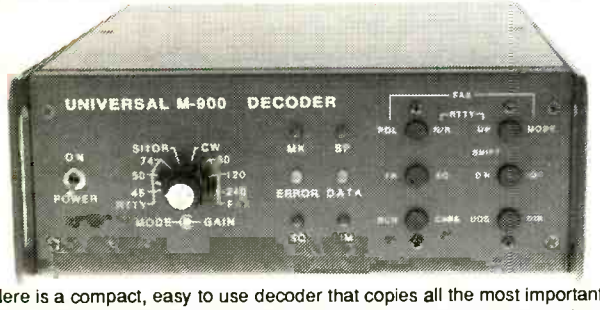

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MAILBAG LETTERS TO THE EDITOR

Each month we select representative reader leters 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.

Code Thoughts

Thank you for supporting a no-code ham license. I've been on CB for 21 years, also a member of the Civil Air Patrol for 5 years. I put my own CAP station on the air and wasn't required to know CW to get it done.

Brian Cassidy, KPA3LF,
Hatboro, PA

I studied code for 6 months and learned it a bit. Problem was that I couldn't believe how silly it seemed, here in this age of high-technology with packet, RTTY, satellites, etc., to be struggling to master hand-sent di's and dah's. I'm a VHF enthusiast and I enjoy monitoring ham communications on my scanner, yet I hear relatively little use of these bands except during rush hour on the 2 meter band. It's sad to hear these frequencies being underutilized, especially since it appears that those who are the staunchest advocates of retaining the CW requirement are operators who primarily use the HF bands and don't even bother to promote their favorite mode on VHF by using it there! What's to be gained by all of this dead air? Is it spite? Yes, I think that is part of the problem. It's the "I had to learn CW and you will too" syndrome. How much sense does it make to prohibit many responsible individuals from participation in VHF ham radio because of this?

J. Daniel Linsay,
West Haven, CT

Having been into communications 10 years now, I must admit that the only thing holding me back from getting a ham license is the code. Some of the objections hams have given is a codeless license would turn ham radio into something that sounds like CB radio. There are good CB operators as well as there are poor ones. If you monitor the ham bands enough, you'll find there are good operators, as well as those who sound just like poor CB operators, except that they have ham callsigns. When I go to ham show and get into tech conversation with hams, they are always surprised to learn that I have no ham license, and that I'm "just" a CB operator. What I'm trying to say is that there are good and bad operators in all radio services, some have ham licenses and some don't. Knowing CW seems to have little to do with deciding anything except which ones have callsigns.

Bob Stimson,
Louisville, KY

In Summation

After reading all the pro and con arguments relating to whether or not there should be a no-code entry-grade ham level, several conclusions have been drawn. First, all of the "high profile" and most prominent persons in ham radio have taken the position that such a licensing plan should be implemented as soon as possible. Next, a straw poll of licensees indicates that a majority feel that this type of license is advisable. Third, most whose words I've read opposing the concept come across like those who feel that ham radio should be just like a college fraternity, with learning CW as the necessary "hazing" obstacle that all must be willing to endure in order to learn the secret handshake and password. The FCC is a public agency that should, by all rights, be willing to respond to the reasonable requests of its licensees for improving their service. The agency does, in fact, seem to respond to such requests from broadcasters and many other licensees. It makes little sense that the FCC not only lacks initiative when it comes to no-code ham license, but seems coldly indifferent to the wishes of the majority of licensees in the Amateur service. In view of all things concerned, the FCC should have long ago acted on its own in this matter without forcing its licensees to squirm and beg in order to assure the future existence of their radio service, in light of the existing conditions and preferences.

H.Y. Wong,
Long Beach, CA

More, More . . . And Still More!

I like your magazine, and I love your CB column, but I wish POP'COMM contained a lot more CB radio coverage. Please take pity on your avid 27 MHz readers and give us many more pages of CB features.

Nancy Estepp, SSB-15C,
Norman, OK

Your suggestion and support is appreciated. Note, also, that POP'COMM is the only national publication that runs any regular coverage of 27 MHz activities. The space devoted to the various topics we cover is apportioned relative to the amount of readership interest we feel that subject has, based upon incoming mail and other factors. We are pleased to see that 27 MHz communications are on the comeback trail, and we will continue to respond to the interests of those who tell us that they're 27 MHz fans—Editor.

Intruder Report

The June issue story on tuning in the "Bandido" stations operating between 29.70 and 50.00 MHz was excellent. Although just beyond the frequency range covered in that story, I'd like to submit for inclusion several other frequencies regularly being used illegally by so-called "Gypsy cabs" in New York City. These frequencies include 28.265, 28.275, 28.295, 28.485, 28.525, and 28.585 MHz. These frequencies are all within the 10 Meter ham band, yet they have been taken over by taxi dispatchers speaking various Middle Eastern and Indian languages, also French. The local FCC office doesn't know about these stations, or else they can't locate them for they have all been operating for many months.

Hector Robles, KNY2AAX,
Brooklyn, NY

I'm a member of "10-10 International," a 10 Meter band operator's group. This group has previously called these intruders to the attention of the FCC, but the illegal communications have never fully ended—Editor.

Here's How It Happened

Sometimes communications hobbyists relate how, when, and/or why they first got involved in this avocation. These stories are often quite fascinating, and I often wonder how similar they are from one hobbyist to another. POP'COMM should ask readers to send this information in for possible publication as many would find it of interest.

Ron Sklar,
Winona, MN

We're game to try. Those who would like to share the story of how they became involved in the communications hobby are welcome to put it on paper and send it in. Any we use, we'll give the writer a one year's subscription (or subscription extension, if already a subscriber). We will accept them (preferably) typewritten, or otherwise easily legible. And, please, no more than 125 words in your story. If you have a photo of yourself (then and/or now), please send it along. We can't return or acknowledge material, whether we use it or not. Send your personal story to: How I Got Started, Popular Communications, 76 North Broadway, Hicksville, NY 11801—Editor. PC

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CIRCLE 149 ON READER SERVICE CARD

The National Communications System

Ready to Respond

BY COL. WILLIAM HARTSELL, USAF, N3CHI, Commander, 1998th Comm. Group., McGuire AFB, NJ. DALE STAUFFER, N2CCY, NCS Radio Program Manager. IRA M. BRODY, Booz Allen & Hamilton, Inc.

Picture this. You are the President of the United States and are sitting in the Oval Office of the White House. It's a cool fall day in October. The year is 1962. You lean forward in your chair with your hands clenched and listen intently to your top civilian and military advisors. You quickly realize the fate of the free world rests in your hands as they explain that the Soviet Union has placed nuclear warheads on the island of Cuba. Tension in the room builds. As you begin to evaluate the situation, many questions run through your mind. How could this happen? What are my options? What is the current status of the situation? Who are the players? Finally, as the meeting ends, you assign specific responsibilities to those present and trust they will carry out your directions.

As Federal departments and agencies involved in the crisis try to carry out their assignments, they frantically gather all of the information possible. As the days go by, more and more information is gathered. Even so, many questions go unanswered due to the inability of the Federal Government to coordinate information in a timely manner. Critical time is lost because few of the Government's systems can interoperate. This becomes increasingly apparent while trying to establish communications with, or gather real-time information from, the intelligence and diplomatic communities. While tension continues to build throughout the nation, you, the President of the United States, are waiting for vital information. Finally, you are forced to act with what you have and hope for the best.

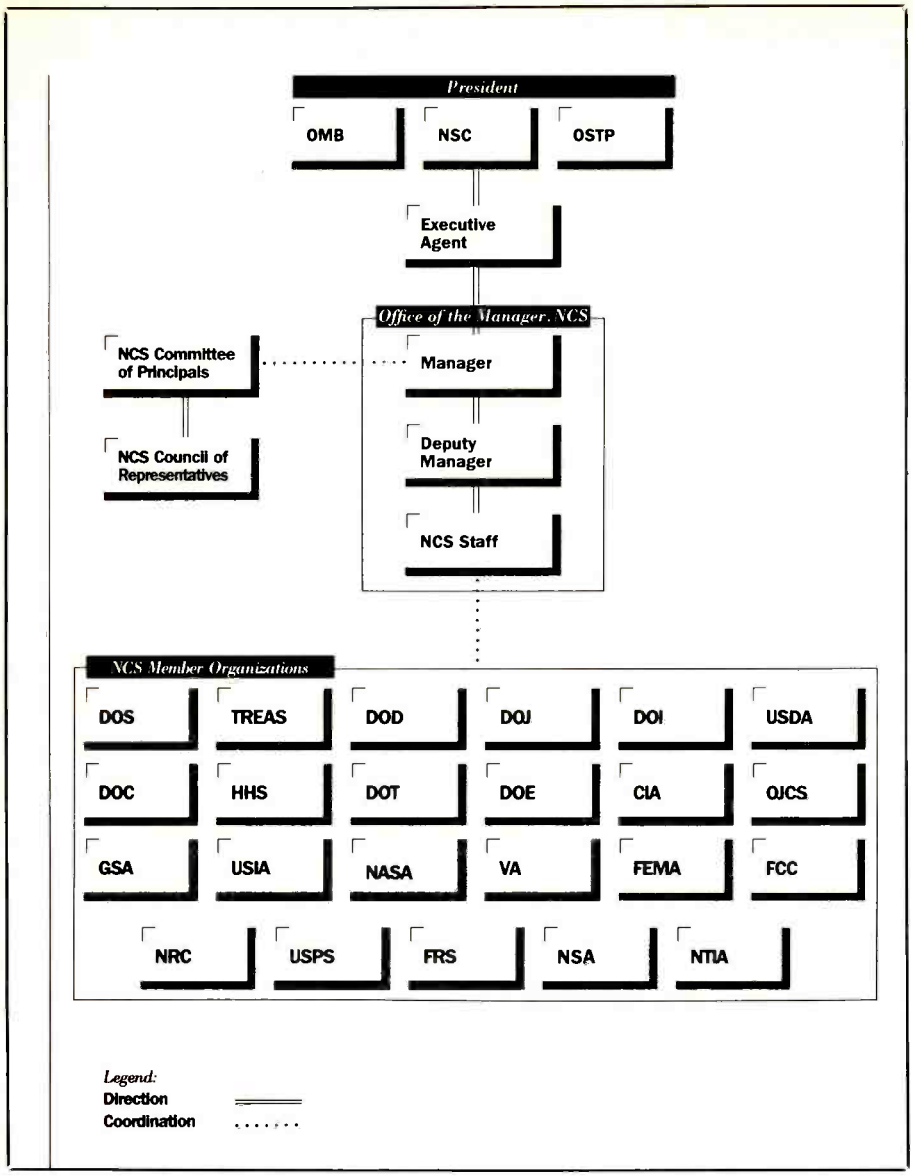
This was exactly the dilemma President John F. Kennedy and his top advisors faced during the Cuban Missile Crisis of 1962. Throughout the ordeal, they had very critical decisions to make based on somewhat limited and disjointed information. This highlighted how vital the ability of the highest levels of the Federal Government to communicate and access time-sensitive information is to the national security of our country.

As a result, President Kennedy asked the National Security Council (NSC) to study this problem. Based on the NSC recommendation, on August 21, 1963, President Kennedy signed a White House Memorandum establishing the National Communications System (NCS). Its mission: to provide the "necessary communications for the Federal Government under all conditions ranging from a normal situation to national emergencies and international crises, including nuclear attack."

The radio room in the NCS National Coordinating Center links thousands of ham radio operators across the country, and serves as a nerve center for priority voice and data traffic during emergencies. (NCS photo by Greg Pease)

Interagency Coordination And Cooperation Make It Work

In 1963 there were five NCS member organizations: the Department of State, Department of Defense, Federal Aviation Ad-



AT&T's worldwide Network Operations Center; Industry and government, working together, epitomize the NCS approach to today's telecommunications environment.

ministration, General Services Administration, and the National Aeronautics and Space Administration. Although the original goal of the NCS was to link together and improve existing Federal communication systems to establish a single integrated Federal Government communications system, in the intervening years that goal became unrealistic. Far too many systems were already in existence and technology was too diverse and unstandardized to allow the development of a single system. So, in its early years the NCS focused on interoperability issues and enhancements to make commercial and Government systems more redundant and survivable.

In 1984, President Reagan, realizing the importance of telecommunications in responding to any emergency, signed Executive Order (E.O.) 12472, "Assignment of National Security and Emergency Telecommunications Functions." This E.O. reestablished the NCS as the telecommunication assets of the 23 member departments and agencies. Although greatly expanded from the original five members, the NCS still holds true to its central tenet that effective government telecommunications enabling a unified response to any national crisis or emergency is vital to our national security.

The E.O. also established an administrative structure for the NCS including an Executive Agent (Secretary of Defense), a Manager (Director, Defense Communications Agency), and a Committee of Principals (representatives of the 23 member departments and agencies). The Committee of Principals serves as a deliberative body that provides coordinated intergovernmental recommendations to the Manager and Executive Agent regarding national security and emergency preparedness (NS/EP) telecommunication issues. These recommendations are normally forwarded to the White House for consideration and/or approval.

Some of the recent accomplishments of the NCS center around its National Level NS/EP Telecommunications Program (NLP). The three components of the NLP are the Nationwide Emergency Telecommunications Service (NETS), Commercial Network Survivability (CNS) Program, and the Commerical SATCOM Interconnectivity (CSI) Program.

When implemented, NETS will provide end-to-end, switched, voiceband telecommunications to NS/EP users through the use of the existing public telephone systems. This is accomplished by adding hardware or software enhancements to existing switches within the telephone system, which provide routing options that do not normally exist. Thus, NS/EP users will have additional connectivity during times of crisis and emergency.

The CNS program augments NETS and is designed as a means of interconnect telecommunication assets of multiple telephone carriers. The establishment of preplanned interconnects between certain segments of the telephone network will provide a way to route NS/EP telephone traffic around damaged areas of the commercial telephone network. This program will help critical government NS/EP users access the long distance telephone network when normal means are unavailable.

The CSI program will also augment NETS and will use commercial satellite communication capabilities to help route around damaged areas within the commercial telephone network. This is accomplished in coordination with the commercial and military satellite carriers to route emergency telephone traffic to uplink facilities that, in turn, enable it to bypass the damaged areas.

The SHAred RESources (SHARES) High Frequency (HF) Radio Program is another very important and recently approved NCS program. SHARES establishes a national emergency HF radio communications infrastructure using the combined HF radio assets of the Federal Government. The program provides a backup capability for the Federal Government to exchange emergency information using its existing HF radio assets, augmented by amateur radio operators.

The SHARES program is open to any Federal organization. Through the use of very basic SHARES operating procedures and a SHARES HF radio station directory, emergency messages can be transmitted using the assets of multiple departments and agencies throughout the country. Currently, over 600 stations operated by over 30 Federal organizations throughout the United States participate in the SHARES program using more than 110 frequencies. Additionally, many overseas stations participate as do several facilities operated by the

Military Affiliate Radio System (MARS) and Civil Air Patrol (CAP).

Over the past several years, many successful SHARES operational tests have been conducted. You may have heard the word SHARES while monitoring traffic. If you have, in the future, keep in mind that the SHARES designator signifies and authenticates that an emergency message is being transmitted. Someday you may be asked to provide assistance in passing a SHARES message and this will be your opportunity to participate in this vital program. Amateur radio operators are recognized as an important telecommunications resource during critical emergencies.

Joint Government-Industry Partnership

Since nearly 95 percent of all government telecommunications traffic travels over the commercial telephone system, the breakup of the Bell system in 1984 had a dramatic impact on the way our Government does business. The breakup also brought to light the fact that the Government would have to coordinate with many more players during crisis or emergency situations. As a result of this, President Reagan established the National Security Telecommunications Advisory Committee (NSTAC) to provide him with industry advice and assistance on policy issues related to NS/EP telecommunications. The NSTAC consists of senior representatives from up to 30 major U.S. telecommunications and information processing companies. These representatives are normally at the Chief Executive Officer level of their firms.

One of the first issues addressed by the NSTAC was the need for a national mechanism to coordinate operational management of NS/EP telecommunications. The result was the establishment of the National Coordinating Center (NCC). This joint government-industry operations center is staffed by both government and industry representatives. Personnel from 11 NCC member companies work closely with representatives from several government departments and agencies to solve complex telecommunication problems in real time.

More recently the NSTAC has focused its efforts in the following areas:

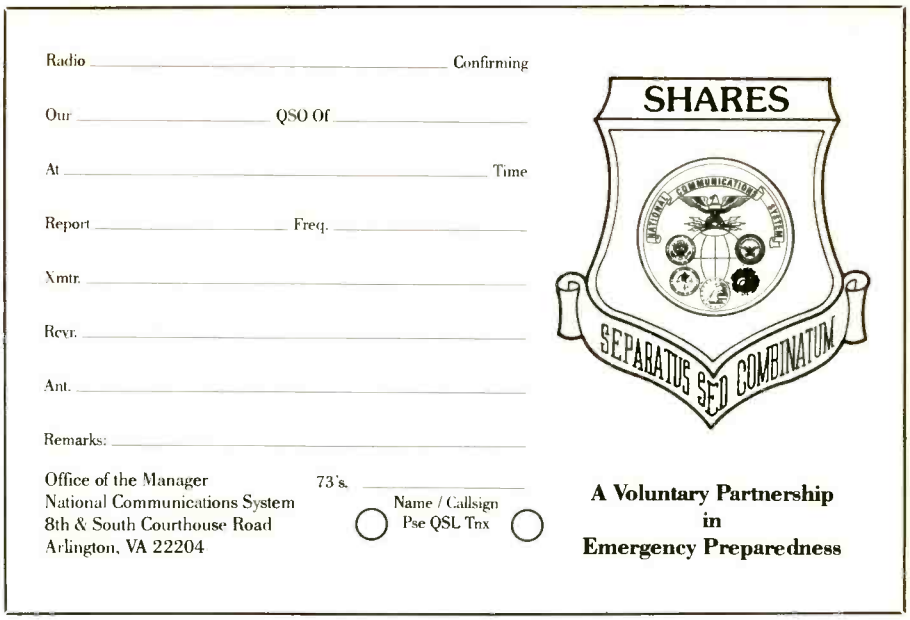
- Industry Information Security
- National Telecommunications Management Structure
- Telecommunications Industry Mobilization
- Telecommunications Service Priority
- Telecommunications Systems Survivability

Tangible progress has been made in each of these areas over the past few years and several recommendations concrning each have been made to the President.

How About The Future?

Picture this. You are the President of the United States and are sitting in the Oval Office of the White House. It's a cool fall day in October. The year is 1991. You lean forward in your chair with your hands clenched and listen intently to your top advisors. They are briefing you on a major disaster that has just occurred within the United States. You quickly realize that American lives are at stake. Initial information coming from the disaster site is fragmented. Real-time communications with Federal, State, and local disaster relief officials on the scene is impaired. Immediately, you are told that Government and industry are coordinating their efforts to restore communications through the National Coordinating Center. Designated users can utilize NETS, CNS, and CSI to communicate with the rest of the country. SHARES messages, with the help of amateur radio operators, are being transmitted and passed throughout the country to help with relief efforts. Finally, as the meeting ends, you realize—it's working!

For the past 26 years, under six administrations and adapting to many new technologies, the National Communications System cooperative effort has endured. The NCS now stands poised for even greater challenges in the future. PC



This QSL is sent out by the NCS.

NCS operations involve the use of a large number of frequencies assigned to member agencies.

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KARATE-T *Uniden* 40 channel rescue radio $53.95
GRANT-T *Uniden* 40 channel SSB CB mobile....$166.95
MADISON-T *Uniden* 40 channel SSB CB base...$244.95
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List price $509.95/**CE price $239.95/SPECIAL**
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Search • Limit • Hold • Priority • Lockout
Frequency range: 29-54, 118-174, 406-512, 806-956 MHz. Excludes 823.9875-849.0125 and 868.9875-894.0125 MHz.
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The Uniden 800XLT receives 40 channels in two banks. Scans 15 channels per second. Size 9¼" x 4½" x 12½." If you do not need the 800 MHz. band, a similar model called the **BC 210XLT-T** is available for $178.95.

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10 Meter Mobile Transceiver • Digital VFO
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NEW! President® HR2600-T

List price $599.95/**CE price $299.95/SPECIAL**
10 Meter Mobile Transceiver • New Features
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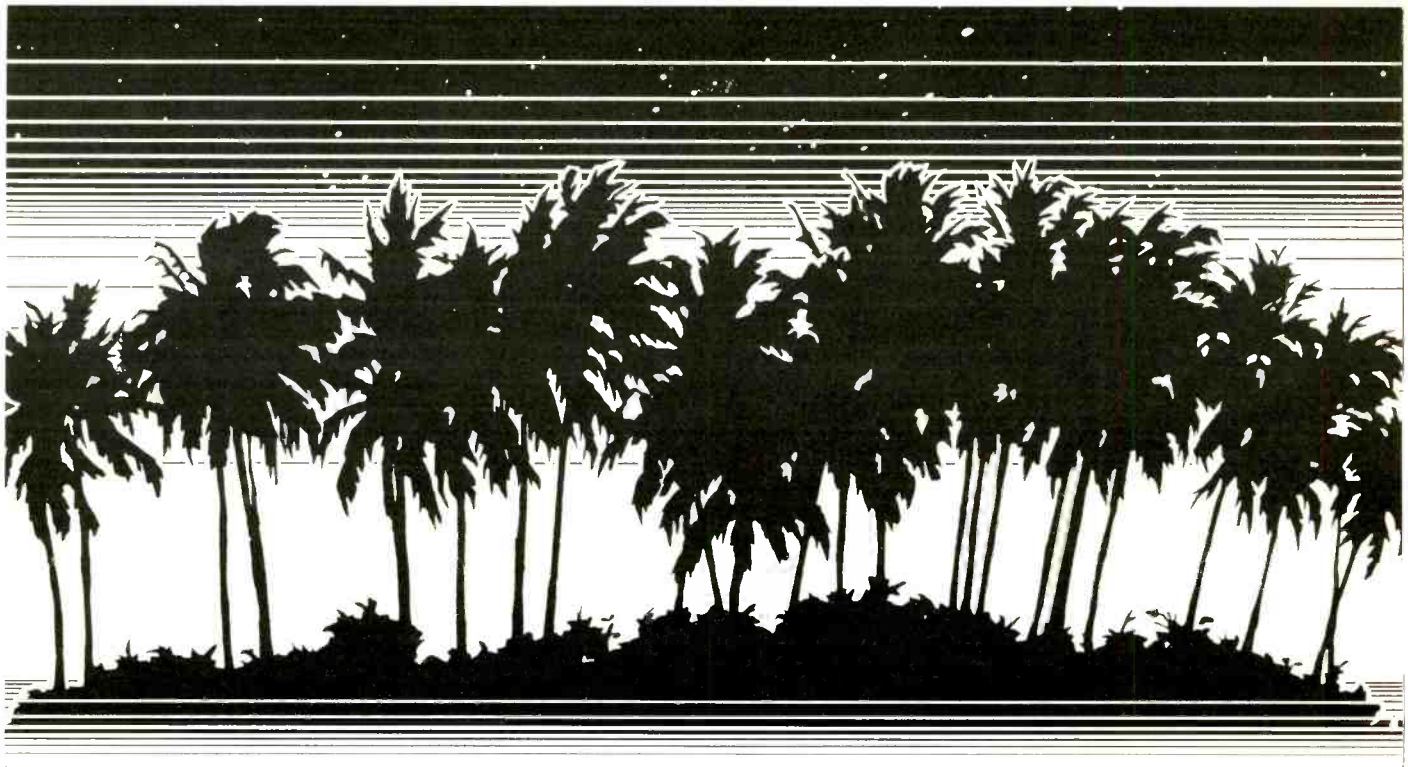


Scanner Skipping To The Caribbean

Hey, Mon! It's The Low Band DX Season

BY CHUCK ROBERTSON

Next time you want to relax on a beautiful tropic isle, turn on your scanner and let the Caribbean come to you. Use seasonal skip DX reception to save you waiting on boarding lines at airports or cruise ship piers. Under the right ionospheric conditions, the 30 to 50 band MHz will make it all happen for you. As we enter the peak period for Solar Cycle 22, long distance F2 skip will be common in this band during the daylight hours of fall, winter, and early spring.

Powerful Caribbean repeaters and pagers begin showing up at sunrise. Listen for phone-in pagers on 35.34 MHz (St. Thomas, USVI), and 35.26 MHz (San Juan, PR). The St. Thomas ham repeater on 29.66 is a landmark.

An hour or two after sunrise, the skip really gets hot and exotic Caribbean comms pour over North America like dark rum over ice. All you need is your scanner and your friendly DX guide. That's me.

Jamaica

Jamaican dialect is not only distinctive, but beautiful to hear in all its varieties. As with any locality, there are numerous colloquial terms in use. You can often figure out some of them, but Jamaica has its share of imponderables that confront the scanner user. You realize that "How far you go?" simply asks "Where are you?" But what do you make of "One Love"? It means "Goodbye." Other expressions to be heard include:

Bang-a-rang = Confusing information.
Irie = Good/happy.
Babylon = Hassles from the police.
Gates = Home.
Horse dead and cow fat = Skip the irrelevant details.

In Jamaica, they space channels with 25 kHz between them (as opposed to 20 kHz spacing in the U.S. and Canada). From 31 to 33 MHz there are simplex systems used by business and government agencies. From 33 to 36 MHz are talk-in frequencies for repeaters in the 34 to 39 MHz portion of the band. Not much is known about operations above 39 MHz, but there may be some radio telephones above 43 MHz.

Car phones have turned up in full duplex between 30 and 31 MHz. Check 30.135, 30.145, and 30.335 MHz. Cannot positively identify these as from Jamaica, but strongly suspect so.

Table I provides a monitoring guide to stations logged via skip from Jamaica.

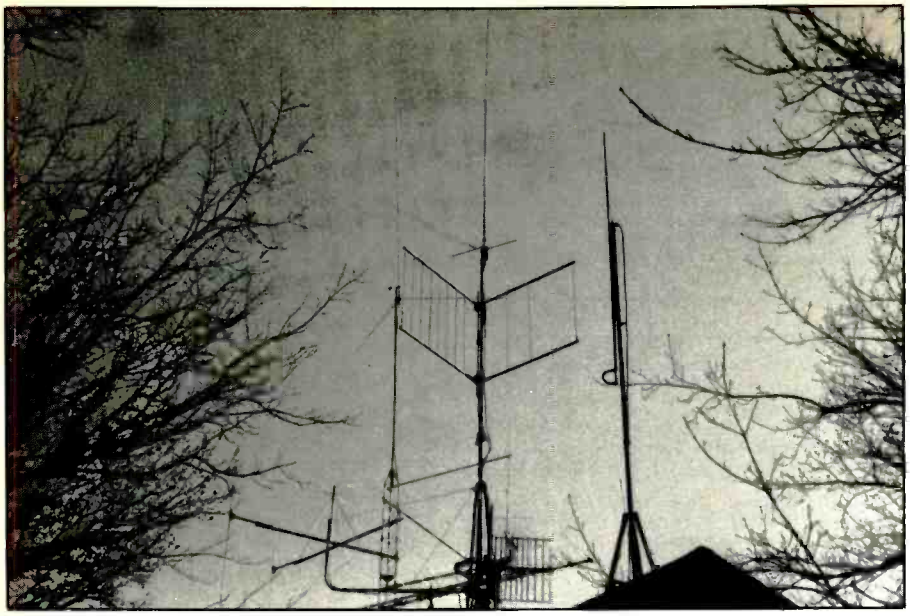
Dominica

The island nation of Dominica is in the eastern Caribbean near Guadeloupe and Martinique. A busy island-wide security operation with roving patrols has its comms on 37.18 MHz. Listen for *Romeo Control* (the base), which is located in Roseau (Dominica's capital). Mobiles ID as *Alpha Papa 14, Alpha Bravo 12, Mobile 9*, etc.

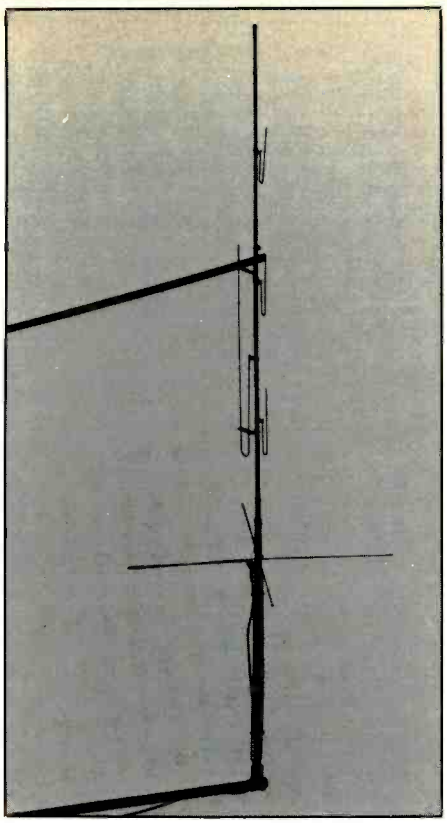
Locations often mentioned include Scotts Head, Vieille Case, Pont Casse Junction, Delice, Coulibistri, Marker 3, and The Treasury. Standard BWI English is used.

Bahamas Islands

Visitors to the Bahamas have commented that there isn't much use of two-way



Some of the author's antennas.



The author's Butternut SC-3000 multi-band scanner antenna.

Table I - Jamaica Loggings

31.475: Active.
31.775: Brandon Hill Security, Montego Bay. "Red Nose receiving, stand by for Peter Rabbit."
31.85: Mellow Man candy company.
31.875: Appliance & furniture sales/service; "DOC #" mobiles.
31.925: "ATL Base" (importers?).
31.95: Horse race bookies. There are 2 bases, Spanish Town (also called Sales) & Crossroads (at Cayamanas Park, Kingston). Races held Wed. & Sat., - occasional other times. Traffic consists of odds & payout data. Same format used by all Jamaican bookie stations.
32.025: Active.
32.05: Domestic servants, Kingston.
32.075: Min. of Development, Kingston. Evo Base, Jagger Base, San Sona Base.
32.10: "Half Way Tree" base, a horse race bookie in Kingston.
32.125 & 32.175: Jamaican Industr. Developm. Corp (JIDC); VIP transp. & accomodation in Kingston & Spanish Town area.
32.20: Active.
32.225: "Stepping Stone Base"
32.25: Security patrols.
32.275: Kingston area business radio.
32.30: Horse race bookie stations, "HQ" & "Orange Street."
32.35: Swamp Base, Sun Base, Base 1, Mobile 2, Security Section. Construction jab in Morant Bay.
32.40: "DD Base" & mobiles, a home builder in Kingston.
32.425: Active; marine/mobile units.
32.45: May be fuel delivery svc to bauxite industry strip mining sites.
32.45: House builder, Kingston.
32.475: Dropper Hardware Store, Kingston, delivery service.
32.525: Min. of Education, Kingston. One Sun. afternoon they were playing classical music here.
32.55: "Kingston" & "Sales," bookies.
33.00 & 33.25: Active.
33.825: Input to 36.825 repeater. Active.
33.875: Input to 36.875 repeater for bookie stas "Kingston" & "Mandeville."
33.90: Sewer or water pipe trenching, Kingston.
33.95: Input to 36.95 repeater for a Kingston florist, "Peter Base" mobiles.
33.975: Input to 36.975 repeater for construction.
34.00: Trucking.
34.025: Domestic servants, Kingston. Also used by a firm doing sewer or water line work-- mobiles use "B-#" ID's.
34.05: Input to 37.05 repeater. Same business that operctes simplex on 32.05.
34.10: Input to 37.10 repeater for hvy eqpt repair. Ore base at Savana-La-Mar. "Chinook Base" is for helo ops. Probably bauxite industry, possibly Kaiser Bauxite Company.
34.20: Input to 37.10 repeater for Ocho Rios shopping centers.
34.225: Input to 37.225 repeater for petro deliveries. Land mobiles use "SD #" ID's, tankers ID as "Tanker #."
34.25: Input to 37.25 repeater. Active.
34.30: Input to 37.30 repeater. Medical?
34.40: Input to 37.40 repeater. "Unit 1."
34.45: Input to 37.45 repeater. Rural petro delivery. Mobiles ID as "BG #."
34.55: Input to 37.55 repeater. Kingston business.
34.70: Input to 37.70 repeater. Active.
34.80: Input to 37.80 repeater. "Tango Control."
34.85: Input to 37.85 repeater. Active.
35.35: Input to 38.35 repeater. Active.
43.55: Active repeater output.
43.65: Active repeater output.
43.675: Active repeater output.
45.525: Active repeater output. Bookie.
45.80: Active repeater output. Bookie.

Table II - Trinidad & Tobago

42.20: "San Fernando Transport," oil tanker ops.
42.40: "South Base," construction ops. Mobiles use "DC #" ID's.
42.70: Oil tankers & escorts. Ships use "DS #" ID's.
42.90: Offshore oil rigs & ships. Galiota Point & Stark Point are bases at oil fields.
43.34: Petro ops bases include "Workshop," "Pipeline 3" & "Base." Mobiles use "Patrol #" & "SW #" ID's.
43.68: "Control" electric power utility. Mobiles use "ET #" ID's.
43.91: "Control" electric power utility. Mobiles use "BC #" ID's.
43.96: Waterway channel excavation.
44.21: "Base" & "Transfer #" petro ops.
44.27: "Kings Wharf" shared repeater in/near Fyzabad.
44.33: Petro ops.
44.39: Oil exploration.
44.40: Petro ops repeater, Port of Spain.
45.52: "Control" electric power utility. Mobiles use "GG #" ID's.
46.075: Repeater output for petro ops; Helicopter base; offshore rigs; mobiles use ID's like "Charlie Alpha."
48.75: "Control" fire dept. base. Dispatchers have personal ID's like "Control 5."

radio. However, from my location in Illinois, I've picked up point-to-point radio telephone channels between 48 and 50 MHz, 20 kHz channel spacing. These are the island side of half-duplex circuits. Often, the other half of the conversation can be heard weakly. The stations transmit at all times, even when not in actual use. The open carrier makes turning them in easier.

There are 700 islands spread out over a chain 760 miles in length that comprise the Bahamas. Even though about only thirty of the islands are inhabited, I have not been able to pinpoint the exact locations of these stations.

Callers on 48.00, 48.42, and 48.96 MHz have been monitored placing calls through the "Nassau Operator." Nassau (on New Providence Island) is the capital city of the Bahamas. Listen for calls on: 48.00, 48.04, 48.20, 48.28, 48.42, 48.82, 48.96, 49.40, 49.42, 49.62 MHz.

Business comms have turned up on 49.05, 49.25, and 49.875 MHz. The repeater output on 49.875 is a transport company. The station has a two-second delay and often rebroadcasts U.S. police department skip picked up on its input frequency.

The language is BWI English, with some use noted of French Creole and Spanish.

Barbados

Barbados is the eastern edge of the Caribbean Islands, The English used sounds a bit like Jamaican, but clearer. The island has a busy car phone owner operating on 30.055 MHz, full duplex. The chap regularly phones his ministry and doctor friends from

Table III - U.S. Virgin Islands

29.66: Ham repeater on St. Thomas, input freq is on 29.56 MHz. Many U.S., Canadian & European hams seem to be able to key this one. Other repeaters in USA here, too, but the one in USVI is the most regularly heard.

30.84: Security Communications, an alarm company, St. Croix. They have 500 2-watt intrusion devices.

31.24: KYT360, Caribbean Harbour Club.

32.70: National Guard.

35.06: KYP486, Taylor Brown Hospital.

35.22: Phone-in & non-voice paging stations.

35.34: Phone-in paging, St. Thomas.

37.10: WXR202, USVI local gov't., St. Croix; WXR203, same on St. Thomas.

42.96: Tropical Deliveries, mobiles in St. Thomas.

Table IV - Puerto Rico Loggings

30.92: KRW768, El Conquistador Hotel, Playa Sardin.

31.04: WCJ310, Radio City Communications.

31.52: KJA513, Conduit & Foundation Corp.

32.25, 32.45, 36.55, 40.80, 41.10: USN Roosevelt Roads Station.

33.10: KYD809, local gov't., San Juan.

33.14: PR Armored Car Svc., island-wide.

33.16: KBNT744, Master Lock Security Co.; also KNEA926, Pompi Towing Svc., Levittown.

34.10, 36.35, 36.85: Ramey AFB.

35.26: KOS225, phone-in pager, San Juan.

35.70: KDNC335, Nieves Iron Works.

35.72: KKU247, Gonzales Construction Co.

35.88: KVC658, Polyplastics, Inc.

35.96: WXJ982, Guynabo Towing.

35.98: World University, San Juan.

37.16: Simulcast paging with 35.26. Might be o foreign repeater unintentionally picking up skip on ts input frequency.

42.96: KMJ776, Camp Guali, Cayey.

44.00: KJJ247 & KJJ251, Torres Trucking Co.

44.28: La Flor de Mayo Express Co.

47.28 & 47.44: KKJ412 & WCU831, Lord Electric Company.

Table V - Active Cuban Frequencies

33.35*	35.10	40.28*	41.98	43.625*	45.70
33.375*	37.00	40.33	42.10	43.84	46.28
33.50*	37.15*	40.36	42.125*	43.94	47.55
33.60*	37.18	40.40	42.25*	44.00	47.59
34.025	37.46	40.80	42.60	44.04	48.60*
34.525*	37.74	41.10	42.76	44.30*	49.00*
34.83	37.80	41.15	43.20*	44.33	49.525*
35.00	38.10	41.18	43.25*	44.50	49.60*
35.02	39.46	41.525	43.28*	44.90	49.98
35.15*	40.03	41.76	43.41	45.02	
35.61	40.06	41.84*	43.435*	45.10	

*= Repeaters

Table VI - Haiti/Dominican Republic

33.25: Haiti.

34.03: Ships & port base, Haiti.

34.21: Plant opns., Santo Domingo, DR

34.55: Repeater output, Santo Domingo, DR

34.575: Repeater output (31.775 input), Santiago, Dom. Rep.

37.19: Repeater output (31.37 input), construction company in Santiago, DR. Sometimes uses speech inversion scrambler.

40.75 & 42.00: Haiti.

42.50: Construction, Haiti.

his *Jeep*. Because of the relatively low frequency used, this car phone station is often heard when little else is coming through.

Trinidad and Tobago

This two-island nation is near Venezuela. The main language is English, although Hindi, Spanish, and Creole are also noted. This is an oil producing nation, and therefore has become more industrialized than many others in the region. Loggings from Trinidad and Tobago are shown in Table II.

U.S. Virgin Islands

The USVI consists of three main islands and about fifty smaller ones. The local English dialect is called Calypso, which is similar to Jamaican. There are many stateside residents, as well as tourists from around the world that can be monitored over the paging stations on 35.22 and 35.34 MHz. Some recent USVI skip loggings are in Table III.

Netherlands Antilles

Unique military and business comms come from the Netherlands Antilles. The language varies from English to Dutch, plus an odd mix of Dutch, Spanish, Portuguese, African, Hebrew, and English. This mix is called Papiamento. Dutch is the official language on the island of Saba, St. Eustatius, and southern St. Maarten, but English dominates. French is spoken in much of St. Maarten. On Aruba, Bonair, and Curacao, you'll hear English and Papamiento.

The defenses of the Netherlands Antilles are handled by the navy of the Kingdom of the Netherlands. The comms in these forces are in a variety of English and Dutch dialects. Transmissions are WBFM in clear voice and Time Domain scrambling, 25 kHz channel spacing. Look for these on: 30.05, 30.40, 30.80, 31.075, 31.175, 31.25, 31.30, 31.40, 31.75, 31.775, 32.10, 32.70, 33.65, 34.10, 36.025, 37.75 MHz.

Base ops are on 32.10 MHz using the ID of "600." Individual personnel use 600-series designators. Another base is on 32.70 MHz (sometimes simulcast on 32.10 MHz) and ID's as "800." Vessels and aircraft use 33.65 and 37.75 MHz.

Williamstad Company (national guard?) comms on Curacao are noted on 31.075, 31.175, 31.25, 31.75 and 31.775 MHz.

Business comms (25 kHz channel spacing) are NFM, in Dutch, and have turned up on: 32.05, 32.125, 31.175, 32.20, 32.25, 32.30, 34.55, and 36.025 MHz.

Puerto Rico

A strong phone-in pager in Puerto Rico on 35.26 MHz is a good indicator that the band is open to the island. This pager runs an auto CW ID of KOS225 to help pin down what you're copying. For maritime comms, tune 31.48 MHz for ships of the Gulf Fleet Marine Corp. (HQ in Louisiana). The vessels can often be heard from San Juan harbor, There's an active business station on 31.68 MHz that has something to do with silver.

Some recent loggings from Puerto Rico are in Table IV.

Cuba

Cuba appears to have stations established helter skelter on odd and even numbered frequencies throughout the band, with some channels skewed 5 kHz (as with the repeater on 43.435 MHz). there are agribusiness repeaters on 33.35 and 33.375 MHz that are so active that they're convenient to use to check for band openings to Cuba. All comms from Cuba are in Spanish.

A listing of some of the many Cuban frequencies recently logged here via skip are in Table V.

Haiti/Dominican Republic

The island of Hispaniola is host to Creole-speaking Haiti, and to the Dominican Republic, Where Spanish is spoken. The frequencies in Table VI are those I've recently logged from there.

Conclusion

Beginning now, and in the coming months, these stations should be there for the taking. You'll want, of course, a good outside-mounted antenna intended for reception of 30 to 50 MHz frequencies. **PC**

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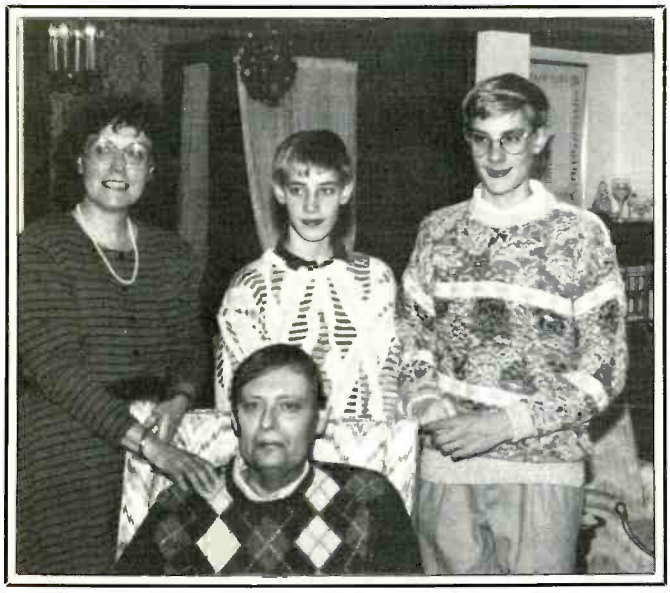
The world of communications has lost a great friend and devoted public servant. On Wednesday, May 8, 1989 Bob Hanson, W9AIF, passed away on the operating table during a delicate and enormously costly liver transplant operation.

Bob will be mourned by literally hundreds of thousands of individuals whose lives he touched throughout the world as a noted columnist . . . public service association executive (SCAN, REACT, Community Watch) . . . communications industry advertising and marketing manager . . . and active radio amateur.

But mourning alone cannot pay adequate tribute to Bob's total dedication to serving others—including his wife of 23 years, Marilyn, and two teenage sons, Peter and Andrew.

Since liver transplants are regarded by some as "experimental surgery," not one dime of the expense—estimated in excess of $200,000—was covered by insurance. We simply cannot allow Bob's wonderful family to live with that impossible burden.



Your help is desperately needed. Immediately. Please, please send your contribution today. Make checks payable to: **Organ Transplant Fund Inc./Robert Hanson** a legally constituted non-profit organization. Any funds collected in excess of those required to pay actual medical expenses will be used to relieve similar transplant victims.

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Selected English Language Broadcasts

Fall 1989

BY GERRY L. DEXTER

Note: There are hundreds of broadcasts aired in the English Language every day on the shortwave broadcast bands. Many of them are directed to audiences in North America. This is a representative listing and is not intended to be a complete guide. The listing is as accurate as possible, however, stations often make changes in their broadcast hours and/or frequencies, often with little or no advance notice. Some broadcasters air only part of the transmission in English, or English may run into the next hour or more. Some stations have altered schedules on the weekends. Numbers in parenthesis indicate a starting time for the English broadcast that many minutes past the start of the hour. All times are in UTC.

Time	Country/Station	Frequencies
0000	Radio Netherlands (30)	6020, 6165, 15315
	Radio Australia	15320, 17795
	AWR, Guam	15125
	Radio Yugoslavia	7215, 11735, 15105
	Radio Budapest, Hungary (30)	6110, 9520, 9585, 9835, 11910, 15160
	Radio Beijing, China	9770, 11715, 15400
	Radio Havana Cuba	11820
	Spanish National Radio	9630, 15110
	Vatican Radio (50)	6150, 9605, 11780
	Radio Austria International	9875, 13730
	Voice of Israel	11605, 15615, 15640
	Voice of America	5995, 6130, 9445, 9775, 9815, 11580, 11740, 15205
	BBC	6175, 7325, 9915, 12095
	RBI, East Germany	6080, 11890
	Radio Pyongyang, N. Korea	15115, 15160
	Radio Moscow	6045, 6115, 7215, 7310, 7440, 9605, 9685, 9720, 11735, 11750, 12050, 15405, 15425, 17605, 17700, 17720.
0100	Voice of Germany	6040, 6085, 6145, 9565, 9735, 11865, 15105
	KUSW, Utah	15650
	Radio New Zealand (45,Sat/Sun)	11780, 15150
	Voice of Israel	11605, 15615, 15640
	Radio Japan	17825
	RAI Italy	9575, 11800
	Radio Baghdad (30)	9515, 11810
	RBI East Germany	6080, 11890
	Radio Prague, Czechoslovakia	5930, 6055, 7345, 9625, 11990
	Voice of Greece (30)	7430, 9420, 11645
0200	Radio Finland International (30)	11755, 15185
	VOFC, Taiwan	5985, 9680
	Swiss Radio International	6095, 6135, 9725, 9885, 12035, 17730
	Radio Kiev, Ukraine SSR	9610, 9800, 11675, 11790, 12000, 13645, 15180, 15455, 17665, 17690
	Radiobras, Brazil	11745
	Voice of Israel	11605, 12077, 15615
	Radio RSA, South Africa	6010, 9580, 9615
	RAE, Argentina	9690, 11710
	Radio Bucharest, Romania	5990, 6155, 9510, 9570, 11830, 11940
	Radio Cairo, Egypt	9475, 9675
	Radio Havana Cuba	6145, 9655
	Radio Tirana, Albania (30)	9760, 11825
	Radio Sofia, Bulgaria	7115, 9560, 11735, 11840
0300	RFI, France (15, 45)	7135, 7175, 9550, 9790, 9800, 11670, 11700, 11995
	R.Yerevan, Armenian SSR (50)	13645, 15180, 15455
	Radio Netherlands (30)	6165, 9590
	Radio Sweden	9695, 11705

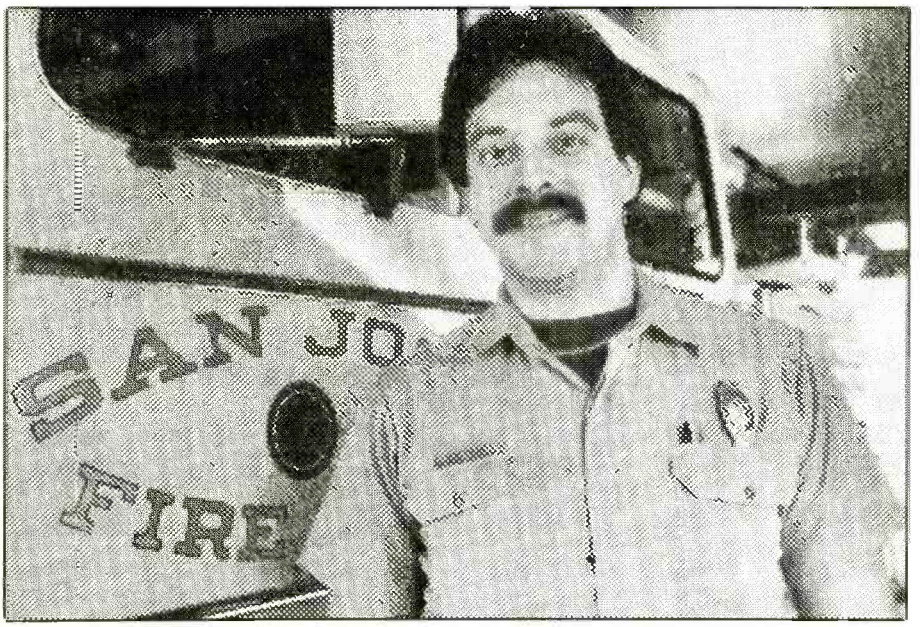
Time	Country/Station	Frequencies
	Voice of Germany	6085, 9545, 9605, 11810, 15205
	VOFC, Taiwan	9585, 9680
	KUSW, Utah	9850
	Voice of Turkey	9445
	Radio New Zealand (30)	17705
	Radio Beijing, China	9690, 9770, 11715, 15510
	Voice of Nicaragua	6100
	Vatican Radio (10)	6150
	TWR Bonaire	9535, 11930
	Radio Japan	15195, 15325, 17825, 21610
	RBI, East Germany	9620, 11785
	Radio Prague, Czechoslovakia	5930, 6055, 7345, 9540, 9625, 11990
	Radio Sofia, Bulgaria	7115
	Radio Tirana, Albania	9760, 11825
	Voice of Greece (40)	7430, 9395, 9420
	HRVC, Honduras	4820
	Radio Portugal (30)	6060, 9680
0400	Swiss Radio International	6135, 9725, 9885, 12085
	Radio Beijing	11685, 15195
	HCJB, Ecuador	9720, 11775, 15115
	Radio Bucharest, Romania	5990, 6115, 9510, 9670, 11830, 11940
	Radio Havana Cuba	6085, 6140, 9665
	RAE, Argentina	9690, 11710
	Radio Moscow	7175, 7185, 11770, 12050, 15240, 15465, 15455, 17605, 17665
	Radio Tirana (30)	9480, 11835
	BBC	5975, 9510, 9915
	RBI, East Germany	9620, 11785
	Radio Botswana	4820, 7255
0500	Voice of Germany	5960, 17875
	KUSW, Utah	6175
	Voice of Nigeria	7255
	Spanish National Radio	9630, 15110
	Radio Austria International	6015
	ELWA, Liberia (55)	4760
	Radio Beijing, China	9690, 9770
	HCJB, Ecuador	6230, 9720, 11775
	ELBC, Liberia	3255
	ZNBC Zambia	4910
0600	Radio Korea, S. Korea	9570, 11830
	Radio New Zealand	17705
	Swiss Radio International (30)	12030, 15430, 17570
	HCJB, Ecuador	6230, 9720, 11775
	Voice of America	3990, 6035, 6080, 6125, 7280, 9530, 9540, 11915
	Radio Moscow	5905, 7175, 7185, 9580, 11760, 11770, 11860, 12010, 12050, 13665, 15240, 15455
	WRNO, New Orleans	6185
	Radio Cook Islands	11760
	Radio Sofia, Bulgaria (30)	9700, 11720
	GBC, Ghana	4915
0700	KUSW, Utah	6135
	CFRX, Canada	6070
	CKFX, Canada	6080
	Radio Kiribati	14917.7 (LSB)
	Radio Japan	15270, 17765, 17810, 21500, 21690
	Radio Australia	9655, 11720, 11910, 15160, 15240, 15395
	HCJB, Ecuador	6130, 9610, 9745, 11835
	TWR, Monaco	9485
0800	KNLS, Alaska	11715
	SIBS, Solomon Islands	5020, 9545
	Swiss Radio International (30)	9560, 13685, 17670, 21695
	Radio Australia	9580
	IRRS, Italy (Sun)	9860
	Radio Vanuatu	7260
	KTWR, Guam	15210
	NBC Papua New Guinea	4890
0900	Radio New Zealand	6100, 9850
	Radio Afghanistan	15435, 17720
	Radio Japan	15270, 17890
	FEBC, Philippines	11850, 15350
	AWR, Portugal	9670
	BBC	5975, 9410, 9740, 9750, 11750, 11845, 11860, 11955, 12095, 15070, 15175, 15280, 15360, 15400
	Radio Australia	5995, 6080, 9580, 9655, 9760, 11720, 11770, 15415
1000	Radio Netherlands (30)	6020, 9675
	Swiss Radio International	5960, 13685, 17670, 21695
	Voice of America	6030, 6165, 9590
	AIR, India	11860, 15155, 15335, 17387, 17740
	Voice of Vietnam	12010, 15010
	Radio Austria International (30)	15450, 21490
1100	Radio Netherlands (30)	5955, 9715
	Radio Finland International(M-F)	15400, 21550
	KUSW, Utah	11695
	Swiss Radio International	13635, 15570, 17830, 21550
	Radio Beijing, China	15540
	Radio Austria International	1787
	TWR, Bonaire (10)	11815, 15345
	VOIRI, Iran (30)	7115, 7215, 9670, 11790
	Radio Pyongyang, N. Korea	9600, 9977, 11735
	Radio Singapore	11940
1200	Radio Finland International(M-F)	15400, 21550
	Radio Norway Intern'l. (Sun)	15325
	RCI, Canada (M-F)	9635, 11855, 17820
	Radio Beijing, China	9770, 15540, 17715
	BRT, Belgium (30, M-Sat)	17560
	Radio Bangladesh (30)	15195, 17710 (or 17750)
	HCJB, Ecuador	11740, 15115, 17890
	Radio Malaysia	15295
	VOPK, Kampuchea	9695, 11938
	Radio Mongolia	12015
	Radio Tashkent, Uzbek SSR	9540, 9600, 11785, 15400
	Radio Thailand	9655, 11905

Time	Country/Station	Frequencies
1300	Radio Finland International	15400, 21550
	Swiss Radio International (30)	9620, 11695, 13635, 15570, 17830
	Radio Jordan	13655
	Radio Pakistan (15)	15605, 17660, 21580, 21740
	RFI, France	11670, 15155, 15365, 17720, 21645
	RBI, East Germany	15440, 17880, 21465
	Radio Pyongyang, N. Korea	9325, 9345, 9555, 9600, 11335, 11735
	Radio Beijing, China	11600, 11660, 11755, 15280, 15455
	CBC N. Quebec Serv., Canada	9625, 11720
	Radio Korea, S. Korea	9750, 15575
1400	Radio Korea, S. Korea	9780, 15575
	Radio Beijing, China	11600, 15165
	RFPI, Costa Rica	21560, 25945
	Radio RSA, So. Africa	17745, 21590
	BBC	5995, 6195, 7180, 9740, 9750, 11750, 12095, 15070, 15140, 15310, 17705, 17640, 17790
	HCJB, Ecuador	11740, 15115, 17890
	Radio Finland International	9560, 11715, 11925, 15185
	Radio Sweden	21610
1500	Radio Sweden (30)	17880, 21610
	FEBA, Seychelles	11760, 15325
	Swiss Radio International (30)	13685, 15430, 17830, 21630
	Radio Veritas, Philippines	11835, 15220
	RTM Morocco (30, M-F)	17515
	WWCR, Tennessee	15690
	AWR, Costa Rica	15460
	Voice of America	6110, 9575, 9645, 9700, 9760, 15205
	BRT, Belgium (30)	17585
	Voice of Nigeria (30)	15120
1600	Radio Netherlands (30)	6020, 15570
	Radio Norway Intern'l. (Sun)	15310, 17780
	KUSW, Utah	15650
	Radio Pakistan	15605, 17660, 21580, 21740
	Voice of America	7195, 9515, 11920, 15410, 15445, 15580, 15600, 17785, 17800, 17870
	HCJB, Ecuador	15115, 17890
	Radio Polonia	9540
	Voice of Vietnam	12020, 15010
1700	Radio Norway Intern'l. (Sun)	17780
	RAE, Argentina (30)	15345
	Radio Surinam Intern'l. (35)	17875
	RTM Morocco (Sat)	17515
	Radio Moscow	9540, 9755, 9795, 9825, 9895, 11730, 11840, 11990, 12050, 15135, 17570
	BSKSA, Saudi Arabia	9705, 9720
	Voice of Nigeria	11770
	Radio Austria Intern'l. (30)	12010, 13730
1800	Radio Netherlands (30)	15560, 17605, 21685
	Radio Kuwait	11665
	Swiss Radio Intern'l. (30)	9885, 11955
	Radiobras Brazil	15265
	Voice of Israel	11585, 11655
	Radio Abidjan, Ivory Coast	11920
	Radio Jamahiriyah, Libya	15450
	Voice of Nigeria	11770, 15120
	RCI, Canada (30, M-F)	9555, 15325, 17875, 21675
1900	Spanish National Radio	11790, 15280
	Voice of America	9525, 11965, 15185
	Radio Algeria	9510, 9640, 15215, 17745
	VOIRI, Iran (30)	6035, 9022
	RTM Morocco (Sun)	17515
	AIR, India	11620
	Africa No. 1, Gabon	15475
	Radio Kuwait	11665
	Radio Moscow	11840, 11990, 12010, 12050, 15295, 15405, 15425, 17570
	BSKSA, Saudi Arabia	9705, 9720
2000	Radio Netherlands (30)	9860, 13700, 15560
	Radio Kuwait	11665
	Radio Havana Cuba	11850
	Radio Baghdad, Iraq	9770
	Radio Africa, Eq. Guinea	9852
	AIR, India (45)	9910, 11715
	Radio Damascus, Syria (05)	15095, 17710
2100	Swiss Radio International	9885, 13635, 15525
	BRT, Belgium	9925
	Radio Damascus, Syria (05)	15095, 17710
	WWCR, Tennessee	15690
	Radio Bucharest, Romania	5990, 6105, 7145, 7195, 9690, 11940
	Radio Austria International	9585, 9870
	Radio Yugoslavia	5980, 7130, 9620, 9660
2200	Radio Norway Intern'l. (Sun)	15190
	Voice of the UAE	11965, 13605
	KUSW, Utah	15580
	Voice of Turkey	9445, 9685
	Radio Vilnius, Lithuanian SSR	6100, 7240, 9765, 9860, 15420, 15455, 17665
	RCI, Canada (M-Sat)	9540
	RAE, Argentina	15345
2300	Radio Korea, S. Korea (30)	15575
	Radio Mediterranean, Malta	6110
	Voice of the UAE	11965, 13605
	Radio Budapest, Hungary (30)	6110, 9520, 9585, 9835, 11910, 15160
	Radio New Zealand (45, M-F)	11780, 15150
	Radio Kiev, Ukraine SSR (30)	9610, 9800, 11675, 11790, 12000, 13645, 15180, 15455, 15485, 17655, 17690
	Radio Tirana, Albania (30)	9760, 11825
	RCI, Canada (30)	5960, 9755
	BRT, Belgium (30)	9925
	Radio Luxembourg	6090
	Voice of Vietnam (30)	9840, 12020, 15010
	Voice of Greece (35)	7430, 9905

PC

San Jose Firefighter Saves Mother And Daughter.

Rod Villa, a San Jose firefighter, was driving near an apartment complex one morning when on his scanner he heard a fire report. He had been a firefighter for the past nine years, not only as a civilian but also in the military. This day was about to become the first time Villa had ever rescued anyone from a fire.



SCAN PUBLIC SERVICE AWARD

A resident at the Willow Glen West apartment complex called 911 after a smoke alarm went off in her master bedroom, as reported by the *San Jose Mercury News*. She then entered the bedroom and saw a fire on the bed. The tenant then took her three children out of the complex. But that was just the beginning for the fire started to consume the second floor apartments where Lupe Flores and her daughter Marcie were trapped. Villa arrived just seconds later to find Sherry Gunderson on the balcony, disoriented and nearly overcome by smoke. He then went running into the building and led Gunderson out to safety. After saving her, Rod Villa proceeded to ask the residents if there were anymore people inside when Lupe Flores and her daughter Marcie appeared at an open window. Villa, keeping his cool, told them to jump and that he would catch them. Marcie, being young and lighter in weight, jumped first and was caught. Next Lupe went and her fall was broken by Villa.

After the incident Rod Villa was quoted as saying, "It feels pretty good. I'm just glad that they're all right and that I could help them in their situation."

For his quick thinking and heroic actions San Jose firefighter Rod Villa will receive the SCAN Public Service Award, which consists of a commendation plaque and cash prize. For making the nomination, Bob L. Lusk of San Jose, California, will also receive a plaque. Congratulations to the both of you.

SCAN PHOTO CONTEST WINNERS

Best Equipped

Lynn T. Cave is a dedicated scanner enthusiast as well as an amateur radio operator. He enjoys listening to police, fire, and aircraft frequencies.

Lynn's well equipped shack consists of two Bearcats, a 220 and a Two-Four Thin Scan. For more listening power he has two Realistics, a Pro-32 handheld, and a Pro-2004. His Ham gear is headed up by a Kenwood TS-400s HF transceiver/receiver. He uses an ICOM IC-25 H, an ICOM IC-2 GAT, and an ICOM IC-2 AT for mobile use.

When Lynn isn't home, a Sears' cassette recorder saves for him those transmissions he might have missed.

Best Appearing

Mark Costa, although a long time scanner hobbyist, has been a licensed amateur radio operator (KB6GNZ) for only five years.

Mark's spotless shack contains quite an entourage of equipment. His scanning gear consists of a Bearcat 800 XLT (Mark's favorite) and a General Electric 7-2990. For backup he uses a Realistic Patrolman and a Courier Slimscan. The Ham collection includes a Kenwood TS 430s, a PS-430 power supply, a Kenwood SP 430 external speaker, a MC 60 microphone, and a 20 meter dipole antenna provides enough range. Mark's mobile unit is a Yaesu FT 209RH handheld which is accompanied by a Yaesu NC-15 Quick Charger, and a Yaesu MH-12 microphone.

Here 'Tis: Old Time Radio!

Looking Back at Early Radio and Wireless

BY ALICE BRANNIGAN

Many broadcasters started in the early and mid-1920's as hobby operations. So it was with station WJBK, which began in late 1925 with a 10 watt transmitter on 1290 kHz. It was an extension of ham station 8MG, operated by Ernie Goodwin from his home at 803 Congress Ct., Ypsilanti, MI.

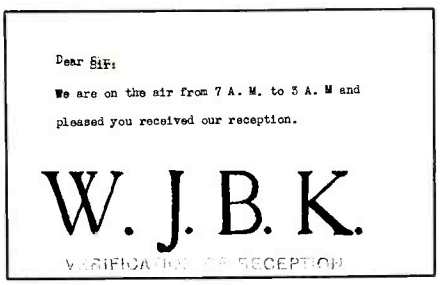
Ernie's little station soon grew to 15 watts and moved to 1360 kHz. In November of 1928 the Federal Radio Commission shifted it to 1370 kHz. WJBK did so well there that by 1929, WJBK had been sold to James F. Hopkins, 50 N. Washington St. in Ypsilanti and was running 50 watts while sharing time on 1370 kHz with WIBM (100 watts) in Jackson, MI. In 1931, Hopkins moved WJBK to 12897 Woodward Avenue, Highland Park, MI which was close enough to Detroit to identify the station's location over the air as Detroit.

Ever onward and upward, the mid-1930's saw WJBK grow to 100 watts on 1500 kHz. Then, just before WWII, the FCC moved it to 1490 kHz where it ran 250 watts. During WWII the station's studios were at 6559 Hamilton Ave., Detroit. The transmitter was at 15555 Woodrow Wilson Ave., Detroit.

WJBK wasn't to stay on 1490 kHz, for it eventually went back to 1500 kHz. By the early 1960's it was running 10 kW (1 kW nights). Thanks to John Martin, of Electron Processing, Inc., Medford, NY we have a closer look at this station soon after this, as John was the Assistant CE there for a brief period in the 1970's.

John tells us that well-known broadcaster George B. Storer wanted to own a 50 kW station in the Detroit market. His engineers ascertained that WJBK could be made into a 50 kW station, provided a complex directional antenna system were built. In the mid-1960's WJBK became one of two 12-tower directional stations in the nation. During the day it used 9 towers to run 50 kW; at night it used all 12 towers and 5 kW.

The night pattern (to protect WTOP, KSTP, and others) was what the FCC calls a "critical directional tolerance," which means 1 phase and 1% power ratio tolerance. To set the pattern properly, the engineer had to stand in front of a room-size phasor cabinet, looking at a mirror on the opposite wall (showing the reflection of the phase meters) and crank the phasor at power change and every few hours hence (more during snow/rain). Of course, tower 12 interacted with tower 6, and if you tuned tower 7 you had to check tower 10, and so on.

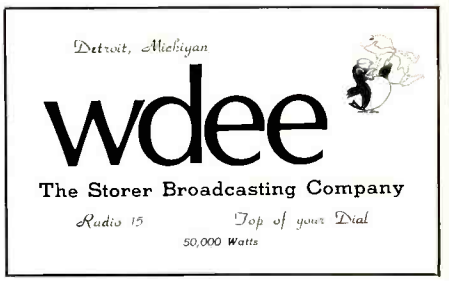

Dear Sir:

We are on the air from 7 A. M. to 3 A. M and pleased you received our reception.

W. J. B. K.

VERIFICATION OF RECEPTION

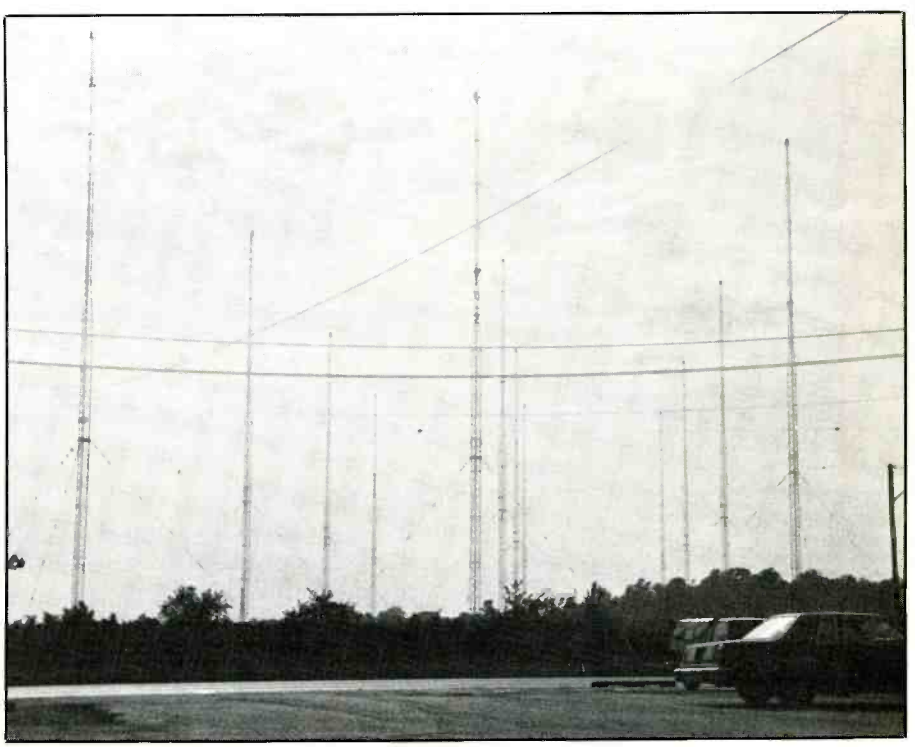
A 1930's QSL from Detroit's WJBK was less than elegant. (Courtesy Joe Hueter.)



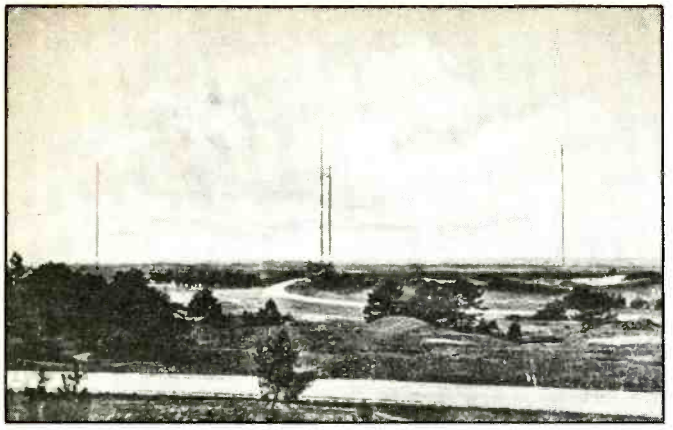
When Storer Broadcasting took over WJBK, the callsign was eventually changed to WDEE. Also, the QSL's got nicer. (Courtesy John Martin.)

The towers are guyed only at the 70 ft. level. They also have an elevated ground screen about 5ft. above the ground that extends 10 ft. around the base of each tower to improve stability during heavy snows.

In the late 1970's, John recalls that the station (which had then become known as WDEE) ran an old RCA Ampliphase transmitter. The phasing cabinets were 12 ft. by 12 ft. rooms with three shelves full of coils on three walls. The transmission (and also sampling) lines were all gas pressurized and had to be dug up and replaced from time to time. There were 16 monitor points for the night pattern but only 12 for the day pattern. Both patterns exhibited a 10 dB gain in the main (NNE) lobe, so reception reports often came in from Scandinavia. Many buildings and high tension lines to the north of the station had to be detuned. From a vantage



This 12-tower directional antenna system was needed in order for WJBK to operate with 50 kW. (Courtesy John Martin.)



This 1923 Dutch transmitter was apparently located in Hoogbuurlo, but we don't have any other information. Do you? (Courtesy Bill McTavish.)

Manoel C. Soares at the operations console of the Brazilian station Radio 9 de Julho, which operated on MW and SW. (Courtesy Helio Soares.)

Another view of the control room at Radio 9 de Julho, with Manoel Soares running the board. (Courtesy Helio Soares.)

In the studios of Radio 9 de Julho, Manoel Soares (left) is keeping his eye on announcer Fernando Rocha for cues. (Courtesy Helio Soares.)

This advertising pocket mirror appears to be from a radio factory located in Germany during the 1930's. (Courtesy Mike Pernicone.)

point on Route 75 through Lincoln Park (where the site is located) one can see numerous detuning stubs on any towers near the intersection with Dix Highway. Detuning stubs can be found as far as four miles away. Even a K-mart warehouse had to be detuned.

John tells us that the station had become WDEE just before it was sold to the Harlem Globetrotters. In 1979, the station was purchased by what is now Gannet Broadcasting, which also bought WLDM (95.5 FM), presently WCZY. About 1981 the calls were again changed to WLQV. In June of 1987, the AM station was sold to the Satellite Radio Network. The FM retains the callsign WCZY-FM.

A 1930's QSL came from Joe Hueter of Philadelphia, and isn't much to look at since it's typewritten and rubber-stamped. The QSL from when the station was in its WDEE phase is colorful and attractive, and was furnished by John Martin. John also provided a photo of WDEE's unusual highly directive antenna system.

Mystery Station

William McTavish, of Ottawa, IL sent in a picture postcard showing a Dutch radio station an it's got us stumped since information on the card can't be matched up with any data here on old wireless stations in the Netherlands.

The card, which was mailed in 1923, shows five towers. Four are equal in height and arranged in a square configuration. The other tower (at the far right in the photo) is considerably taller than the others and is outside of the square.

The only descriptive information on the card is, "Gezicht o.h. Radiostation Hoogbuurlo." The card was mailed from the city of Apeldoorn, 40 miles east of Hilversum, which has long been a broadcasting site in the Netherlands. But I can't locate Hoogbuurlo in any atlas, and I tend to think this was a telegraph station rather than an early broadcaster.

More definite information is welcomed.

From Brazil

A lengthy and informative letter arrived from Helio Soares, R. Martinho da Silva, 107 apto. 61 Saude, 04124 Sao Paulo Sp, Brazil. Helio is 34 years old, an electronics engineer, an avid radio hobbyist, and a faithful reader of this column.

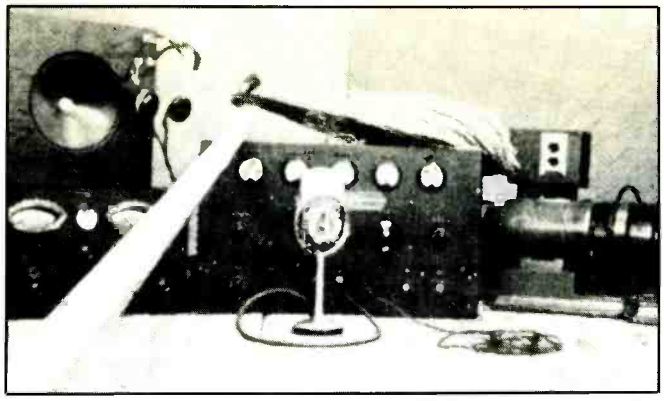
While looking through his father's files, Helio found some photos showing his father in the 1960's while he was working at Radio 9 de Julho in Sao Paulo, Brazil. This station was founded in 1954 at the time of the celebration of the 4th Centennial of the founding of the city. It operated 10 kW transmitters on 540 kHz (ZYR98), 9620 kHz (ZYR96), and 17705 kHz (ZYR94). Programs were Portuguese, Japanese and German.

Originally, the station was used in conjunction with the Centennial celebration, and for the following years it was run by the Catholic Church. In 1956, it commenced international service where it quickly built a large audience in Latin America, Europe, and North America with its programs of soft music mixed with some religious talks.

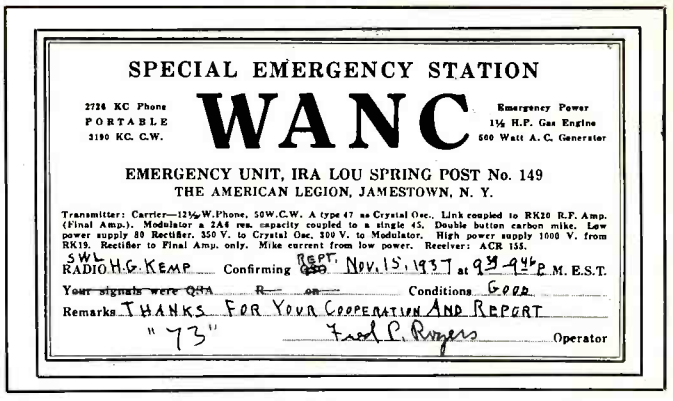
The equipment was a mix of items from Brazil and overseas. The turntables were made in America by Gates, the control board was made in Brazil by STP, the tape equipment was Japanese Aiwa and Akai, while the mikes were from RCA.

Radio 9 de Julho operated until 1973 when, due to political problems with the Cardinal in charge of the station, the government refused to renew its operating license.

We appreciate this information, and the photos that were supplied showing Radio 9 de Julho. I've included Helio's address in



The callsign of this 50 watt portable was KINT. It was operated by the Los Angeles Flood Control District in the 1930's.



SPECIAL EMERGENCY STATION

2726 KC Phone
PORTABLE
3190 KC. C.W.

WANC

Emergency Power
1½ H.P. Gas Engine
500 Watt A. C. Generator

EMERGENCY UNIT, IRA LOU SPRING POST No. 149
THE AMERICAN LEGION, JAMESTOWN, N. Y.

Transmitter: Carrier—12½ W. Phone, 50W. C.W. A type 47 as Crystal Osc., Link coupled to RK20 R.F. Amp. (Final Amp.). Modulator a 2A4 res. capacity coupled to a single 45. Double button carbon mike. Low power supply 80 Rectifier, 350 V. to Crystal Osc, 300 V. to Modulator. High power supply 1000 V. from RK19. Rectifier to Final Amp. only. Mike current from low power. Receiver: ACR 155.

SWL
RADIO H.G. KEMP Confirming REPT. Nov. 15, 1937 at 9:45 P.M. E.S.T.

Your signals were ~~QSA~~ ~~R~~ ~~on~~ Conditions Good

Remarks THANKS FOR YOUR COOPERATION AND REPORT

"73" Fred P. Rogers Operator

The flood control station, WANC, sent out ham-type QSL's in the 1930's. We previously ran this card here in May of 1988. (Courtesy Howard Kemp.)

case any of our readers would like to communicate with him.

Radio Mirror

A pocket mirror about 2-in. by 3-in. was submitted by Mike Pernicone of White Sulphur Springs, WV. Mike says that on the other side of the mirror there's some writing that mentions radio, and he wonders if it's a souvenir from an overseas broadcaster. Close, but we'd guess it to be a 1930's German advertising premium from a radio manufacturing plant in the city of Aachen owned by Hermann Heede and Fritz Minkwitz. We are pegging it in the 1930's because of the design, typeface, and the format of the telephone number.

Flying High

R.A. Reed, of Lethbridge, AB passed along a copy of a 1930 brochure telling about the National Air Tour's Lethbridge Stop on Friday, September 19th. The Leaflet describes seven aircraft that would be stopping at Lethbridge during that tour.

One of the aircraft is described with an interesting radio tie-in. This was the Crosley Flying Broadcasting Station, a Lockheed aircraft with a Wasp motor. The craft was "especially equipped as an aerial broadcasting station and licensed under the callsign KHILO." The plane, which carried Robert Brown, a WLW (Cincinnati, OH) announcer, held the transcontinental speed record and was piloted by William S. "Billy" Brock.

The flying broadcaster was to be sending out news of the tour as it progressed along its route. We checked this callsign out in our records and found that around 1930 and 1931, KHILO was assigned to an American aircraft with the racing tail number of NR-496M. It was owned by the Crosley Radio Corporation (WLW), and licensed to transmit on 333, 375, 393, 400, 414, 420, 457, and, 500 kHz.

Water, Water, Everywhere!

If you've ever been in an area prone to flooding, you know how communications play an important public safety role. Modern flood control operations have extensive two-way networks, however a far back as the 1930's there were such stations.

Here's WANC in the flesh, or at least in its trailer and ready for action. The trailer contained AM/CW radio gear, antenna tower, antenna system, plus a 500-watt AC generator.

One of the most extensive flood control systems in the nation belongs to Los Angeles County, CA. The humble beginnings of its communications system go back more than fifty years when Maurice Kennedy, W6KQ, established the Flood Control District's first network. The net control station was KIIY, located in downtown Los Angeles. This station ran 400 watts with voice on 2726 kHz. A c.w. frequency of 3190 kHz was used during the daylight hours when voice communications were poor.

Another base station in the net was KIIW, which ran 175 watts. This was located at 205 South Broadway. Portable station KINT ran 50 watts, and was completely self-contained with its own electric generator.

In May of '88 we showed you a QSL card from a flood control station that was sent in by Howard Kemp, Laconia, NH. That was from WANC, another 1930's unit, but in Jamestown, NY. Now we have a photo of WANC that shows how well-designed for quick movement these emergency stations were.

WANC operated on 2726 kHz with 12,5 watts, plus 50 watts CW on 3190 kHz. While a QSL card from an emergency station seems rather unusual, it isn't when you learn that WANC also slid over into the 75 and 160 meter ham bands to test with those stations each week. Such tests weren't authorized by FCC regulations, but it's doubtful that there were any protests in view of the fact that WANC was a legitimate emergency station that needed to work hams during an actual flood.

WANC was operated by the Ira Lou Spring Post No. 149 at Jamestown. The station was located on a bright red utility trailer, and contained a gasoline driven 500 watt AC generated for power. It also had a 30-ft. folding mast to support its 162-ft. antenna system.

Shortwave Relay

During the 1930's, many broadcasters found it fashionable to obtain experimental licenses for shortwave transmitters that would relay their regular programming. From time to time we get a look at QSL's from some of these stations in the U.S. and Canada. When WWII came along, so ended the ability for American stations to continue this practice. In Canada, however, there are still a handful of shortwave relay broadcasters in the 49 Meter band used to bring programs to Canadian residents living in remote northern areas.

Henry Ward, of Sherbrooke, ON sent along a 1935 QSL from American shortwave relay broadcaster W2XE in New York City. This station operated on 6120, 11830, and 15270 kHz and carried the programs of CBS station WABC (presently WCBS). W2XE ran 10 kW with transmitters in Wayne, NJ.

After WWII ended, CBS utilized these three shortwave frequencies, plus 6060, 9650, 17830, 21520, 21570 kHz and a few others for shortwave operations at Wayne, NJ under the callsigns WCBX, WCRC, WCBN, WCDA, WOOC, and WOOW. Although, technically, these stations might have looked back to W2XE as their ances-

WCRC **WCBX**

COLUMBIA BROADCASTING SYSTEM, INC.
485 MADISON AVENUE, NEW YORK 22, N. Y.
U. S. A.

1. 6060 Kc., 49.5 M.
2. 6170 Kc., 48.6 M.
3. 7820 Kc., 38.3 M.
4. 9490 Kc., 31.6 M.
5. 9590 Kc., 31.3 M.
6. 9650 Kc., 31.0 M.

WCDA
WCBN

7. 11145 Kc., 26.9 M.
8. 11830 Kc., 25.3 M.
9. 11870 Kc., 25.3 M.
10. 15190 Kc., 19.7 M.
11. 15270 Kc., 19.6 M.
12. 17830 Kc., 16.8 M.

Thank you for your recent communication.
This will verify your reception of Columbia's
short wave program on frequency ~~MX~~ 21500 kc.
on Sept. 11, 1947

WOOC Tony Kraley **WOOW**
Short Wave Dept.—Network Service Mgr.

F. 114-4/46

By 1947, CBS had converted its old shortwave relay operations to international broadcasting on a more formidable scale. This single QSL made for its 6 international stations at Wayne, NJ. (Courtesy Tom Kneitel.)

"The Radio Voice of Lackawanna County"

W - N - B - W

1200 Kilocycles 10 Watts

"The Biggest Little Radio Station in the Country"

Carbondale, Penna.
December 2, 1931

Mr. Joseph L. Hueter,
1802 W. Columbia Ave.,
Philadelphia, Penna.

Dear Mr. Hueter:

Your report on reception of our special DX program of Sunday morning, November 29th, 1:40 A.M. to 3:30 A.M. E.S.T. received, we find it checks correctly with our station log.

We thank you most sincerely for your interest in reporting the reception of this program, and we assure you that we will appreciate hearing from you in the future when you succeed in receiving our broadcasts.

WNBW operates fourteen hours daily, 8:00 A. M. to 10:00 P. M. continuously with a maximum power of 10 watts, using 100% modulation, with the latest type composite transmitter, crystal controlled. Our speech input equipment is the best and most modern obtainable, with the latest type condenser microphones and fading equipment.

The WNBW staff of ten members, are all experienced in their particular type of work and the announcers heard during the special program were at one time members of the staff of NBC. Every member extends thanks for your interest.

We have added your name to our mailing list and you will be notified by card of our next DX broadcast.

Again we thank you for your report,

Sincerely yours,

Radio Station W. N. B. W.

W. S. McCachren

W. S. McCachren Jr., Managing Dir.

WSM/AC

WNBW was a 10-watt BCB catch back in the early 1930's. (Courtesy Joe Hueter.)

A DIVISION OF Columbia BROADCASTING SYSTEM, INC.

W2XE
ATLANTIC BROADCASTING CORPORATION
485 MADISON AVENUE
New York City

April 26, 1935

Dear Listener:

Thank you for your recent communication. This will verify your reception of experimental short wave relay broadcast station W2XE on frequency No. One April 16th, 1935

1. 6120 Kc., 49.02 M.
2. 11830 Kc., 25.36 M.
3. 15270 Kc., 19.646 M.

ATLANTIC BROADCASTING CORPORATION
W. A. Tuthen
Technical Department

W2XE was a 1930's shortwave relay broadcast station in New York, NY operated by Atlantic Broadcasting (CBS). (Courtesy Henry Ward.)

tor, they were used for international broadcasting rather than as simple relays. Later, their operations were absorbed into the VOA. A multi-station QSL from the CBS international stations dated 1947 was provided by Tom Kneitel.

Mighty Mite

Previous mentions here of low power broadcasters have brought in letters asking for more, so before we leave till next time, we'll look at WNBW, which was a popular flea power station for DX'ers to try for.

WNBW began operation in early 1928, running 5 watts on 1500 kHz. The station was licensed to G.F. Sciessler and M.E. Stephens, owners of the Home Cut Glass and China Co., 21 Salem Ave., Carbondale, PA. Shortly after it began operation, WNBW changed frequencies to 1240 kHz, and by late 1928 had settled down 1200 kHz.

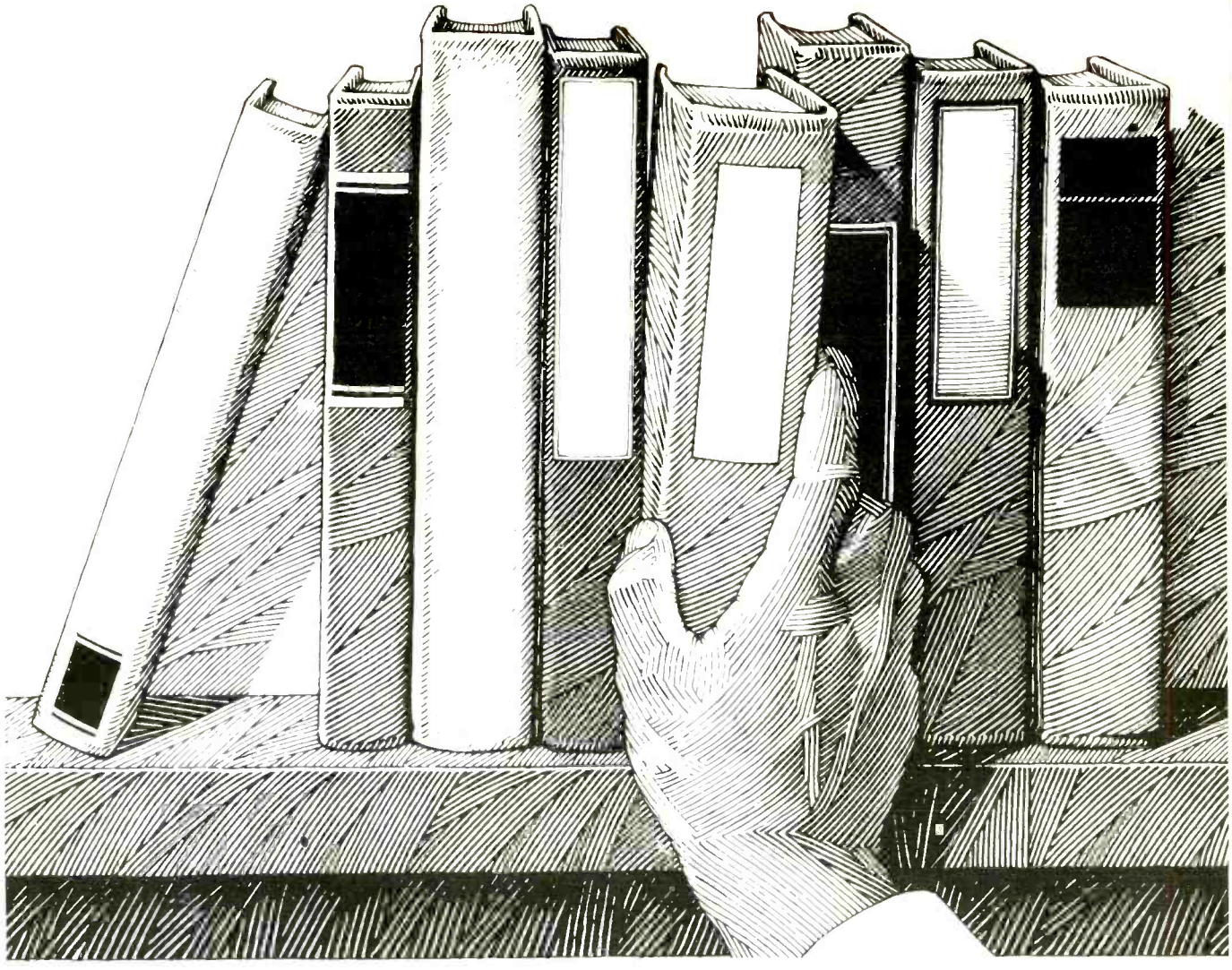
In 1930, when the station moved to 50 Main Street North, it increased its power to 10 watts. A 1931 QSL letter to DX'er Joe Hueter mentions a special DX program and describes WNBW as "the biggest little radio station in the country." The station reported operating a 14-hour daily schedule with top grade equipment and a staff of ten. Although the letterhead was hand typed, the QSL from "The Radio Voice of Lackawanna County" was a real prize.

On November 24, 1933, the government told WNBW to cease operations. Simultaneously, the Commission denied WNBW's application for involuntary assignment of its license. By April of 1934, WNBW's owners had dismantled the station's transmitter and later that summer the station was stricken from the licensee records.

It was a brief career, but one that gave many DX'ers a QSL to remember for many years afterwards.

And that ends it for us, too, at least until next issue. Thanks go to those whose submitted materials that went into making this column possible. We always appreciate old timey radio station photos, QSL's (originals or good quality copies since they can't be returned), station directories and listings (including Whites Radio Logs, World Radio Handbooks, etc.), and your thoughts.

Catch you in November. **PC**



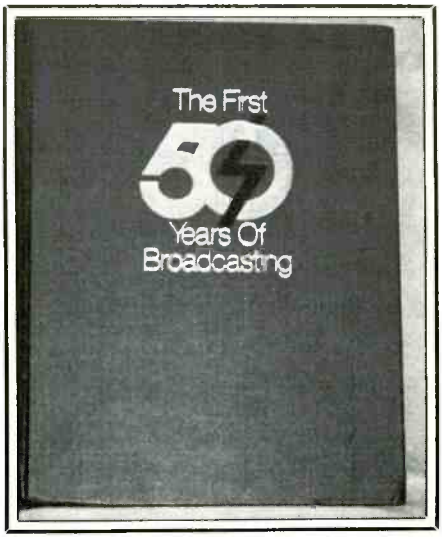
BOOKS YOU'LL LIKE!

BY R. L. SLATTERY

Way Back When

In 1982, the publishers of the trade publication *Broadcasting* observed the journal's semi-centennial by bringing out a book entitled *The First 50 Years Of Broadcasting*. The title didn't refer to the broadcasting industry, but to *Broadcasting*, the industry journal. This book is still available and we thought you'd like to know that it may be a volume you'd want to have in your library.

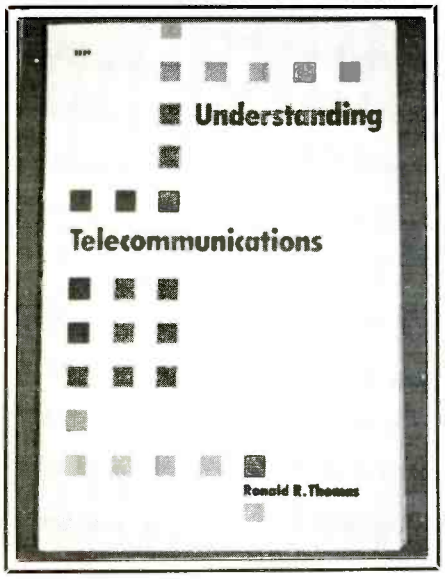
This is a fully illustrated, hardcover, book printed in a large format on slick paper. It runs 297-pages, and carries a full index. The book is, for the most part, a year-by-year chronology of the most important events in broadcasting between 1931 and 1981, as had been covered in the pages of *Broadcasting*. At the back of the book is an alphabetical "Honor Roll" listing of those who made significant contributions to electronic communications between 1931 and 1981. This consists of several thousand persons (most of whose names were unfamiliar to me) who had been profiled in *Broadcasting*, shown along with an issue (of *Broadcasting* including the date of their profile).



The yearly summaries take the reader through numerous interesting media events and turning points, such as coverage of the Lindbergh kidnaping, WLW's 500 kW experiments, FAX, early TV and FM, World War II, color TV hassles, politics, sports, pay-TV, payola, quiz show scandals, the turbulent 1960's, and right into the era of satellites and their role in broadcasting. Each yearly summary runs about 3 to 5 pages and certainly isn't intended to be an in-depth treatise, merely the basic facts to familiarize the reader with an overview of what each situation was all about. It's well done and may well be, in most instances, sufficient to give you all the information you

really wanted to know about a given topic. Or, if your appetite for information is tempted, it will provide you with plenty of names and dates to use for further research elsewhere.

The First 50 Years Of Broadcasting costs $29.95 from *Broadcasting (Book Division)*, 1705 DeSales St., N.W., Washington, DC 20036.



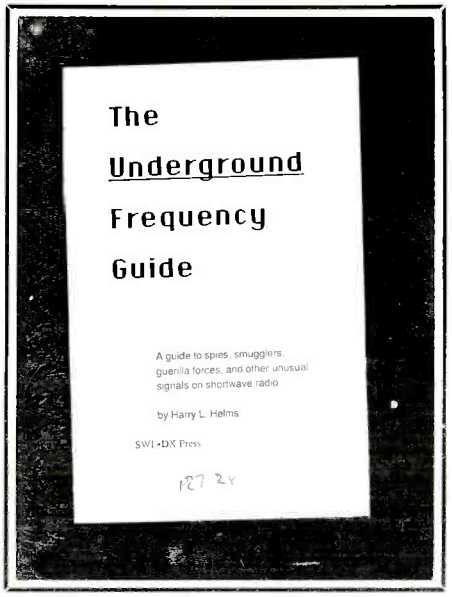
What It's All About

Understanding Telecommunications, by Ronald R. Thomas, is a new 243-page book that is a single-source reference covering a wide area of the field of telecommunications. Want to know about: computer comms, long distance comms, careers, telephone systems, radio systems, television, and more? This book may have what you're seeking.

Thomas offers a comprehensive overview of telecommunications, giving the reader the background and insight needed to keep pace with this exciting field. The book is written in a clear, plain-English style. It's an easy-access guide suited to industry professionals or those interested in a career in telecommunications. Written from a user's viewpoint, *Understanding Telecommunications*, does a fine job of explaining the inner workings of every aspect of the telecommunications field. The book has a number of charts and diagrams to supplement the text.

The author appears to speak with authority and experience, having been involved in the communications field for about 35 years. He holds Amateur license W8QYR, and has previously authored more than 70 articles and one other book about telecommunications.

Understanding Telecommunications costs $17.95. It's available from TAB Books, Inc., Blue Ridge Summit, PA 17294-0850, or your nearest TAB dealer.



Mystery Stations Rule Supreme

For several decades, communications monitors have never ceased to be tantalized by all manner of weird, bizarre, unusual, mysterious, and otherwise unidentified shortwave transmissions that fill the air. There are lists of numbers read in various languages, stations that do nothing more than send a single CW letter, there are transmissions suspected of being smugglers, guerrillas, and terrorists. There are odd *beeps* and other strange signals sent out for purposes never fully explained, possibly for reasons that those who sent them would prefer would remain unexplained.

One of the most adept observers and students of these unusual proceedings has always been Harry Helms, AA6FW. Helms, whose byline frequently appears on *POP'COMM* articles, has never ceased investigating what they're all about, what they're used for, and how to hear more of them. Helms currently keeps tabs on more than 400 active frequencies upon which various mystery transmissions which he feels are the most interesting take place.

Because some "ute" station directories give mystery stations only casual mention, or else deliberately ignore them altogether, Harry has now opened his private monitoring files and compiled his own unique *Underground Frequency Guide*. In addition to a very informative introductory text in which he offers some insights, opinions, inside information, and revelations, he offers a large directory listing of mystery frequencies you can use to guide your own monitoring efforts. Listings include transmission times, modes, languages, and a capsule description of exactly what type of oddball transmissions are being intercepted there. There's plenty to fascinate here.

The Underground Frequency Guide, by Harry Helms, is only $6.95 per copy plus $1 postage to addresses in North America from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725. N.Y. State residents add 52 cents sales tax.

In Addition

An anonymous Australian reader sent us a copy of a 159-page book entitled *Soviet Signals Intelligence (SIGINT)*, by Desmond Ball. This newly published book has numerous photos, charts, and lists of ships, aircraft, antennas, fixed stations, etc., related to the U.S.S.R., plus lots of in-depth text on that nation's use of communications in conjunction with its intelligence gathering activities around the world. The author is Head of the Strategic and Defense Studies Center, the Australian National University, and has previously written numerous other books on intelligence. This is an excellnt book, but we are given no information about its price or availability. Those who are interested in obtaining a copy for their own can contact the publisher: Strategic and Defense Studies Center, Research School of Pacific Studies, The Australian National University, GPO Box 4, Canberra, ACT, 2601, Australia.

Another book of interest also arrived here without giving us much guidance to its price or availability. That would be the 2nd Edition of the *Southeast Texas Radio Frequency Guide*, by David Stall, N5MKK, P.O. Box 58023, Houston, TX 77258. A price of $9.95 is marked on the back cover of this 42-page publication and in the absence of any other information, we would assume that it may include the cost of postage. It covers Austin, Beaumont, San Marcos, Port Arthur, Pasadena, Corpus Christi, Houston, College Station, Victoria, Waco, Lufkin, and several other area cities, showing a by-frequency listing of stations between 10 kHz and 1272 MHz.

We received notice of a new 20-page syllabus called *Russian Phrases for Amateur Radio*, by Len Traubman, DDS, W6HJK. the booklet provides English words and phrases for QSO's, plus the Russian translation, and English transliteration to aid in pronouncing the Russian. There are also sections on the Russian alphabet, phonetics, CW characters, numerals, and given names. W6HJK undertook the project out of a personal interest in making contacts easier with USSR operators. The booklet is provided free of charge, with the first printing funded by an educational foundation known as *Beyond War*; of course, should you wish to make a voluntary donation towards sustaining this worthwhile project, I'm sure it would be appreciated. Requests for the booklet may be sent to: *Russian Phrases For Amateur Radio*, Len Traubman, W6HJK, 1448 Cedarwood Drive, San Mateo, CA 94403. **PC**

Living With The PRO-2005 Scanner

Let's Teach It Some Tricks!

BY NICK GRAY, KTX5XR

If you drive a car with a center console, you'll be pleased to learn Realistic's new PRO-2005 scanner sits there nicely, snuggled between the driver and the passenger, perfectly situated for easy operation. Too bad the Radio Shack people don't want you to use it there.

Any serious scanner freak would be driven to exasperation tripping back and forth from house to car trailing that silly AC power cord, hard-wired and dangling from the set. It was the same with the 2004 . . . and the 2001 before that . . . and . . .

But the solution is just a snip away, even for those of us whose work bench consists of a pair of wire cutters, a couple of screw drivers, a roll of electrical tape and maybe a soldering iron.

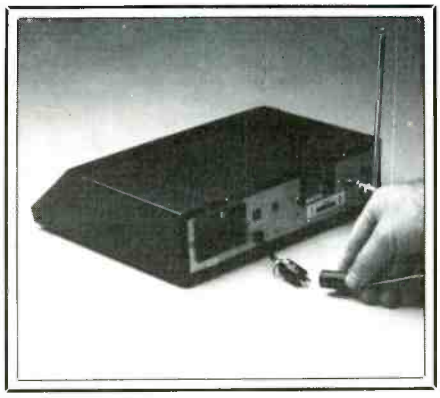
Okay—let's get to it. As to the little matter of the infernal power cord: whack it off.

The marketing people at Tandy will tell you they never intended for this to be a mobile scanner; that the DC function is there just in case you want to use the PRO-2005 in a boat or mobile home. After all, they don't even include a mounting bracket.

But the 2005 is lighter and more compact than the 2004, which was lighter and more compact than the old 16-channel PRO-2001 which did include a mounting bracket. And, after spending 400 bucks for a scanner, you better believe I'm going to use it anywhere and everywhere I can find juice.

So, take those wire clippers and cut the AC cord two or three inches from the rear of the set. Leave enough to work with. Strip the wires back a little and attach a plug (Radio Shack Part #274-201). Now, take the cord you detached and attach a socket (Radio Shack Part #274-202). Plug the other end into the wall outlet wherever you use the scanner in your house.

If you use your scanner at the office or in other parts of the house, make two or three of these detachable power cords and just leave them plugged into the wall, ready to use. Keep one in the glove box of your car in case you want to plug in at a friend's place. For safety's sake, make sure the female socket, not the plug, is on the other end of the cord plugged into house current.



Life From 870-890 MHz

As with the 2004, Tandy deleted Cellular Mobile Telephone frequencies before putting the PRO-2005 on the market. More bad news: You'll have to waste five to 10 minutes of good listening time to restore those frequencies. It's done the same way you do the 2004.

Of course, it's not anyone's intent to break any laws with this modification . . . but, rather to restore the integrity of the radio and, like having a car that will do 120 mph, it's there is you ever *really* need it.

Sucking In The Signals

Now that we're mobile, what's next?

If indeed you do have a car with a center console, the 2004 or 2005 will work nicely there. Otherwise, you'll need to come up with a bracket arrangement or just set the scanner in the seat beside you.

We now must consider a mobile antenna. In the plastic-bodied Fiero, or similar vehicle, you may well get by adequately with the telescoping whip that comes with the scanner, especially if you're in a strong-signal metropolitan area. If you're still using a 2004, make sure your passenger doesn't lean against the antenna—it's delicate and breaks easily where it joins the BNC connector. Radio Shack doesn't stock them in the stores and they're usually back-ordered.

If you want to use a real mobile monitor antenna, you'll have to find a mobile antenna to match the range of the 2005 (25-1300 MHz). Lots of them claim that kind of range, but as to actual performance—rots of ruck.

Hands-On Experience

Even at 55 mph, it's doubtful you'll be content to let the 2005 run through its 400 channels unmolested. You'll want to switch to "manual" to listen to one frequency for awhile, change the priority channel as something interesting starts to break, lock out a frequency or bank of frequencies that begins to get on the nerves or switch to "search" mode when you spot the guy in the next vehicle talking on the radio.

In any case, trying to look at the keypad to perform these functions while driving down the freeway can definitely be dangerous to your health and everyone else's.

Here's where the 2005 shows an improvement over the 2004. With the rubber keypad buttons, you can keep your eyes on the road and still feel your way around to do some simple programming. You may want to tape a couple of "markers" on some of the buttons to help keep from getting lost. For example, place some small stick-on labels on the "limit", ↑ (up arrow), ↓ (down arrow), "direct" and "monitor". They're available at any office supply store in different sizes and colors. Put another on, say, "5" and "enter"—now you can do all kinds of programming chores without even looking down.

You can do the same with the PRO-2004, but with this one use a stick-on label on each of the number funcions (Avery S-508 labels, 5/16″ × ½″, fit perfectly). Put one each on the ↑ (up arrow), "pri", "lock-out" and "scan".

Now, you can steer the car with the right hand, and operate the scanner at the same time without the need to take your eyes off the road except perhaps for an occasional glance at the channel read-out. The numbers in the 2004 and 2005 display show up even in brightest sunlight.

With so many channels to play with, your car's AM/FM radio may fall from use. Or, at

least, you'll probably end up half-listening to the car radio while keeping track of things on the PRO-2005 through a pair of mono headphones.

Tune In The Tube

Have to be on the road when your favorite TV program is on, and you forgot to set the VCR? At least you can listen to the TV audio on your scanner. Rather than waste a regular scanner channel, why not put the TV audio on one of the PRO-2005 monitor channels?

In my area the VHF TV channels are 4, 5, 8 and 11. So, I've got TV channels 4, 5 and 8 on the corresponding monitor channels, and I put channel 11 on monitor channel 10—as close as I could get.

Since the monitor channels are intended to store frequencies discovered during "search", it's a little tricky to put in a specific frequency. You have to make the scanner think you're entering a frequency you just happened to "find" while searching.

Here's how.

Let's say you want to assign TV channel 8 audio (185.750) to monitor-channel 8. Key "program", then "monitor", then the number of the monitor channel into which you want to enter a frequency (in this case, 8). Now, key "limit", and enter 185.7 as the lower limit. Change mode to WFM. Key "limit", 185.8, "enter" for your upper limit. Rotate the squelch control all the way counter-clockwise. Now key ↑ (up arrow) repeatedly until you reach 185.750. Now key "monitor".

That's it. Now, anytime you want to listen to TV channel 8, all you have to do is hit "program", "monitor", "8"—and you've got it. Remember all TV audio is WFM mode. Also, when you use the telescoping whip antenna, you may have to rotate squelch control counter-clockwise beyond the normal position to get the signal in.

This set-up can come in handy while watching TV at home, too, if you don't have a remote audio mute button for your TV. Just have your scanner next to the easy chair and listen to the TV audio on the scanner. For better sound, use an extension speaker or patch it through the mono jack on your stereo receiver—or listen through headphones.

When a commercial comes on, hit "scan" and you can be entertained by your scanner while skipping the dog food spiel on TV. Or, put your favorite FM broadcast station on one of the other monitor channels to fill in that commercial interlude. You could even listen to the news on one TV channel while watching sports highlights on another.

What else to put on the monitor channels? How about the local NOAA/National Weather Service frequency. Or the local Skywarn/RACES frequency.

Get Wild and Crazy

Again, the versatility gained with 400 channels is a dream come true in terms of being able to keep an ear on frequencies you previously had to forego because of channel limitations. Now you can program in all those itinerant frequencies and hear all manner of weirdness while driving past truck terminals, warehouses, industrial parks or anyone else using itinerant frequencies.

Punch in those cordless phone frequencies and get a quick earful driving down residential streets. Caution: Make sure you lock these out when kids are in the car.

Program in 35.02 and never have to worry about watching for the next hamburger joint. Just wait until you hear an open transmitter or someone ordering a Big Mac and fries—you're now passing a McDonald's.

At last, you can monitor all those "maybe" frequencies that you never had room for with a 16- or 20-channel scanner. If the scanner stops on a channel but appears to be off-frequency, key "program", "direct" and then either ↑ (up arrow) or ↓ (down arrow) to reach the correct frequen-

cy. Of course, you have to do this during a transmission. Again, it may help to rotate squelch all the way counter-clockwise to hold the frequency until the next transmission.

I happen to live in an area with an international airport, a couple of regional airports, an ARTCC, an Air Force base, a Naval Air Station and three or four aviation defense contractors. The PRO-2005 gives me enough channel capacity to monitor all of them—barely.

If so inclined, you can scan all 40 CB channels for the latest on-the-road chatter. Ditto for the amateur radio frequencies within the range of the scanner.

When the President comes to town, monitor all 6 zillion Secret Service frequencies.

Put in all the EMS bio-med frequencies and hear the paramedics call in injury reports on the victims of that wreck you just passed.

You Didn't Hear It From Me!

Then there's the matter of cellular mobile telephones. Save this article and, when ECPA is repealed, here's what we can do:

The PRO-2004 and PRO-2005 have 10 search channels. In search channel 1, program 870.030-879.360—that's System A Base. On search channel 2, program 880.650-889.980—System B Base. On search channel 3, program 870.030-889.980—the full CMT base spectrum. With the third one, you'll have to either step through the control frequencies—879.390-880.620—or move the squelch knob clockwise until the search passes through the control frequency noise.

On search channel 4, program 825.030-834.360—System A Mobile. Search channel 5: 835.650-844.980—System B Mobile. If you want to combine those two on search channel 6, go ahead.

When you see that the guy in the next car is talking on the phone, check the mobile frequencies just long enough to make sure he's not talking about you. Since the mobiles run only 3 watts, a nearby user will be fairly easy to find. Once you've determined which system he's on, find the other end of the conversation on corresponding search channel 1 or 2.

In my area, virtually all the police departments use the system B, or wireline carrier—in my case it's Southwestern Bell.

Not Just Bells 'N' Whistles

It's likely you'll actually *use*—not just try out—every function of the PRO-2005. I know I do. From sound squelch to the 10 dB attenuation switch on the rear of the set.

With so many channels, "Lock-Out Review" is indispensible for preventing a locked-out frequency from being lost in 400-channel never-never land. Without this feature, you would end up having to step through every channel to find that one you locked out last week and then forgot about.

The ability to select the priority channel is great when something big starts breaking on one of those federal frequencies but you can't afford to lock it in. It's easy to move the priority channel around even while driving. That is, of course, if you can stand to listen to a scanner in priority mode. Let's pray for the day when they give us scanners that discretely sample the priority channel, eliminating the obnoxious hiccup syndrome.

For those frequencies you just *don't* want to miss, perhaps it would be a good idea to program those frequencies into each bank, or at least three or four of them.

I can't think of any reason for using any but the fastest of the two scan/search speeds. It takes long enough to run through all those channels. It's too easy to accidently hit the "speed" key and inadvertantly halve your search/scan speed. And it's difficult to tell which speed mode the scanner is in merely by watching the numbers flash by. The best way to determine speed: Watch the black bars just below the 10 bank designators. Determine speed by counting how many times the bar blinks on each bank.

Living with the PRO-2005 already was a pleasant enough experience even before our little improvements. But now, we've not only made it more honest by restoring its CMT potential, but also, by expending a little effort and a few cents, we've increased its usefulness a great deal.

Your own interests and requirements will determine which frequencies you program in to the 300 or 400 channels on your PRO-2004. But here are some to consider:

VHF-TV Audio
All are wideband FM

Ch.2	59.750
Ch.3	65.750
Ch.4	71.750
Ch.5	81.750
Ch.6	87.750
Ch.7	179.750
Ch.8	185.750
Ch.9	191.750
Ch.10	197.750
Ch.11	203.750
Ch.12	209.750
Ch.13	215.750

Medical/Biotelemetry

EMS Med 1	463.000
EMS Med 2	463.025
EMS Med 3	463.050
EMS Med 4	463.075
EMS Med 5	463.100
EMS Med 6	463.125
EMS Med 7	463.150
EMS Med 8	463.175
EMS Med 9	462.975
EMS Med 10	462.950

Selected Itinerant Freqs.

151.625
154.570
154.600
151.540

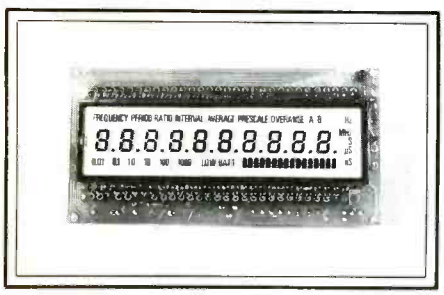
PC

PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS

Universal Timer Counter Module/Panel Meter

Optoelectronics Inc., Fort Lauderdale, FL, announces a 10 Digit Universal Counter/Timer Module with direct frequency response from .1 Hz to over 150 MHz. Up to 9 digits of resolution per second. Functions include frequency, period, period average, time interval, time interval average, ratio, prescale, over range, and a 16 segment analog input bar graph.



Module size is compact (1.8″ high × 3.55″ long × .6″) and suitable for OEM use in custom instrumentation or in a digital panel meter application. 10 digit .25″ character height LCD display has annunciators for function, gate time, range, measurement units, input A/B, low battery, prescale, and 16 bar graph segments.

The module employs custom ASIC, custom LCD, and surface mount technology to achieve break through performance and compact size.

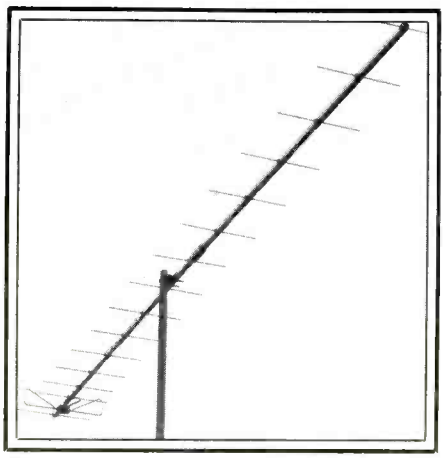
Additional features include an on board 1 ppm 20-40 degree C, 10 MHz time base with calibration adjust trimmer, LCD contrast control pot, CMOS counter inputs (400 mv sensitivity typ), gate light LED, and an 8 bit A/D on board. Four Control Inputs are for momentary push buttons. Connector is a 14 pin dual .025₀ header. Power required is 5 vdc, 50 ma.

Cost is $225 in single quantity, and $149 in hundreds. For more info, contact: Optoelectronics Inc., 5821 N.E. 14th Ave., Fort Lauderdale, FL 33334, or circle 106 on our Readers' Service.

ATV Antenna

AEA announced the 430-16 yagi antenna for 430 MHz. The 430-16 is a high performance, computer-optimized yagi specifically designed for ATV operation. With frequency coverage from 420-440 MHz, it is also an excellent choice for DX chasing on 432 MHz and satellite transmit/receive action on 435.9 MHz.

The 430-16 antenna is an ideal companion for the AEA fast-scan TV unit, the FSTV-430.



Additional Features:

- 250 W power capacity
- Butterfly dipole driven element
- Two- and four-bay stacking systems are available
- E-28, H-32 degree beamwidth
- 14.3 dB gain over a dipole
- 16 elements

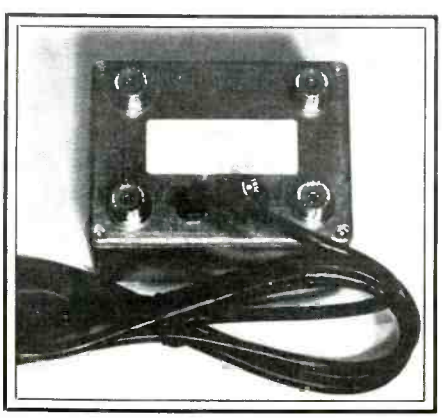
Pricing And Availability:

The AEA 430-16 is now available through AEA authorized dealers. AEA retail is $139.95 and the amateur net is $119.95.

Signal Intensifiers For Wireless Microphones

Electron Processing, Inc. announced the addition of three new SIGNAL INTENSIFIER RF preamplifiers to serve the needs of wireless microphone users demanding better performance of their equipment. The RFW and the RFW-DD SIGNAL INTENSIFIERS provide a dramatic improvement in received signal strength.

Sporting a wideband amplifier the RFW series provides 15 dB of gain over all wireless microphone frequencies. Coverage from 1 to 1300 MHz is continuous and with a low, 2.8 dB, noise figure. Standard connections used are female UHF (SO-239, PL259 mate); female BNC connectors are also available. These preamplifiers are powered by an internal 115 VAC power supply and are easy to install into any system.



The standard RFW model contains a single amplifier, while the RFW-DD contains two separate, isolated amplifiers ideally suited for dual-diversity systems. The RFW-DD provides in one compact package improved signals for both sides of a diversity system, or could be used wherever two separate preamplifiers are needed.

Pricing for the RFW starts at $169.95, while the RFW-DD starts at $224.95. Quantity discounts are available. To order or for additional information, please contact the Sales Department, Electron Processing, Inc., PO Box 708, Medford, NY 11763 or phone (516) 764-9798. More info can also be obtained by marking 107 on our Readers' Service.

The Morse Machine MM-3 Keyer

AEA announced *The Morse Machine* MM-3 high-performance keyer. The MM-3 is packed with features to help you increase your code speed or increase your QSO's during the heat of a contest.

Features:

- Digital or analog speed selection
- 8,000 characters of memory that can be stored in 20 memories (36,500 with 32K RAM)
- Training system that allows random code group practice at a steadily increasing speed, random four-letter word generator and a Dr. QSO™ QSO simulator
- Automatic serial number insertion and incrementing in any memory message for the serious contester
- Six programmable modes of operation: KEYER/MEMORY SEND, BEACON (to automatically repeat a Morse or RS-232 ASCII message at a programmed interval of one to 999 seconds), MEMORY LOAD, TRAINER, MORSE TERMINAL and QSO SIMULATOR
- RS-232 computer compatibility enabling operations from your computer, including displaying practice sessions on your screen

Pricing And Availability

The Morse Machine MM-3 keyer is now available through AEA authorized dealers. The suggested retail is $209.95 and the amateur net is $189.95.

DX'ing Europirates

Monitoring's Forgotten Frontier

BY ANDREW YODER

For some reason, "hardcore" DX'ers always seem to gang up on either South America, China, or Indonesia. Sure, there are plenty of tough catches in those areas, but everyone forgets about Europe. With Maxi-kilowatt blasters like the BBC, Radio Moscow, and Radio Netherland, it might not appear to be a tough continent to log. But hundreds of low power DX stations operate throughout the various radio bands. You probably guessed it; they're all pirate broadcasters.

Maybe the reason why few DX'ers muscle up on Europirates is because information on these stations is scarce. Obviously, with governments trying to close the stations down and the lack of operating funds, schedules are erratic. When looking for Europirates, you just can't tune to 6260 kHz (for example) at 0600 every evening and eventually find one. It takes more dedication than that. It is necessary to scan large segments of several bands in the wee Sunday morning hours. Even then, you can't be sure of anything.

Getting Prepared

Although you can never be fully prepared when hunting Europirates, many DX'ers make the mistake of hunting the stations without the slightest bit of information. They tune around, often on the wrong time or frequency, and eventually get bored from logging static crashes. Experiences like this eventually convince the listener that European stations are impossible to hear in North America.

The other type of pseudo-Europirate DX'er, actively hunts the stations only after he hears or sees other reports of it. Eventually, this type of listener logs a few tough catches, but he still misses a lot more. A good example of this occurred in December 1988 and January 1989 when Weekend Music Radio from Scotland was widely heard across the United States. After a few DX'ers logged it, it was the talk of the shortwave community. Before long, dozens of North American listeners had logged the low-power station. Shortwave listeners who logged Weekend Music Radio are capable of hearing many other stations, but they either don't know where to look or they don't want to spend the time looking.

Table I

FRENDX
45 Wildflower Rd.
Levittown, PA 19057

Pirate Pages
3007R 4th Ave.
Beaver Falls, PA 15010

Table 1. Regularly published North American radio newsletters that give advance notice to Europirate tests.

Most Europirates are audible in North America when they are testing specifically for this continent. Since these tests usually occur at different times and on different frequencies than usual, up-to-dat information is a must. Some of the best newsletters for reporting tests from Europirates are FRENDX, and The Pirate Pages (see fig. 1).

In order to hear the greatest number of Europirates, it may be necessary to subscribe to one of the free radio newsletters from the continent. Three of the best newsletters printed in English are Radio Telex, Wavelength, and Weekly Report. It is important to note that Radio Telex is from West Germany, while Wavelength and Weekly Report are printed in the United Kingdom. These newsletters all feature pirates from the bulletin's country of origin. So, if you were most interested in hearing pirates from Central Europe and Scandinavia, your best bet would be Radio Telex, while Wavelength and Weekly Report would be the best for tuning in stations from the British Isles.

Table II

Radio Telex
Duempter Strasse 6
D-4100 Duisburg 12
West Germany

Wavelength
PO Box 5
Hunstanton, Norfolk
PE36 5AU
United Kingdom

Weekly Report
Anoraks UK
Box 539
Blackpool FY1 4RE
United Kingdom

Table 2. Some of the best Europirate newsletters printed in English.

Tuning In

Of course, hearing a Europirate on shortwave requires a shortwave receiver and an antenna of some sort. Other than that, no special equipment is required. Even a 30'

Fig. 1 - Weekend Music Radio from Scotland was frequently heard by listeners in North America throughout the winter of 1988-9.

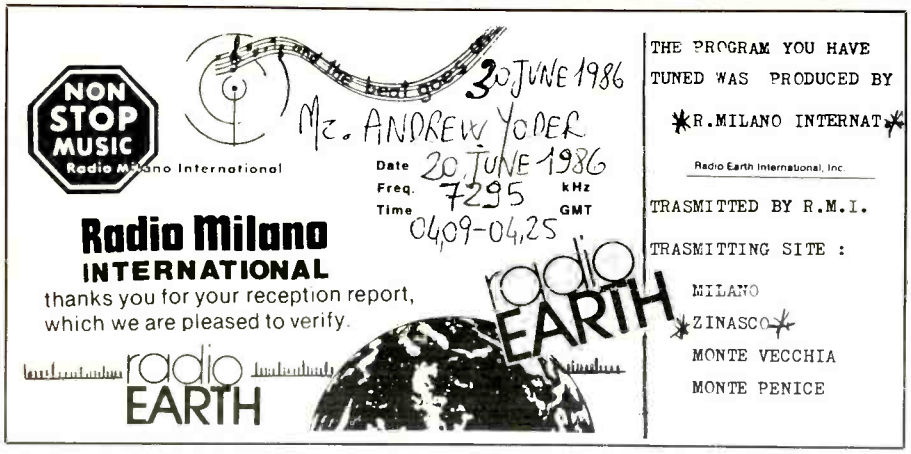


Fig. 2- The Italian unlicensed station, Radio Milano International was a fairly common catch in the early '80's, but it has been inactive on shortwave over the past several years.

piece of hook-up wire will enable you to log a few Europirates with some work and luck. A good antenna directed towards Europe will certainly improve the results, but it isn't a must.

Radio Caroline, the daily British offshore station, should be a fairly easy log on 6215 kHz. It features an American-style top-40 format with hyper DJ's and regular commercials. Radio Dublin and Radio Fax, were both regulars from Ireland at the end of 1988, but the authorities have forced a large scale-down crack-down on unlicensed broadcasting in that country. Unfortunately, the once common Irish stations are now rare; but some of the stations may still have commercial backers and the power to return to the air.

Since most of the daily or regular Irish stations are gone, the best chances to hear Europirates should be between 0800 and 1000 UTC Sunday mornings on 6200-6350 kHz, 6700-6850 kHz, and 7300-7450 kHz.

It is very important to know what activity is typical of these frequency ranges; this knowledge will improve the accuracy of your reports and keep you from wasting time. You should have a reasonable idea what a legal shortwave broadcaster and a Europirate sound like. For example, don't get broadcasts from WRNO on 7355 kHz confused with those from Europe. And if your receiver produces images, be especially careful. That rare logging from Radio Apollo International on 6275 kHz may actually only be an image from Radio Canada International. There is a difference! It may be a good idea to check the strong signals from legal shortwave broadcasters to make sure that the station you're listening to really is a pirate and not an image.

Origins become even more confused when North American stations claim to be from Europe. The Sons of Ireland claimed to broadcast from Ireland, but considering the strong signals and American-accented announcer, almost no one believed his claims. Radio Bouvet (1982) worked a little harder at confusing its listeners by faking Irish accents and announcing "events in nearby towns." Radio Bouvet faded away after a number of angry listeners threatened to tell major shortwave bulletins the operators' real names.

When you log a seemingly genuine Europirate, check again anyway. Some stations from other continents are relayed by North American pirates. Most of these relays announce in the program what station they are being relayed by, but not all do. Programs from Kiwi Radio (New Zealand) that were relayed by Radio Paradise International and the Voice of Laryngitis in 1983-4 were taped live from the station's FM transmitter. It was not until the program ended that the relay stations identified the transmissions.

DX'ing Europirates may seem a bit risky. It is. There are a number of possible mistakes that can be made and traps that can be fallen into. Patience and good information are essentials.

Fig. 3- Wonderful Free Radio London (WFRL) commonly makes tests to North America on a variety of frequencies.

QSL Reports

Fortunately, all of the confusion from hunting Europirates is balanced out by their QSL policies. With the exception of Radio Caroline, most of them love to receive mail from listeners—especially those from a different continent!

Many Europirates are quite generous and have stickers, pennants, posters, studio cassettes of their programming, and sometimes even silkscreened t-shirts. If you are one of the first North American listeners to send them a detailed and correct report, they may send a few extra "goodies." But it is important to emphasize that the report must be detailed and correct. Some hobbyists send fake reports or ones with ambiguous details. This practice may pull in a QSL or two, but chances are, it will eventually anger some stations and they will tell other stations of these actions. In the long run, it isn't worth faking reports.

Since most Europirates are poorly heard in North America, it is important to subscribe to at least one shortwave bulletin that covers these activities. Otherwise, you might tune in a station, but not be able to clearly log the address.

Conclusion

Spending early morning hours scanning through piles of static may try your patience, but with some hard work and a little luck, the venture will be worthwhile. After all, Northern Ireland, Ireland, Scotland, Wales, and the Channel Islands are countries that have no legal shortwave broadcasters. If you want to log them, you must log a pirate.

As for the other stations, what DX'er wouldn't be thrilled about logging a 20 watt station that has never been heard outside of Europe? Europe is a hotbed of low-power shortwave broadcasting activity, why not get in on the action? PC

Channels of Capability

SINCGARS: The Waveform Of The Future In Communications

BY EDWARD J. WALSH

USMC acquisition managers put the finishing touches on an historic agreement with the Army that will enable the Marines to equip the first active-duty military unit in the continental United States with a new family of tactical radios—the SINCGARS (Single Channel Ground and Airborne Radio System)—that will offer revolutionary advances in reliability, resistance to enemy interference, and communications security.

Under terms of an impending Memorandum of Agreement (MOA) between the Marine Corps Research, Development, and Acquisition Command (MCRDAC) and the Army's SINCGARS program office, the Marines' 1st Light Armored Infantry (LAI) Battalion, stationed at Camp Pendleton, Calif., received the new Very High Frequency (VHF-FM) radios—on a loan basis—in January and February 1989.

The radios—referred to as "non-ICOM" because they will not be equipped with internal communications security (COMSEC) modules, or circuit cards—will enable the Marines to field SINCGARS five full years before the originally planned deployment of ICOM radios (equipped with internal COMSEC).

Under terms of the Army/USMC agreement, all Light Armored Vehicles (LAV's) of the 1st LAI Battalion will be equipped with SINCGARS radios. The LAVs provide fire support, command and control, and logistics support to the Marines' highly mobile LAI battalions.

The Marines now expect to get the second-generation SINCGARS—the ICOM version—three years ahead of schedule, in 1991.

The ITT AN/ARC-201 SINCGARS offers 2,320 channels of FM in the 30 to 88 MHz band, single channel or frequency hopping. Will transmit jam-resistant voice and data.

A New Range of Capabilities

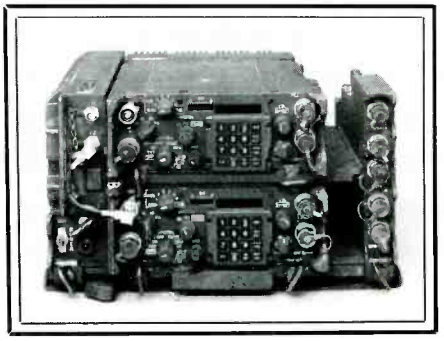
The SINCGARS acquisition, according to USMC program manager Col. Philip Walsh, will be "the Corps' largest and most important communications acquisition for the next 10 years." The borrowed radios will serve as the Marines' introduction to SINCGARS, which will replace an entire generation of VHF radios, down to the platoon level.

"SINCGARS will provide a new range of communications capabilities to the Marine Corp," Walsh says. "Our comm chiefs and comm operators—in the field and in the communications school—will be learning how to manage much more effective communications networks, made possible by SINCGARS' increased channel capacity and ECCM (electronic counter countermeasures) capability. Also, the high degree of reliability built into the radios will allow us to reduce our logistics tail considerably."

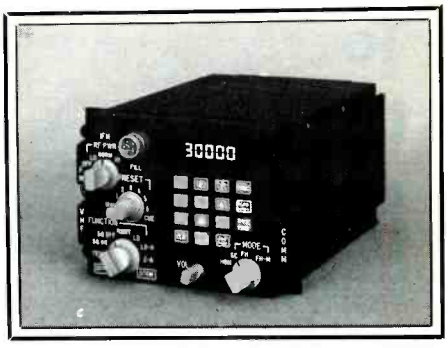
There are 920 channels available on the VHF equipment now in use in Fleet Marine Force units. SINCGARS-equipped units will be able to communicate on 2,320 channels across the full frequency range of the system, which extends from 30 to 88 MHz on the radio spectrum.

The MOA stipulates that the Army will loan the Marine Corps 334 SINCGARS radios. Also included in the package will be: technical manuals; two Hewlett-Packard 111 laptop computers; the software needed to generate SINCGARS frequency-hopping data and communications-electronics operating instructions (CEOI) and ECCM "fill" devices.

The Army also will assist the USMC "in developing installation kits" as well as the "modification instructions" needed to install the radios in the LAVs. For COMSEC pur-

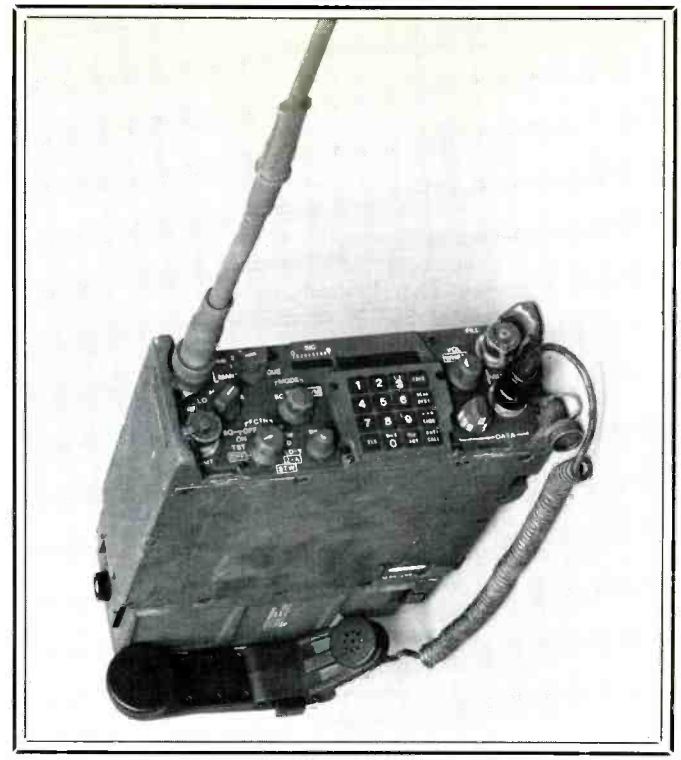


Manpack configuration of ITT's SINCGARS radio.



Closeup of the ITT AN/PRC-119 SINCGARS radio.

An ITT vehicular short and long range SINCGARS radio.



The 1st marine Division's 1st Light Armored Infantry (LAI) Battalion at Camp Pendleton, Calif., will be the first active-duty unit of the U.S. armed forces to be equipped with SINCGARS radios. Of the 334 radios delivered in January and February, 123 will be used on various versions of the Light Armored Vehicle (LAV). The light assault version, LAV-25 (shown here), is operated by a three-man crew and can carry six additional infantrymen. Armed with a 25mm chain gun and M240 machine gun, the LAV-25 also can be equipped with an M60 machine gun, a TOW II (tube-launched, optically-tracked, wire-guided) anti-tank launcher, and two smoke grenade launchers.

poses, the Army also will loan the Corps 334 external KY/TSEC-57 VINSON encryption devices.

The Aerospace/Optical Division of ITT Defense Corp., SINCGARS' prime contractor, is expected to assign a field technician for one year to provide maintenance assistance and supervise on-the-job training for Marine maintenance personnel.

Phase II of the MOA provides for USMC acquisition of ICOM SINCGARS beginning in early 1991, when the Corps will receive an estimated 2,500 ICOM radios as well as the spare parts, training and maintenance manuals, and installation kits needed. All are part of Option III of the Army's contract with ITT.

Upon delivery of the ICOM radios, the Corps will return the non-ICOM radios and encryption devices to the Army; the associated hardware and cables will be retained for use with the ICOM radios.

VHF radio has long been the primary means of voice communications at line-of-sight range for the ground units of both services. The currently-fielded VHF radios—the AN/PRC-77 manpack and AN/VRC-12 vehicular radio—have been in use for about two decades but now are experiencing serious reliability problems. Of equal importance, neither can protect transmissions against the current Soviet capability to jam VHF communications.

COMSEC for the Marines' VHF radios is currently provided by an external encryption device. According to Walsh, the Corps has long needed an integrated, or "embedded," encryption module for communications security. "Embedded COMSEC is extremely important to the Marine Corp," he says, "because of the limited space in Marine vehicles for the external encryption device, and the need to reduce the Marine infantryman's combat load."

Family Communications

The Army and Marine Corps set out several years ago to acquire new radios that would meet the critical requirements of high reliability, anti-jam protection, and integrated COMSEC. In doing so, both services were responding to a DOD Joint Requirements Document, developed in the early 1980's, that requires future communications systems to use a common "waveform" standard, with the goal of achieving wider interoperability in military communications and ending what has been perceived by many critics—in Congress as well as in the media—to be a proliferation of tactical communications systems.

"SINCGARS" refers to the "common waveform" standard as well as to the landmark U.S. Army-Marine Corps acquisition program. The Navy and the Air Force also are acquiring SINCGARS-compatible radios.

Maj. John Bordeaux, the Marine Corps' SINCGARS action officer, points out that the SINCGARS family of radios has been developed in accordance with a "building block" concept which allows capabilities to be tailored to requirements. The basic SINCGARS radio consists of a receiver-transmiter (RT) unit powered by a four-watt lithium sulfur dioxide battery.

The manpack configuration, designated AN/PRC-119, will replace the previously mentioned PRC-77. The VRC-87, or short-range vehicular radio, is the same radio, in a vehicular mount. The VRC-88—a vehicular short-range *dismountable* version—is basically the VRC-87 fitted with manpack accessories.

The VRC-90, a vehicular long-range member of the "family"—its capabilities enhanced by the addition of a 50-watt amplifier—replaces the VRC-12. A long- and short-range configuration, the VRC-89, consists of two RT units.

The VRC-90 also can be equipped with manpack accessories; it then becomes a dismountable short-range radio, designated VRC-91.

The VRC-89, when augmented with a second power amplifier and a retransmission cable, becomes a vehicular dual long-range version, designated VRC-92.

Hop, Jump, and Skip

SINCGARS radios operate either on a single channel or in the anti-jam, ECCM mode. The ECCM capability is achieved by "frequency hopping"—rapidly changing channels across the entire frequency range. An algorithm, or instruction programmed into the integrated circuits of the ECCM module within the RT unit, controls the frequency hop sequence—which, according to Richard Schwartz, ITT's Marine Corp SINCGARS manager, occurs at approximately 100 hops per second in a "pseudo-random" variation.

The anti-jam protection provided by frequency hopping will allow Marine and Army units to communicate with considerable assurance that their transmissions will not be degraded by enemy jammers, or by other "electronic noise" on the battlefield. "Frequency hopping protects the radio operator

against detection by enemy radio monitors using special direction-finding receivers," says Schwartz.

The long-term effort by the Marines and the Army to replace their old VHF equipment began in the mid-1970's, when the Army contracted with Cincinnati Electronics to build a family of "Bancroft" radios, which would be equipped with internal COMSEC modules. The Bancrofts were developed without an ECCM capability, though.

In 1978, the Marines contracted with Cincinnati Electronics for 408 Bancrofts. That same year, the Army awarded development contracts—with ECCM capability designated a "critical" requirement—to Cincinnati Electronics, Rockwell-Collins, and ITT for non-ICOM SINCGARS.

In 1983, ITT won a one-year contract for production of 44,100 radios. The contract allowed for four option years, representing acquisition of 300,000 radios to meet additional Army requirements. The ICOM version was planned as a follow-on generation of the radio to be fielded in the early 1990s. Meanwhile, the Marine Corps was contracting, through the Naval Electronics Systems Command (NAVELEX—now the Space and Naval Warfare Systems Command, or SPAWAR), with Gould Electronics for additional Bancrofts in order to provide the new LAV battalions with the VHF communications capability they would need.

The urgent need for new VHF equipment prompted Army Under Secretary James R. Ambrose to order the Army and ITT to jump from "demonstration/validation"—normally the intermediate phase of a military procurement program—directly to production, skipping the critical full-scale development phase.

A Mean Time for the Contractor

ITT and the Army both agreed to the plan to accelerate production, but the radios that underwent "First Article Testing" in 1985 failed to achieve the minimum reliability goal of 1,250 hours mean time between failures (MTBF). The Army suspended progress payments to ITT in November 1985, at which time the company began to bear all costs of the program.

ITT officials argued that, because the full-scale development phase of the program had been dropped, the contract should permit the reliability goal to be reached through evolutionary improvements that could be achieved during the production phase. Army contracting officials were adamant, though, and in July 1986, insisted that ITT reorganize the program to achieve the 1,250 hours MTBF required in First Article testing (and in all production units).

The Army's Board of Review endorsed the Army's interpretation of the contract, and directed ITT to meet the MTBF requirement.

ITT restructured the entire development and production program, according to company officials, "to develop the production vendor base, manufacturing process, and a factory quality assurance test program." In October 1986, the company established a Test, Analyze, and Fix (TAAF) process to "accumulate in excess of 200,000 hours of reliability testing," and to redesign those SINCGARS modules that demonstrated "pattern" or consistent failures. The Army resumed progress payments in May 1987. By then, ITT had spent some $45 million on SINCGARS development and production.

According to ITT, Production Reliability Acceptance Tests (PRAT) conducted by the company during 1987 resulted in only seven failures during 20,000 hours of opertion, an MTBF of 2,850 hours.

The 1987 tests subjected the radios to extreme consitions of vibration and humidity, and to temperatures ranging from minus 60 degrees to 125 degrees Fahrenheit.

Later, during 136,000 hours of field testing with the 8th Army, In Korea, SINCGARS sets achieved MTBFs in excess of 5,000 hours. Similar results were obtained in tests at Ft. Gordon, GA., and in a Follow-On Test & Evaluation (FOT&E) program conducted at Fort Sill, Okla., between January and June of this year.

A Five-Year Bonus

The Army formally accepted the first delivery of 72 radios for deployment in February 1988. ITT was producing some 400 radios per month, and is aiming at a rate of 1,375 radios per month by mid-1990.

The Army announced in June of 1987 that the General Dynamics Corp. would be a "second-source" SINCGARS producer. The second-source radios need not be internally identical to those built by ITT, but must be compatible with them in form, fit, and function.

The need for the groundbreaking Marine Corp-Army loan reached the "tactical-urgency" level in December 1987, when SPAWAR canceled the Gould contract for default, and began development of a new Bancroft Secure Transceiver to meet the Corps' requirement.

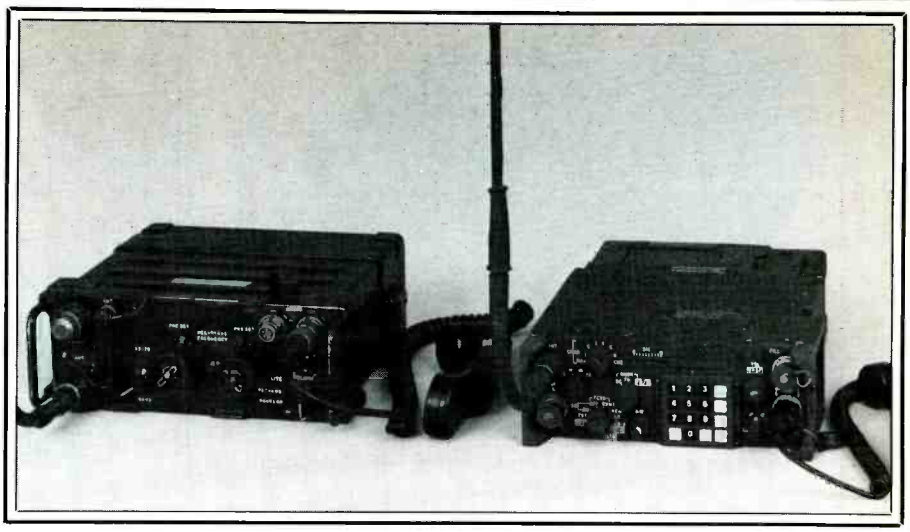
The successful restructuring of the SINCGARS program is what made the loan arrangement possible. As a direct result of the restructuring—and of the Army's cooperation—the Marine Corps will have a critical five-year head start in developing the new communications procedures needed to fully exploit the range of tactical opportunities that SINCGARS will create.

The 334 radios (RT units) being loaned by the Army to the Marines will be delivered by ITT to the 1st LAI Battalion for "set assembly" on site. The marines will install 123 VRC-92's in various configurations of the LAV. Twenty-seven VRC-88's will be installed on HMMWV's (High Mobility Multipurpose Wheeled Vehicles); 56 will be fielded as manpacks—PRC-119's.

To meet the Marines' urgent need for new VHF equipment, three remaining LAV battalions will be equipped with the existing Bancrofts and with VRC-64 radios. (The VRC-64 is a version of the PRC-77 in a vehicular mount.)

The VRC-64's are being assembled at the Marine Corps Logistics Base (MCLB) in Albany, Ga.

"SINCGARS will give us many new capabilities," says Walsh. "ECCM, integrated COMSEC, high reliability, and more than twice as many channels. Our job now is to learn how to take advantage of them." **PC**



SINCGARS demonstrates the revolutionary improvements in performance provided by microelectronics adapted to the battlefield. Shown here at left is the Vietnam-era AN/PRC-77 manpack (still used by the Marine Corps), which communicates over 920 channels, but now achieves only about 100 hours mean time between failures (MTBF). The smaller and lighter SINCGARS PRC-119 at right will make 2,320 channels available to user units. SINCGARS field tests have produced MTBFs in excess of 5,000 hours.

THE HAM COLUMN

BY KIRK KLEINSCHMIDT, NT0Z
AMERICAN RADIO RELAY LEAGUE HQ

GETTING STARTED AS A RADIO AMATEUR

To fully enjoy ham radio, you need at least one room filled with radios, enough electronic junk to start a small salvage store, a 100-foot-high tower with monoband Yagis on every band, and at least one linear amplifier. Right? Wrong, of course. Although some hams aren't happy unless they're totally immersed in the latest-and-greatest ham-radio stuff, most amateurs (myself included) have fun with a lot less.

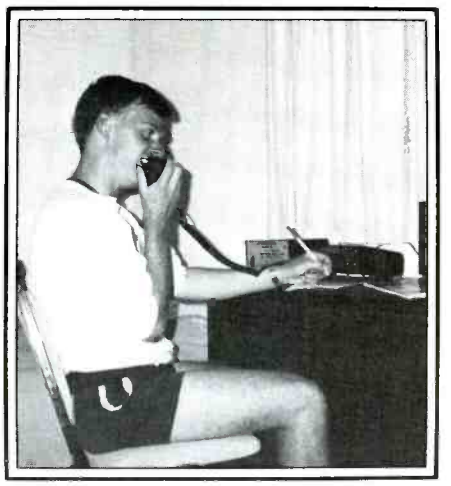
In addition to the expense of owning a whiz-bang station, there are other factors that influence the location and size of our amateur-radio investment. In this month's column, we'll take a look at some alternatives to an expensive station setup, and we'll travel along with a Utah ham as he takes ham radio to college—his dorm room, that is!

In contrast to the well-equipped ham mentioned previously, some amateurs don't own even a single transceiver. They get on the air at a local club station, usually located at a high school, college or other club-sponsored site. Club stations seem to be out of fashion in the US, but are especially popular in Europe and the USSR.

Another factor that conspires against many hams' would-be dream station is a restrictive environment. Perhaps your condominium association forbids outside antennas, or you live in an apartment and don't think you can radiate a decent signal with an indoor antenna. Well, if there's one thing hams are known for, it's ingenuity. Where there's a will, there's a way. Many hams are successful with indoor or attic antennas. And, in all but the most restrictive locations, it's usually possible to put up *some* kind of outdoor radiator.

My favorite invisible antenna (which saw a lot of use during my college days) is an end-fed piece of no. 30 hard-drawn steel wire. Once you're more than 10 feet away, the antenna *is* invisible. I also had good luck loading up the rain gutters on a brick 16-plex (using QRP power). Others have made antennas from fire escapes, flag poles, the guy wires of an existing rooftop TV antenna —even the siding on a trailer house! One low-power enthusiast I know has worked more than 125 DXCC countries while running 5 W to an attic dipole. With today's excellent propagation, it doesn't take an acre of steel and aluminum to make many enjoyable stateside and DX contacts.

If all else fails, or you're the traveling type, why not set up shop (shack) in your car, boat or RV? A 100-W mobile rig and a whip antenna (again, with today's excellent propagation) will enable you to work the world—on your way to work. Your vehicle is also a logical home for a VHF FM rig, for working through local repeaters, and for emergency communications.



Amateur radio is also at home in the wilderness. Some true adventurers take along a small QRP rig on their backpacking, canoeing or cycling excursions. Some hams enjoy building these miniature rigs—they're often small enough to fit in your shirt pocket.

As you can see, it's possible to enjoy amateur radio under almost any circumstance. David Chenworth, N7KOB, a college sophomore from Utah, made the best of his situation: He turned his dorm room into a ham shack, and in the process, introduced ham radio to several of his friends. His story wraps up this month's column.

Many of you have recently sent in photos and letters. Keep up the good work! Write to me at ARRL, Dept. PCN, 225 Main Street, Newington, CT 06111.

College and Ham Radio

Having been a ham for more than two years, and having made nearly a thousand contacts in that time, I was disappointed when I came to a college and could only get on the air the few weekends each quarter I returned home. Finally, I decided to put together a shack at my college QTH. I had to consider equipment, antennas, and the cooperation of my roommates.

Equipment-wise, I had three options: build, buy used, or buy new. Each option has its advantages and disadvantages. I decided to buy a new rig, the Uniden HR2510 (a small 10-meter multimode mobile rig). I chose the '2510 because of its features, its reasonable price, and my interest in 10-meters. The rig cost about $250—nearly two paychecks from my college job.

Ten meters has always been one of my favorite bands. It's where I made most of my contacts prior to coming to school. It's also where I made most of my DX contacts. Another point in favor of 10 meters is that it's not usually open at night, giving me time to do my studies.

Finding the right antenna was a bit of a problem. My apartment is on the ground floor—about 3 feet under ground. First, I tried an outdoor dipole, which was largely unsuccessful. There was no way to mount the antenna on the building's aluminum siding, and a sidewalk prevented me from installing any kind of supports away from the building. Next, I tried mounting the dipole on an inside wall. This didn't work well either. My signal managed to get only as far as the stereo. Finally, I coiled the antenna loosely around the inside of the window. I could now make contacts without causing RFI.

When my roommates first saw my rig, they thought it was a super-duper CB radio, and wanted to try it out. Not wanting to miss an opportunity to teach people about ham radio, I started telling them about some of the contacts I'd made, and let them thumb through my log book. This is probably one of the biggest turn-ons of ham radio. Next, I described the licensing requirements and exams, and I explained the necessity of having a license before transmitting on an amateur band. These requirements can scare people away from the hobby, but I pointed out how easy it is to get a Novice license. Finally, I turned on my radio and let them listen to hams from different parts of the world—Australia, Japan, Korea, Germany, and South America. By this time, the band was dying, but the next day, several of my friends listened as I worked stations on the east coast. One of my roommates decide to work on getting his license this summer, when he has time to study things other than school-work.

Having a radio at school has been a lot of fun. Thankfully, it hasn't interfered with my studies! (Hopefully, David will take his rig with him to South America this fall when he starts his missionary assignment.)

David Chenworth, N7KOB, a college sophomore from Heber City, Utah, is shown at the controls of his dorm-room station. He puts out a signal with a Uniden HR2510 and a military-surplus antenna tuner. David is majoring in pre-engineering at Snow College in Ephraim, Utah, and by the time you read this, will be living and working at a South American mission. PC

SCANNING VHF-UHF

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

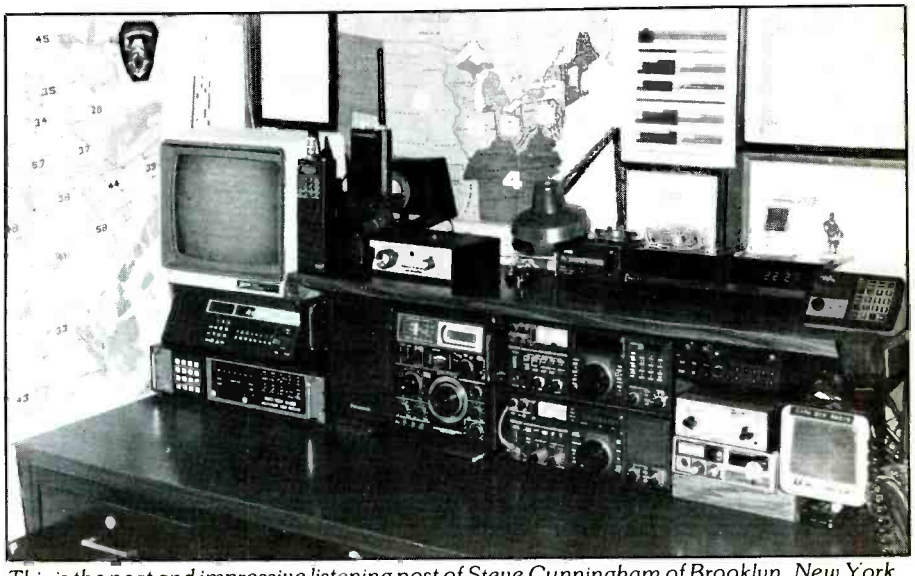
BY CHUCK GYSI, N2DUP

While fall is upon us, it's time to get ready for winter as well. That means getting our listening posts ready for the long harsh winter months ahead.

While the weather still is nice in most areas of the country, it's time to get up on the roof and make sure the antenna farm will survive another winter. First of all, make sure your cable connectors are protected from the elements. The connectors themselves at the base of the antenna should be covered with a product available from radio shops called Coax-Seal. Wrapping this around your PL-259s or other connectors will extend their life by keeping the elements from getting inside the connector. If you aren't able to find Coax-Seal, just wrap the connector and base of the antenna with electrical tape. Remember, some protection is better than no protection. You have an investment in your antennas and with proper maintenance, they will give you added years of listening enjoyment.

In addition, while you are up on the roof, make sure the rest of your antenna farm is in good shape to survive winter's blustery winds. Make sure your mast can take a good shake in the wind. Don't hesitate to give it a good push yourself. It's better to find out now that it won't survive a good gust of wind than in the middle of a January snowstorm. If you are using guy wires to support your antennas, make sure the wires are in good condition. Remember that they'll be coated with ice by the first good winter storm that blows through.

And last, but not least, make sure you have a complete list of winter frequencies all set aside for the first snow. Compile your list of plowing, emergency and weather-related, as well as skiing frequencies now on a rainy fall afternoon. That way you won't miss any of the action when Ol' Man Winter blows your way.



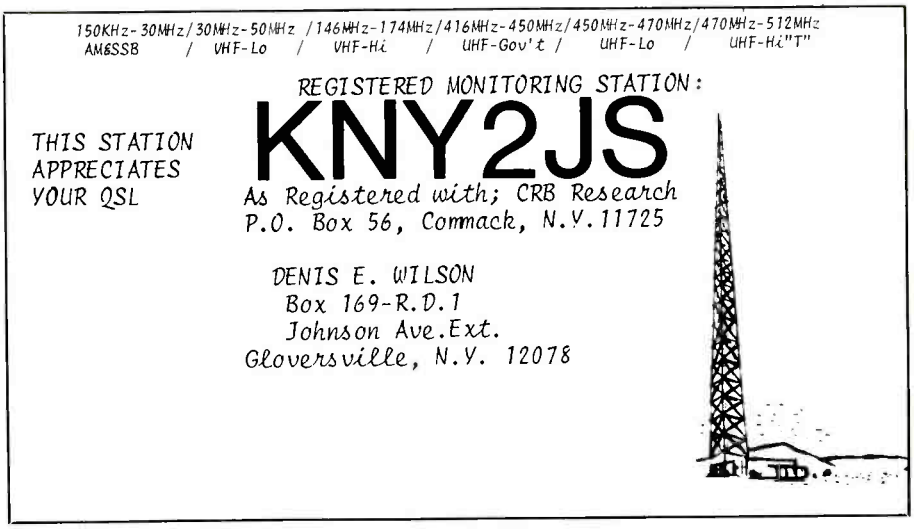
This is the neat and impressive listening post of Steve Cunningham of Brooklyn, New York. Steve's equipment includes an Icom R7000 as well as a Regency Turbo-Scan radio. Other gear helps Steve keep an ear on action in the nation's largest city.

Save That Radio

Do you have an old scanner that just won't squelch its day away anymore? Do you have a radio that if you send it in for repairs one more time your shipping costs will be more than the radio is worth? Well, hold onto that radio! If you have a radio that repair parts no longer are available for it, toss it under the desk in the shack and put an ad in POP'COMM, or one of the club publications. Wait, you say, who would want an old broken scanner? Plenty of folks. Someone else may have a similar radio that is sitting on the repair bench, but because parts are no longer available the radio can't breathe new life. However, there may be a component or part in your broken radio that may be of some value to another scanner hobbyist to get his or her old beloved and ancient scanner running like new, well almost like new, once again. No, you won't get $100 for you broken old scanner, but be pleased with the fact that it might mean $15 or so for your pocket. And you'll be helping a fellow hobbyist as well.

Weather Watch

With winter approaching, it becomes more important to monitor the National Weather Service's forecasts. Although every scanner can receive the National Weather Service's forecasts on VHF high band, some of us may take it for granted. The National Oceanic and Atmospheric Administration, or NOAA, carries weather forecasts in the United States on 162.400, 162.475 and 162.550 MHz. Almost all areas of the United States can receive at least one of the weather frequencies, while many areas can listen to two or even three of the channels. One trick to readily access your local weather channel is to program the frequency into your first or priority channel. Then, lock out the channel. This way, your scanner will scan normally without locking up on the weather broadcasts. Any time you want to monitor the forecasts, just press the priority button on your radio and you'll automatically hear the broadcast. To



Why not send us one of your station cards?

resume normal scanning, press the priority button again.

During severe weather, you may want to monitor more than one weather channel. If you can receive more than one broadcast, you actually can track the storm as you listen to each broadcast on a different frequency. For instance, where I live, I normally tune in the Philadelphia area forecasts on 152.475 MHz. However, I also can monitor New York City to my east on 162.550 and depending on which way my antenna is pointed, can hear Atlantic City on 162.400 or Allentown, PA, also on 162.400. Thus, I can check in and see what the weather is like to my south, east, north and west. It's especially helpful during severe storms.

The operators of weather forecast stations like to know their forecasts are helpful, too. If you write to them at the address listed in any metropolitan telephone directory, they'd be more than willing to send to you informative publications on getting the most out of monitoring their VHF forecasts. They also can send you a map showing the location of other weather broadcast stations, as well as any weather-related information you might be interested in. You might also inquire about becoming a severe weather spotter in your community to help out the weather service.

Hearing Hams

Why would anyone want to tune into a bunch of rachetjawing hams? What pleasure could there possibly be? Well, apparently enough people must do it, otherwise the manufacturers would not include hams bands on scanners.

While some hams do have a tendency to whine on about their personal life, or how he or she can't solder a connector without burning themselves on the soldering iron, many do carry on intelligent conversations. In fact, scanner buffs are also hams, so don't be surprised to tune in the local ham repeater and hear a conversation about local police frequencies, scanner performance or how to make a good scanner antenna. A lot of my ham friends know my involvement with scanners, so often when one of them catches me on the air, the conversation often turns to scanners. Hams do more than try to talk to distant tropical islands. Tune in and find an interesting conversation. Try these frequency ranges: 50-54, 144-148, 220-225, 420-450, 902-928 and 1240-1300 MHz.

Your Turn

We welcome your input here at Scanning VHF/UHF. You may send in any questions, comments, frequency lists or updates or listening tips. We also welcome your photographs of your listening posts, either base or mobile, as well as photos of antenna farms or towers, dispatch locations, etc. If it pertains to VHF or UHF radio, we're interested. Write to: Chuck Gysi, Scanning VHF/UHF, Popular Communications, 76 North Broadway, Hicksville, NY 11801. PC

RTTY

BY ROBERT MARGOLIS

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

The U.S. Embassy in Paris, France, appears to be a very important center in Europe for radio communications, and this could be one reason it is under constant surveillance against any terrorist activity.

Visiting Paris, I passed by the embassy and saw evidence that the terrorist threat upon U.S. installations worldwide was a bigger reality than could be realized from viewing evening TV newscasts back home. Everywhere I looked around the embassy building I could see uniformed French security, some with automatic weapons, patrolling the area in front of the building and across the street.

A couple of passersby stood on the sidewalk in front of the embassy building. One of them aimed his camera at the building to take a picture when one of the security men stepped in front of the lens and prevented him from clicking the shutter. The two men were warned against taking pictures and motioned away from the area. Seeing this, I thought it wise to keep my camera inside its leather case or else I would face the same consequences. Later, I would return to the embassy to pick up a photo of the building given to me by the embassy staff. That photo (figure 1) had to be approved for release by embassy security before being handed to me.

After the incident with the two passersby, I walked to the Ministry of Foreign Affairs nearby to make an appointment for an interview about the DIPLO news service, which you read about in last month's column. Returning from the ministry, I looked at the U.S. Embassy, when I was a couple blocks away from it, and saw many antennas of all types on the roof. There were antennas for use with HF, VHF, and UHF radio, and for microwave transmissions (see figure 2).

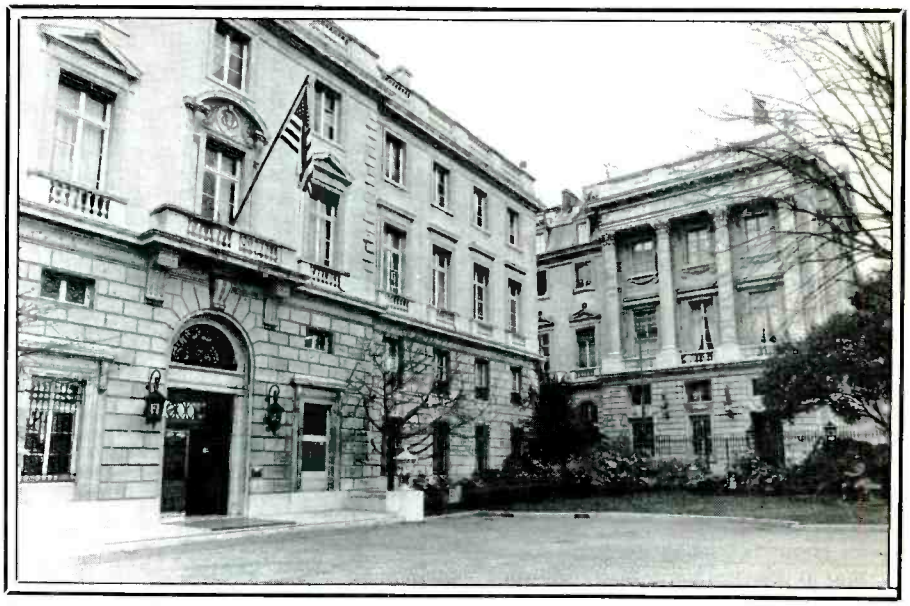
There were far more antennas on the roof here compared with what I saw at the U.S. Embassy in London, England, when I visited that city a few months before the Paris trip.

Later, while doing research in Paris about the embassy building, I came across an article written in 1933 which told of the importance of the then one-year-old facility as a communications center.

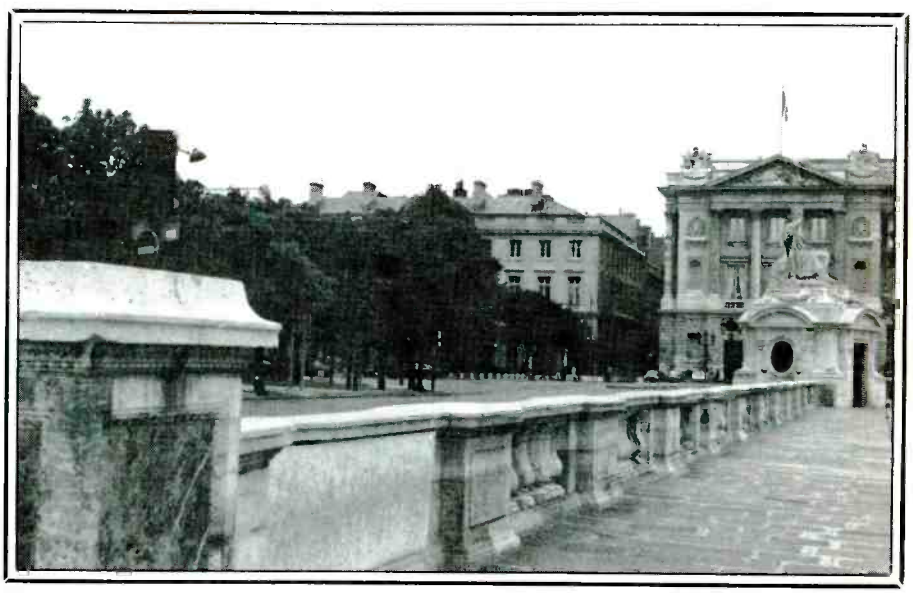
Three rooms on the first floor inside the chancery were selected for use as a code and telegraphic communications section. A huge vault, with a 2½-ton steel door with combination dials, was built in one of the rooms for the safe keeping of telegraphic correspondence and confidential cipher-codes. This room, with an adjoining one, were used for enciphering and deciphering code telegrams.

In the third room, a telegraph instrument was installed. It was connected to the Paris Central Telegraph Bureau, where it was under the control and supervision of the French government. The bureau received all telegrams sent to France from foreign countries, and sent the messages to their destinations.

"Very frequently, acting upon instructions from the Department of State, the Paris Embassy is directed to relay telegraph messages from Washington destined for their American Embassies and Legations in Europe, Northern Africa, and the Near East," the unsigned article said.



The American Embassy, Paris, France, on the left, with the Crillon, one of the swankiest hotels in Paris, next to it. A tour guide of Paris says that the embassy and nearby consulate "are staffed by some 500 Americans working for . . . the IRS, CIA, FBI, NASA, FAA and, of course, the Departments of Defense, State, Agriculture and Commerce. (Photo courtesy of the American Embassy, Paris.)



View of the American Embassy, Paris (center), with its antenna farm atop the roof. (Photo by Robert Margolis.)

"The proximity of Paris to the shores of France where land cables make the time consumed in the transmission of telegrams to the French capital almost instantaneous. Consequently, with the wire connecting the new building with the Central Telegraph Bureau in Paris, messages are received for the various Government services in the new building with the minimum delay.

"The Paris Embassy may therefore be regarded as the most important American center in Europe for the distribution of telegraphic communications, and a conservative estimate of the number of words sent and received may be placed at a million a year," the article said.

Although the article was written 56 years ago, the importance of the U.S. Embassy in Paris as a major communications distribution point appears to remain significant today.

J.M. of Kentucky reports in again this month with another interesting intercept. He had his scanner tuned to 365.9875 MHz when he came across "Geometric" sending encryption at 1630, 850/75N. "Geometric," J.M. reports was a SAC airborne command post of some type.

The RTTY transmission was beneath a very strong wideband FM signal, center frequency of 366 MHz, J.M. says, along with a SSB voice EAM. An ID came from a WBFM voice transmission. J.M. says another WBFM signal was found on 300 MHz at the some time, but presented no voice or data.

Remember to mark your calendars for the second and third weeks of this month for IAWG-89 activity. Frequencies to monitor for TTY transmissions of the annual wargames are 11570, 12205, 16194, 18067.5, 18550, 20350, and 22810. NBA, the U.S. Navy facility at Balboa, Panama, will be the usual central communications coordinator for the participating South American navies. Year after year these wargames are fun to follow as the TTY messages describe what's happening at an extremely rapid pace.

RTTY Intercepts
All Times UTC
Settings= Hz/Baud/Polarity

4813: LZA8, Sofia Meteo, Bulgaria w/RYRY at 0030 then wx, 425/50N (Harold Manthey, NY).

5117: STK, Khartoum Aero, Sudan w/RYRY at [illegible], 425/50R (Manthey, NY).

5312: DFZG, MFA Belgrade, Yugoslavia w/nx in Serbo-Croat for embassies at 0646, 425/75N (Dr. Gary Zaid, WI).

5740: HZN, Jeddah Meteo, Saudi Arabia w/wx data for Turkey, Mauritius & Gabon at 0047, 850/50N (Manthey, NY).

5887.5: IMB2, Rome Meteo, Italy w/coded wx at 0626, 850/50N (Zaid, WI).

6251: Madrid Navrad, Spaon, w/2 of its naval ID's an an RYRY tape. Tape read 781JU 2/4/6/8 RETJ E12G... Was 850/100R at 0616 (Zaid, WI).

6267: Un-ID sta w/telegrams in GG, 170/50 at 2349 (Don Schimmel, WV). This freq used by GDR merchant ships to work Y5M-- Ed.

6771: 98DDX of the Spanish Navy w/RYRY & SGSG at 0525, 850/75R (J.M., KY).

6902: KAWN, Carswell AFB, TX w/coded wx at 0750, 850/75N (Art Blair, CA).

6920: RGC70, Kiev Meteo, USSR w/coded wx at 0210, 1000/50R (Richard Gleitz, PA).

6943: 5TX, ASECNA Nouadhibou, Mautitania w/RYRY at 0144, 425/50N (Gleitz, PA).

6974: 6YU38, ASECNA, Dakar, Senegal w/RYRY at 0013, 385/50 (Schimmel, WV).

7428: TELAM Buenos Aires, Argentina w/nx in SS at 1010, 850/50R (Ed.).

7535: NNN0MCL, USMC MARS, Camp Lejeune, NC w/RYRY & tfc at 1719, 170/75R. Ended at 1730 (Ed.).

7607: Un-ID w/RYRY & "If you copy me all I am getting is garble." Was 850/75R at 1506. At 1520 shifted to 850/160R & sent more RYRY (J.M.).

7619: FUG, LaRegine Navrad, France clg EBA at 0742, 850/75R (Gleitz, PA).

7625: Un-ID w/wx at 0300, 850/100N ("Bunky," IL). Might be HZN4 in Jeddah-- Ed.

7645: RGE36, TASS Moscow, USSR w/nx in EE at 1516, 425/50R (Blair, CA).

7690: TUH, ASECNA Abidjan, Ivory Coast w/RYRY at 0255, 425/50R (Ed.).

7816.5: 5NK, Kano Aero, Nigeria w/RYRY at 0108, 500/50R (Gleitz, PA).

7845: SOH284, PAP Warsaw, Poland w/nx in EE at 0045, 425/50R (Ed.).

7873: PHWR, Hickam AFB, HI w/coded wx at 1418, 850/75R (Blair, CA).

7949: Bravo 43, a US mil unit w/B23 de B43 INT ZBK at 1845, FDM (VFT) 85/75R (J.M., KY).

7954.5: LRN85, DyN Buenos Aires, Argentina w/nx in SS at 0144, 850/75N (Blair, CA).

8008: Y7A36, MFA Berlin, GDR w/RYRY at 0623, 325/50N (Dallas Williams, CO).

8105: RFFX, French mil., Versailles, France w/RYRY, le bricks & counting at 0128, ARQ-E 400/72 (Fred Hetherington, FL).

9053: Y2V8m ADN Berlin, GDR w/nx in EE at 1540, 350/50N (Blair, CA).

9078: Y7A37, MFA Berlin, GDR w/RYRY at 0500, 425/100N ("Bunky," IL).

9187.5: Un-ID sta w/AFP nx in FF at 0620, 425/50N ("Bunky," IL). Was DIPLO's FYJ8 in Paris that sends reviews of French press to its embassies-- Ed.

9276.3: Un-ID w/foxes & test at 1239, FDM (VFT) 170/75N. Canadian Forces? (Williams, CO). A good guess as there are several ute stas near this freq. Closest Canadian I could find was VDD in Debert, NS on 9275 w/TTY circuit to Ottawa-- Ed.

9298: SOJ299, PAP Warsaw, Poland w/nx in EE at 0600, 425/50R ("Bunky," IL).

9388: ZAO3, PTT Tirana, Albania w/test xmsn at 1604, 450/50N (Blair, CA).

9391: SOJ249, PAP Warsaw, Poland w/nx in FF at 0702, 425/50R (Williams, CO).

10043.3: CLP1, MFA Havana, Cuba w/RYRY at 0838 +5F msgs & circular, 170/50N. Sig quickly degraded during xmsn of circular & became quite garbled after 0855. Off 0906 (Ed.).

10231.6: VOA Bethany, OH w/RYRY at 0152, FDM (VFT), 85/75R (Tom Kneitel, NY).

10233.1: VOA Bethany, OH w/RYRY VOA Washington Calling at 0140, FDM (VFT) 85/75N (Kneitel, NY).

10234.5: VOA Bethany, OH w/text of long winded and boring speech at 0137, FDM (VFT) 85/75N. This & 2 previous listings all part of same VFT xmsn (Kneitel, NY).

10381: RBW43, SAM Murmansk, USSR w/tfc in RR at 0550, 425/50N ("Bunky," IL).

10415: SNN299, MFA Warsaw, Poland w/RYRY & tfc in Polish at 0600, 425/75N ("Bunky," IL). Same w/text in EE at 0731, 250/50N (Williams, CO).

10475: CNM34, MAP Rabat, Morocco w/nx in AA at 1638, 425/50R (Blair, CA).

10543: Y2V54, ADN Berlin, GDR w/nx in EE at 1504, 350/50N (Blair, CA).

10554: Y7A46, MFA Berlin, GDR w/RYRY at 0500, 425/100 ("Bunky," IL).

10559: FTK56, AFP Paris, France w/nx in FF at 0400, 425/50N ("Bunky," IL).

10800: RFLI, French mil., Fort de France, Martinique w/ZNR msg & long idle periods. Was ARQ-E3, 850/48 at 1445 (Tom Sundstrom, NJ).

10830: ULV, SA/AAMC Moscow, USSR w/Cyrillic tfc at 0722, 500/50R (Williams, CO).

10842: Un-ID w/5F grps, 425/50N at 2222. Off 2224 w/Esto es todo (as in T-t-thats all folks). Didn't look Cuban (Williams, CO). Could well be Cuban as CLP1's TTY ops have used such phrases in their s/off's-- Ed.

10893: WWJ45, FHwA, Homewood, IL w/test msg at 1934; WWJ80, FHwA Baton Rauge, LA w/foxes at 1938. Both were 850/110R ASCII; KGD34, apparently National Communications System at Arlington, VA w/RYRY, count, & c/s at 1908, 170/110R ASCII, then (at 1922) explaining the US Gov't's new SHARES pgm, 850/110R ASCII (J.M.)

11013: DyN Buenos Aires, Argentina w/nx in SS at 0046, 850/75R (Manthey, NY).

11122: AFF2 (a/k/a KAWN), Carswell AFB, TX w/tx data at 1540, 170/75N (J.M., KY).

11156: SZN, un-ID sta, w/encryption at 0130, 170/75R. Alternates w/CW where it signs as SZN (Hetherington, FL).

11165: NMG, USCG Commsta, New Orleans, LA w/tfc to a cutter at 1544, 170/75R (J.M., KY).

11211: Un-ID w/5F grps at 0709, 500/50R (Williams, CO).

13399: DFZG, MFA Belgrade, Yugoslavia w/crypto after XFXFXF at XSXSXS, Was 425/75N at 0500 ("Bunky, IL).

13413: NMG, USCG Commsta New Orleans, LA w/RYRY [illegible] NRPZ at 1526, 170/75R (J.M., KY).

13[illegible]: NMA, USCG Commsta Miami, FL w/shar[illegible] assignments for NRCB at 1555, 170/75R [illegible], KY).

13526: DJH51, MFA Berlin, GDR w/nx in GG at 0904, 425/50R (Ed.).

13540: LRO81, TELAM Buenos Aires, Argentina w/nx in SS at 0101, 850/50R (Manthey, NY).

13563: 3MA22, CNA Taipei, Taiwan w/nx in EE at 1530, 850/50R (Bourne, England).

13563.5: SON256, PAP Warsaw, Poland w/nx in EE at 0600, 425/50R ("Binky," IL).

13633: KGD34, National Cpprdinating Center, VA w/SHARES exercise tfc for portable FAA mobile unit KDM50 at 1555, 170/75R. KDM50 is at Hampton, GA but where's its mobile unit? (J.M.).

13770: VOA Tangier, Morocco w/nx in FF at 1112, 425/75N (Kneitel, NY).

13840//13844: KRH51, USDoS, London, England w/foxes at 0311, 850/75N (Williams, CO).

11396: A2SK, un-ID sta w/RYRY & counting at 0754, 850/75R (Williams, CO).

11408: Un-ID w/5L grps at 1856, 500/75N (Williams, CO).

11410: PCW1, MFA The Hague, Holland idling in ARQ at 2222 w/CW ID's (Hetherington, FL).

11420: Un-ID meteo sta w/aero wx data but no circuit ID, 1125. Was ARQ-E/64. Xmsn ended & an OM/FF hrd briefly in USB. Chad has TTY circuit here but don't know if that's what this was. On adjacent freq of 11421, FJY5 on Crozet Isl has a circuit to Kerguelen Isl. so that's a 2nd possibility-- Ed.

11443: 9JZ, Lusaka Aero, Zambia w/coded wx at 0449, 425/50R (J.M., KY).

11466.9: SNN299, MFA Warsaw, Poland w/RYRY & CQ at 0655, then telexes at 0702, 275/75N (Williams, CO).

11494: SOL249, PAP Warsaw, Poland w/RYRY & then nx in RR at 1500, 350/50R (Ed.).

11541: 7OC, Khormaksar Aero, S. Yemen w/RYRY at 0454, 400/50R (Gleitz, PA).

12062: Un-ID sta w/RYRY at 1200 & 1900, but no tfc. ARQ-E 170/72. On 12063, French mil. sta RFLIG uses ARQ-E 850/72 as opposed to shift of this sta (Hetherington, FL).

12063: RFLIG, French mil., Cayenne begins 1st daily xmsn at 2032 w/ZCZC IGA001, ARQ-E 850/72 (Hetherington, FL).

12160: KCP63, FAA Longmont, CO w/test msg for several FHwA stas at 1939, 850/110R ASCII (J.M., KY).

12175: HMF42, KCNA Pyongyang, N. Korea w/nx in EE at 0530, 425/50R ("Bunky," IL).

12212.5: YZO7, TANJUG Belgrade, Yugoslavia w/nx in EE at 1552, 425/50R (Ed.).

12313: 5YE, Nairobi Meteo, Kenya w/coded wx at 0431, 425/50N (J.M., KY).

12315: RVW57, TASS Moscow, USSR w/nx in EE at 1742 & 2102, 425/50R (Ed.).

12317: NDVW, USS Nashville w/foxes & counting for Norfolk SESEF at 1351, 850/75R (J.M., KY).

12990: UJQ, Kiev R., USSR w/tfc in RR to ships at 1549, 170/50N (Fred Baurne, USN in England).

13002.5: CTU2, Lisban Navrad, Portugal w/coded wx at 0837, 170/50R (Ed.).

13077: NRV, USCG Barrigada, GU w/proclamation from PRESUS & navareas, FEC at 0918 (Ed.).

13093.5: OXZ, Lyngby R., Denmark w/nx in Danish, FEC at 0833 (Ed.).

13386: RCF, MFA Moscow, USSR w/1 line of RYRY separating each 5L grp msg sent, 500/75N at 0703 (Williams, CO).

13950: CLN414, PTT Havana, Cuba w/tfc in SS at 1848, 425/50R (Blair, CA).

14322: RFVI, French mil., St. Denis, Reunion

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/ied**
MFA	**Ministry of Foreign Affairs**
nx	**news**
PP	**Portuguese**
RYRY	**"RYRY . . ." test tape**
SS	**Spanish**
tfc	**traffic**
w/	**with**
wx	**weather**

w/crypto ending w/NNNN & non protege msgs, ARQ-E/96 at 1041. This circuit to Mayotte, Comoro Islands (Ed.).

14361: Un-ID diplo sta w/5F msg ending at 1242, 500/75N (Hetherington, FL).

14372: Un-ID idling at 1520, ARQ/425 (Sundstrom, NJ).

14373: YIL73, INA Baghdad w/nx in EE at 1360, 200/50R (Manthey, NY). 1360 UTC?? The only 61 minute clock I ever saw was one of those bargain TV special offers-- Ed.

14567.5: JAL44, KYODO Tokyo, Japan w/RYRY & foxes at 1045, 850/50R (Hetherington, FL).

14574: CLP1, MFA Havana w/Minrex header to cryptogram, 1000/15N at 0455 (Williams, CO).

14659.5: Un-ID sta w/ship tfc at 1301, 425/50R. Included tfc re oil rigs perhaps in North Sea (my guess) from "OSA Jumbo 6" to "GC Utsea RKT" & a "daily boats status report" from "Utsea MUHV" to "Utsea JKT." Also had USB comms between 2 OM & a YL in an un-ID lang, possibly Scandinavian (Ed.).

14700: REB24, TASS Moscow, USSR w/nx in EE at 1123, 425/50R (Kneitel, NY).

14719: OST58, Oostende R., Belgium w/FEC tfc list at 1218 (Ed.).

14719.5: RKB58, TASS Moscow, USSR w/RYRY tape in AA at 1147, then nx in AA 1202, 425/50R (Hetherington, FL).

14751: 5KM, Bogota Navrad, Colombia w/RYRY to PWZ at 0017, 350/75R (Blair, CA).

14831: 9KT33, KUNA Safat, Kuwait w/nx in EE at 1350, 300/50N (Sundstrom, NJ).

14912.5: DFZG, MFA Belgrade, Yugoslavia w/nx in un-ID lang at 1540, 425/75R (Sundstrom, NJ). The lang was Serbo-Croat-- Ed.

15647.1: PCW1, The Hague, Holland w/ARQ phase sig & CW ID at 0120 (Sundstrom, NJ).

15705: YZJ6, TANJUG Belgrade, Yugoslavia w/nx in FF at 1604, 425/50R (Ed.).

15752.7: CNM66, MAP Rabat, Morocco w/nx in FF at 1604, 425/50R (Ed.); same at 1133 (Kneitel).

15803.5: KAWN, Carswell AFB, TX w/coded wx at 1557, 850/75R (Ed.).

15830: RUZU, Molodezhnaya Base, Antarctica w/coded tfc at 1300, 500/50N (Sundstrom, NJ).

15910.8: Y7A61, MFA Berlin, GDR w/nx in GG at 1124, 425/100R (Ed.).

15930: RBI78, TASS Moscow, USSR w/nx in FF at 1538, 350/50R (Blair, CA).

15935: SUA291, MENA Cairo, Egypt w/nx in EE & FF at 2040, 270/50R (Hetherington, FL).

15955: 3BT4, Bigara Meteo, Mauritius w/coded wx at 1240, 850/50R (Hetherington, FL).

16015: MFA Sofia, Bulgaria w/crypto to Vienna at 0650, 425/81N then crypto to Bonn at 0753, foll by tfc to Budapest 1050 (Ed.).

16106: FPQ, DIPLO Paris, France w/nx in FF at 1136, 425/50N (Kneitel, NY).

16107.5: HBD20, MFA Berne, Switzerland w/nx in GG & FF, ARQ at 0830. Nx items same as on 16119.8 but sent 10 min later (Ed.).

16116.7: 6YK317, PANA Dakar, Senegal w/nx in EE at 0943, 425/50R (Ed.).

16119.8: HBD20, MFA Berne, Switzerland w/nx in FF & GG, ARQ at 0820 (Ed.).

16123.6: KNY29, Egyptian Embassy, Washington, DC w/ARQ tfc in AA at 0148 (Ed.).

16151.5: ZLK36, Christchurch Navrad, New Zealand w/coded wx at 0354, 850/75 (Williams, CO).

16190: RGW26, TASS Moscow, USSR w/nx in FF at 1459, 350/50R (Blair, CA).

16242.5: PWZ33, Rio de Janeiro Navrad, Brazil w/RYRY, SGSG & foxes to RPFN, 1000/50N at 0110 (Williams, CO).

16243: Y7A64, MFA Berlin, GDR w/foreign policy repart in EE + 5L tfc, was 425/50R at 0811 (Ed.).

16265: Un-ID sta idling in ARQ w/o tfc 1120-1220 (Sundstrom, NJ). Was SDK3, SDA Stockholm-- Ed.

16280.5: PL Havana, Cuba starts nx/EE sked at 0808 w/PL-001, 950/50R (Ed.).

16300: RMD57, NOVOSTI Moscow, USSR w/nx in PP at 0957, 425/100R. APN Moscow listed here, but all items had NOVOSTI datelines (Ed.); Un-ID w/5F grps & crypto at 1658, 425/75N (J.M., KY).

16302: MFA Belgrade, Yugoslavia w/nx in Serbo-Croat at 1503, 425/75N (Ed.).

16323: RFTJD, French mil., Libreville, Gabon w/controle de voie & tfc to Dakar at 0124, ARQ-E3 850/48 (Zaid, WI).

16325: Y2V37A, AFN Berlin, GDR w/nx in EE at 1355, 425/50N (Bourne, England).

16333: FRG Embassy, Lagos, Nigeria w/crypto + 5L grps to MFA Bonn at 0704, ARQ-E/96 (Ed.).

16457: Un-ID w/5L tfc at 2159, 425/75 (Schimmel, WV). Printout you sent looks like from CLP1, Havana-- Ed.

16698.5: EWWJ, Soviet cargo ship **Arktika** at 1145 w/RYRY to UDK2, 170/50N (Kneitel, NY).

17105: GYU, RN Gibraltar w/RYR & foxes at 1530, 75 baud (Bourne, England).

17410.4: Un-ID GDR w/nx in GG at 1205, 425/100N (Kneitel, NY).

17432.8: HMV44, PTT Pyongyang, N. Korea w/RYRY at 0257, 500/50N (Williams, CO).

17452.3: RUTAMB, USDoS, Washington, DC w/unclass tfc to diplo & mil posts at 0901, 425/75N. Xmsn also included AP/UPI business nx, list of job openings, movie selections, etc., to off 0939 (Ed.).

17502: RFFIC "Marine Paris" w/plaintext wx in FF for E Atl, ARQ-E/72 at 1836 (Ed.); RFLIA, French Navrad, Martinique w/non protege msg at 0004, ARQ-E 850/72 (Zaid, WI).

17522: 5KM, Bogota Navrad, Colombia w/RYRY to PWZ33 at 2350, 850/75R (Hetherington, FL); Maracaibo Navrad (a/k/a Bolivar R.-- Ed) w/tfc in SS to PWZ at 2307, 850/75N (Blair, CA).

17523: 5KM, Bogota Navrad, Colombia w/RYRY at 1812, 425/75N (J.M., KY).

17545: Y2007, MFA Berlin, GDR w/RYRY & crypto w/ZZZZZ. Was 425/50R at 1602 (Williams).

17993: Cuban Embassy, Zambia w/local nx in SS to CLP1 at 1413, 500/50N (Ed.).

17996: Un-ID w/what looked like nx in AA at 1332, 350/50R (Ed.).

18125: RND70, TASS Moscow, USSR w/nx in EE at 1042, 425/50R (Ed.).

18128: GMN, un-ID sta w/RYRY & 5F grps at 1832, 425/50N (J.M., KY). My records show this freq used in past by YBU, apparently the GDR Embassy in Havana, for similar tfc-- Ed.

18164.5: STK, Khartoum Aeram Sudan w/aero wx at 0523, 425/50R (Ed.).

18242: ZRO4, Pretoria Meteo, RSA w/plaintext wx in EE at 1846, 425/75N (Ed.).

18385: RRQ20, TASS Moscow, USSR w/nx in EE at 1221, 425/50R (Kneitel, NY).

18405.9: MFA Warsaw, Poland w/5F tfc to Luanda, Angola, 170/75N at 0750 (Ed.).

19013.5: OST68, Oostende R., Belgium w/FEC tfc list at 1222 (Ed.).

19160: Un-ID diplo w/telex to Ambassador Cradock, ARQ at 1209-1227 (Ed.).

19171: CNM85, MAP Tangier, Morocco w/nx in FF at 1030, 425/50R. Nx in EE on 19173 at 1233 (Ed.).

19178: IRR31, IINA Rome, Italy w/nx in AA at 1230, 500/50N (Hetherington, FL).

19200: 9BC32, IRNA Teheran, Iran w/nx in EE at 1135, 425/50R (Ed.).

19210: RCC79, TASS Moscow, USSR w/nx in EE at 1313, 850/50R (Hetherington, FL).

19225: FDY, French AF, Orleans, France w/RYRY, counting & le bricks, 425/50R at 1030 (Ed.).

19230: Un-ID w/tfc ending "2019)D RCUFSISQQ NNNN." Was 170/50R at 1330. Went into USN w.OM in un-ID lang (Ed.).

19238: Y7A75, MFA Berlin, GDR w/nx in GG at 1527, 425/100N (Ed.).

19433.8: MFA Warsaw, Poland w/5F diplo tfc to Managua at 1348, 170/75N (Ed.).

19457.5: Czech Embassy, Montreal, PQ w/telexes in Czech to OMZ, 425/75N at 1254 (Ed.).

19529: JMG5, Tokyo Meteo, Japan w/coded wx at 1546, 850/50R (Ed.).

19614: CLP1, MFA Havana w/crypto after ZZZZZ & manually-typed msgs at 2028, 500/50R (Ed.).

19747: 6VU79, Dakar Meteo, Senegal w/coded wx at 1756, 475/50R (Manthey, NY).

19845: RWZ74, TASS Moscow, USSR w/nx in EE at 1912, 425/50R (Ed.).

19925: Nx in EE at 1513, 425/75R. Izzit OET29, Vienna? (J.M., KY). Probably so, but doubt if it was a nx bc. Would have liked to get an eyeball on a printout-- Ed.

20401.5: YWM1, Bolivar Navrad, Venezuela w/tfc to PWZ33 at 2329, & to LOK at 2332, both at 850/75N. Off 2349 (Ed.).

20420: Y2V20, ADN Berlin, GDR w/nx in AA at 0910, 425/50N (Ed.).

20655.4: DPA Hamburg, FRG w/nx in EE at 0918, 425/50N (Ed.).

20682: PWZ, Rio de Janeiro Navrad, Brazil w/tfc to NBA in PP at 1840, 850/75R (Blair, CA).

21863.5: N. Korean Embassy, Havana, Cuba w/5F msgs & telegrams in Korean at 1747, 850/50N (Ed.).

21966.5: CLP1, MFA Havana w/5F msgs & circulars to African posts at 1820, 425/50N (Ed.).

22317: Un-ID w/5F tfc at 1057, 500/50N (Ed.).

22410: 98DDX, of Spanish Navy w/RYRY, foxes c counting at 1612, 850/75R (J.M., KY).

22590: UFL, Vladivostok R., USSR w/tfc in RR at 0130, 170/50R (Joe Polkovic, FL via Hetherington, FL).

23105: RFTJD, French mil., Libreville, Gabon w/tfc to Dakar at 1400, TDM 840/96A&B (Hetherington, FL).

23187.4: RFVI, French mil., St. Denis, Reunion w/tfc in FF at 1300, ARQ-E 170/96 (Hetherington).

23527.8: SAM, MFA Stockholm, Sweden w/ARQ/425 tfc at 1415 to Buenos Aires, then Santiago, then Belgrade, then Washington (Hetherington, FL).

24621-24622: MKK, RAF London, England w/RYI's & foxes, 170/50R, FDM (VFT) at 1230 (Ed.).

25012: GYA, RN London, England w/freq chart at 1623, 850/75R. Isn't this FDY's freq? (J.M., KY). Yes, you reported it here last July-- Ed.

25135: Un-ID w/msg in SS that mentions Chilean Antarctic. Was 850/75R at 1510 (Hetherington, FL).

25255: UMV, Murmansk R., USSR w/telex in RR at 1403, 170/50R (Hetherington, FL).

25315: RPFN, Lisbon Navrad, Portugal w/RYRY at 1326, 850/50R (J.M., KY).

25419.5: DMK, MFA Bonn, FRG w/crypto that ends at 1530, ARQ-E 170/76, then CW w/Nil de DMK (Hetherington, FL).

26202: TANJUG, Belgrade, Yugoslovia w/nx in un-ID lang at 1538, 425/75N (J.M., KY). Lang was Serbo-Croat-- Ed.

26207: DFZG, MFA Belgrade, Yugoslavia w/press review in Serbo-Croat at 1530, 425/75N (Hetherington, FL).

26437: OXZ, Lyngby R., Denmark w/nx in Danish, FEC at 1632 (Ed.).

26450: Y7A92, MFA Berlin, GDR w/nx in GG at 1453, 425/50N (J.M., KY).

27550: NAU, USN San Juan, PR w/foxes & counting at 1455, 850/75N (J.M., KY). PC

TELEPHONES ENROUTE

BY TOM KNEITEL, K2AES

WHAT'S HAPPENING WITH CELLULAR, MARINE & MOBILE PHONES

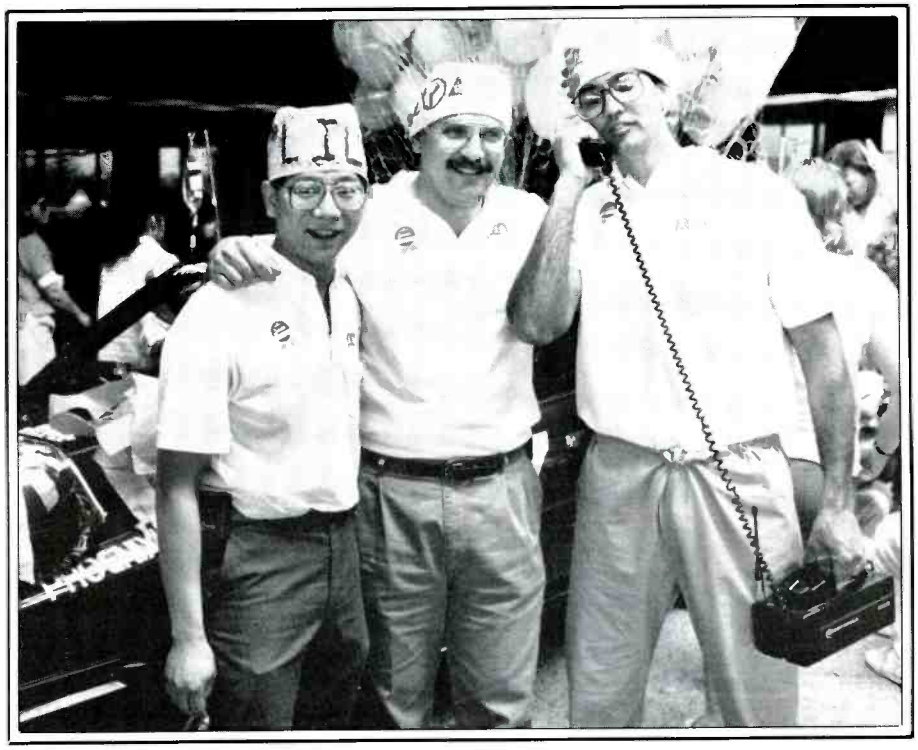
A question that has been asked several times generally follows the idea that a person has two vehicles, or one vehicle and a boat. They want the convenience of a cellular service in each, but since they can be in only one place at a time, they'd like to know if they can purchase two phones and then get them installed with the same NAM's (phone numbers) in each. This way, when a call came in, regardless of which vehicle they were in, or if aboard their boat, they'd be certain of not missing the call.

On a theoretical basis, this idea does seem to be logical and make sense, and should be something available to an individual having the need for installations in various vehicles and boats. No matter where the person might happen to be, dialing up their number would reach them since it would cause two (or more) CMT's to ring simultaneously. Also only one comprehensive bill would arrive each month representing the two (or more) CMT's all assigned to the same NAM, like extensions of the same phone.

Unfortunately, cellular service suppliers don't agree that this is such a wonderful idea. When asked about this, the company with which I have an account immediately said "no," but said that they'd have to call me back when I needed to know why. Two hours later someone called to explain that each cellular transceiver has its own individual ESN (serial number) that is given to the unit and programmed in electronically by the manufacturer. Although the ESN need not be dialed up in addition to the NAM when placing a call to a particular CMT, it nevertheless is information that cellular service suppliers have. As such, whenever a call goes to or from a CMT, the ESN is contained in the data burst (along with the NAM) that identifies the unit calling or being called.

Therefore, they said, the unit in the car would have a different ESN than the other one in the boat (or other car). Even if they were to be assigned the same NAM, this important (but hidden) component of station ID would not only be too different to get both to ring simultaneously, it would also cause the service supplier's computers to get peptic ulcers because they've been told that two ESN's can't share one NAM; that perhaps some alien CMT has usurped the NAM of one of their customers.

All of this is possibly true, although it does seem that it wouldn't be a dead end if there were any serious thought to making it work. My supposition is that it's easier to get you to open two (or more) accounts, one for each CMT, and fun to bill the customer for two (or more) monthly access charges.



Pediatricians P. Liu, D. Beyda, and D. Tellez using the Motorola cellular donated by U.S. West Cellular to the doctors for their 10-day, 10,000-mile "One Lap of America" road rally to raise funds for the Phoenix Children's Hospital. The transportable phone kept them in contact with patients while on their non-stop trip.

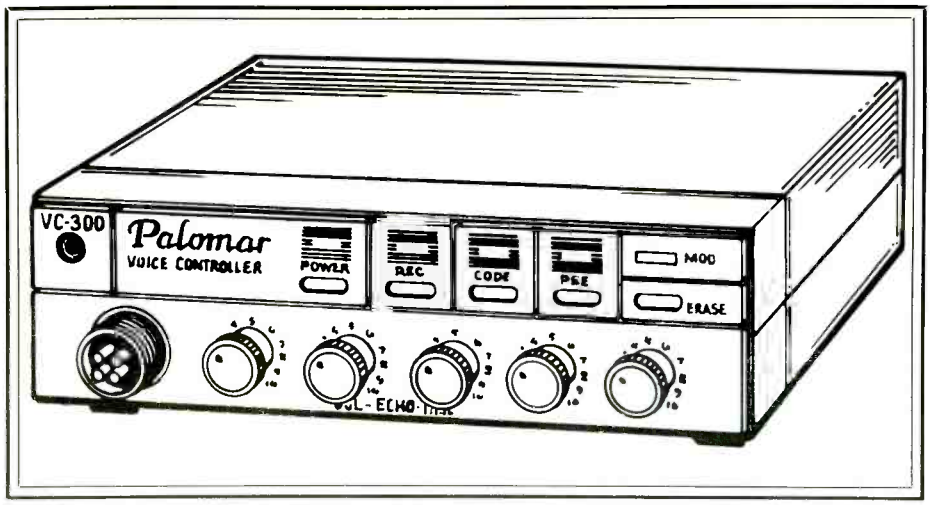
One alternate plan would be to get a transportable or handheld CMT that could easily be shifted from one unit to another while requiring no more than one NAM. One other, although more expensive, solution would be to install the CMT's in each of the vehicles and let them all have their required separate NAM's. However, get the "Call Forwarding" option offered by many cellular suppliers and simply program your primary CMT unit to automatically forward calls to whichever other CMT in which you're located. At least you'd still be able to give your callers only one number in order to reach you, but you'll be spending buckets of money for the convenience.

For the record, the opposite of this (where one CMT has several NAM's) is a fully workable and acceptable arrangement, causing the computers to smile with delight. All the better to bill you with!

Audiovox came out with three models that look similar externally.

You Wrote To Say

We understand from William Dickerman that in his hometown of Williamsport, PA there is a low-power "talking billboard" transmitter operating on 101.5 FM for the purpose of promoting cellular. It is intended to be heard by motorists driving along West Third Street, a main drag, from Hepburn to Market Streets. The 32-second message, from United States Cellular, gives some in-



The Palomar VC-300 is a dandy answering machine for your mobile unit.

Shintom's new CM-8700 is their second cellular offering.

formation about cellular and provides a telephone number for a 30-day free trial. This is a clever idea, also a good station for FM DX'ers to try for.

A reader who begs to remain unidentified reports that a friend told him that in some northeastern areas, an experiment is underway that has a limited number of CMT's set up for displaying the numbers from which incoming calls were being placed. Boston was one city mentioned as being a test area, with 300 CMT's set up for this, although there may be some court activity relating to invasion of privacy should the plan get past the experimental stage.

Frankly, we hadn't heard of this specific experiment, however it does at least appear to be a controversial option that is on the horizon for landline telephones in several areas of the nation.

Services Offered

GTE Mobile Communications (616 FM 1960 West, Suite 400, Houston, TX 77090-3097) recently announced that it was offering nationwide cellular service with a single point of contact for the customer. For example, a subscribing individual or company with a need for cellular service from Tampa to Seattle can arrange for cellular service by contacting only one cellular provider. GTE Mobile Communications expects to serve nearly all U.S. cellular markets by the end of this year.

Meanwhile, Contel Cellular, Inc. (9000 Central Park West, Suite 700, Atlanta, GA 30328), announced a similar service called *Follow Me Roaming*, tied in with GTE Mobile Communications. With this service a Contel subscriber's incoming calls will be directed to any participating cellular city in which the user will be traveling. To use *Follow Me Roaming*, Contel cellular subscribers dial " 1-8-*SEND*" when they travel to or through an area away from their home city. The Contel computer checks and verifies the ID of the mobile unit attempting to log in, and legitimate customers are automatically registered on the new system as roamers. To reach the mobile unit, the landline caller then dials the subscriber's *standard* cellular number and the call will automatically be directed to the facilities at the subscriber's new distant location. This eliminates the use of complex eleven-digit roamer access numbers.

Looks like Sears is anxious to catch up on the cellular business it lost before it went into its recently adopted new-image mode. The ten Sears stores in the Detroit area have made arrangements to sell Ameritech Mobile Communications cellular service and equipment. In the eight Sears stores around Pittsburgh, Bell Atlantic's service and equipment will now be offered.

Sky Word is a new alphanumeric pager that has just gone into full service with National Satellite Paging (1850 M Street N.W., Suite 800, Washington, D.C. 20036). This is a 931 MHz service, and the *Sky Talk* unit has a 40 message capacity (2,200 characters). Through the use of the Westar IV satellite, service is available in about 100 American cities. NSP also provides *Sky Talk* nationwide voice mail.

Hardware Department

The Palomar VC-300 Digital Audio Recorder is the first product to function as an answering machine for two-way radio. While it can be used with a CMT, it can also be used with ham, CB, marine, commer-

The Mitsubishi Model 900-RTL is the handheld supplied in a package with its accessories.

cial, and other two-way equipment. Using a DRAM (256 K) as the recording medium, the VC-300 can record, receive, and broadcast any message up to 8.5 seconds long. By adding one to three additional DRAMS, the recording time can be increased to 34 seconds. The MSRP of the Palomar VC-300 is $239.95, with additional DRAMS at $9.50 each. For more information, contact RF Limited, 22619 S.E. 64th Place, Suite 220, Issaquah, WA 98027, or circle 103 on our Readers' Service.

Audiovox announced three cellular phones that, externally, look rather similar, but which are designed to meet different needs. Each carries an MSRP of $795 and offers duplex hands-free operation, five system inhibit (NAM option) 16-digit repertory memory, continuous DTMF from keypad, and on-air call timers. The Model SP-85 is for distributors, the BC-55 for carriers, and the CMT-410 for retail accounts. For more information, contact Audiovox Corporation, 150 Marcus Blvd., Hauppauge, NY 11788, or circle 104 on our Readers' Service.

Shintom has a new Model CM-8700 that's a hands-free unit in a sleek looking package that will look good in any luxury car. It has a dialing memory of 96 phone numbers, auto redial, and an emergency call capability. The MSRP is $699.95. For additional information, contact Shintom West Corp. of America, 20435 S. Western Ave., Los Angeles, CA 90018, or circle 105 on our Readers' Service.

The Mitsubishi Model 900-RTL is a handheld portable cellular phone that comes complete with a group of accessories. The ultra compact Model 900 (weighs 19 oz.) stores up to 100 names and numbers in its memory. Also included in the kit is a desktop charger that can charge a spare battery while it's charging up the cellular. There's also a deluxe carrying case included. The MSRP of the Model 900-RTL kit is $1879. For more information, contact Mitsubishi International Corp., Communication Equipment Sales Division, 879 Supreme Drive, Bensenville, IL 60106.

This column always welcomes reader input in the form of questions, comments, newspaper clippings, etc., about car phones. We also seek information from service providers, as well as product information from manufacturers. PC

SATELLITE VIEW

DONALD DICKERSON, N9CUE

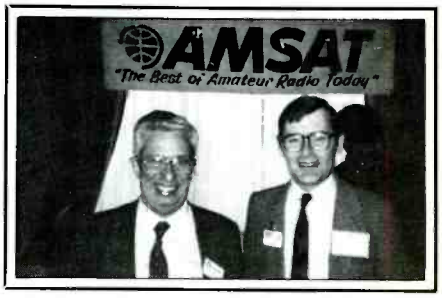
INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

Project Dove

You hear a lot about peaceful use of space these days, especially from the Soviet Union, perhaps because the militarization of space is both disquieting and inevitable, not to mention expensive.

Fortunately, in the free-world, one man can make a difference. One man has done more than just talk about the peaceful use of space. That man is Dr. Junior Torres De Castro (PY2BJO), the President of BRAMSAT (AMSAT Brazil). Dr. De Castro has deliberately and aggressively chosen to pursue the peaceful use of space. He has not accepted the definition that the peaceful use of space is simply the absence of war or military activity. Space, used for peace, more accurately defines his approach. It has been said that peace, like war, must be waged. I believe this to be true, so must Dr. De Castro. He wanted to find a way to introduce space science and communications to the young people of the world in a way that would break down the usual political, racial and ideological barriers and promote peace.

Mr. De Castro confers with Leo Labutin (AMSAT-UA).



Mr. Junior Torres De Castro and Donald E. Dickerson.

Project DOVE is an idea that Dr. De Castro has long nurtured. DOVE stands for Digital Orbiting Voice Encoder. This is a spacecraft which carries a voice synthesizer. Project DOVE is writing a series of classroom lessons designed for grade school and high school students. DOVE will allow school children from around the world to communicate with each other. I will let Dr. Junior Torres De Castro, head of Project DOVE, tell you about it in his own words:

Q: When and how did Project DOVE come about?

A: "My idea is a very old one. Last year I decided to build a small satellite called "little brick", to send messages of the peaceful use of space all around the world. AMSAT-NA helped to develop Project DOVE. The Brazil Peace-talker (DOVE) will carry a voice synthesizer."

Q: Does Brazil have its own AMSAT organization?

A: "Yes, the project started with BRAMSAT, Brazil's AMSAT".

Q: What is the launch date for DOVE?

A: "The spacecraft is built and in June I was working in French Guiana with AMSAT and the Ariane 4 launch crew. The launch date is in November. It will be launched with the French SPOT 2, Earth Imaging Satellite, and five other Amateur Radio Satellites." (The launch is scheduled for November 9 at 0135 UTC)

Q: How are you promoting DOVE?

A: "BRAMSAT has built 200 small, single chip, single channel satellite receivers and given them to schools all across Brazil. We used a receiver like the one used on Ski-Trek (the joint Soviet/Canadian ski team that crossed the pole last year). They used UOSATnavigation. We simply changed the frequency. The DOVE satellite will have 5 watts RF output, 10 times that of UoSAT. This will make it easy to receive by the students from grade schools to University level. They can learn to track satellites, listen to the telemetry and exchange messages with other students from around the world. Decoding will be simple as the satellite's voice synthesizer will tell its condition in English voice mode. Decoding formulas are not necessary."

Q: What frequency will DOVE use?

A: "The two meter band, 145.970 MHz. It will be in polar orbit at 822 kM with an inclination of 98 degrees."

Q: I understand the satellite will use more than one language.

A: "There are several languages proposed for the satellite. It will transmit the telemetry in digital voice and synthesized voice, using a voice chip. It will broadcast messages of peace in three languages: English, Russian and Portugese. After the first few weeks in space the spacecraft will be ready to receive messages from schools around the world on various educational topics."

Q: How will this work?

A: "Ground stations (AMSAT & BRAMSAT control atations) send messages to the satellite (in packet mode). It will carry a beacon, telemetry and voice messages. The ground stations will send a signal to DOVE which will open its receiver's memory. The messages will then be stored in the 10 megabit memory."

Q: How large is the spacecraft?

A: "It is 23 cm square (9 inches by 9 inches) a little larger than a brick."

Q: What type of antennas will it have?

A: "It will carry flexible two meter steel band antennas (much like the material used in a carpenter's tape measure). It will also carry an experimental discone antenna on top."

Q: What will the message be that DOVE transmits?

A: "Peace on Earth and Space."

These messages concerning peace will be made by children throughout the world and re-broadcast over the Peace-Talker satellite.

The DOVE downlink can be heard on a simple scanner or one of the inexpensive receivers designed by BRAMSAT for distribution to the school systems. This single channel receiver is based on the Motorola MC 3362 chip.

If you are a teacher, Project DOVE can provide you with a Teachers Guide. This outlines several projects for the classroom designed around the unique features of this spacecraft. The Guide will contain the following chapters: Forward by Junior Torres De Castro, How Satellites Work, The Ride Into Orbit, Orbital Dynamics, DOVE Stabilization in Orbit, Tracking DOVE, Receiving DOVE, DOVE Programming, Role of Command Stations, DOVE Telemetry, DOVE in the Science Classroom, Telemetry Lab Exercises, DOVE in Social Studies, DOVE in Language Arts, DOVE's Sister Ships, Glossary, AMSAT Membership, Tracking Aids, Tracking Programs, Amateur Radio Information, and more.

DOVE's 513 mile high orbit of earth will take approximately 101 minutes to complete. DOVE's Sun Synchronous orbit will bring the spacecraft into range of North American ground stations near 10:30 AM and again near 10:30 PM local time. You should be able to hear two morning and two eve-

ning passes with some luck. Just remember that the satellite will be going in a different direction on alternate passes, (North to South and South to North).

The launch will be covered by the European Space Agency and broadcast to North America over the Spacenet 1 TV satellite. Check your local schedules as other TV satellites often carry ESA launches for other continents.

Interested teachers and school administrators are invited to write to Richard C. Ensign for more information. Mr. Ensign is AMSAT's Science Education Advisor for Project DOVE. You can reach him at the following address: PROJECT DOVE, Richard C. Ensign, AMSAT Science Education Advisor, 421 N. Military, Dearborn, MI 46124, USA.

I would like to close this month's edition with an address Dr. Junior Torres De Castro gave to the 7 and 8 year olds of Kinloch school in Dearborn Heights, Michigan:

"Children, or should I say young ladies and young gentlemen. Let me tell you something. For many millions of years stars have been gazing upon mankind, reminding us of our smallness in this universe and of the beauty of this planet we call Earth. Unfortunately, during the past centuries and years, many of us forgot this message of peace. Maybe we forgot to look up more often. You have heard of Amateur Radio, of course, and know that thru it people all over the world, white, black, yellow and red in skin, talk to each other and get to understand each other's feelings. Hams, as Amateur Radio Operators are known in your country, make friends all over the world. And people with understanding do not fight each other. They live in peace.

We hams have already constructed many satellites, which aid us in our communications. But now, we thought of how good it would be to have you, children from all over the planet say something to show us grown-ups how to better manage things, without war and bloodshed.

Perhaps you know better than we do.

So, we are building a tiny little satellite, which we call "DOVE" and which reminds us of peace and thru which you will be able to send messages to other people and children, even on the other side of the world.

I would ask you to remember that you are very fortunate in being able to do this. When sending your message, remember that there are many, many children, in many parts of the world, who do not have the liberty which you take for granted in this great country and so may not be allowed to say what they would like to say. Others may not have radios and recorders, because they are poor and may even not have enough to eat.

But somehow your message will reach them, sooner or later, because they will get around and will bring a little happiness to them. So, the next time you look up, remember DOVE among the stars. May you messages help in bringing peace to us all and everything that comes with it." PC

BETTER SIGNALS

ANTENNAS AND SIGNAL IMPROVING ACCESSORIES

BY ED NOLL W3FQJ

Short W9INN WARC and 10-15-20-40-80M Mulit-Band Dipoles

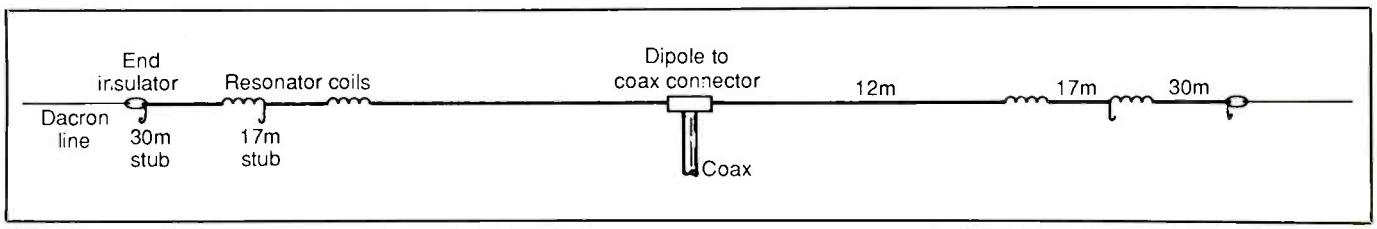


Fig. 1 - WARC Dipole by W9INN.

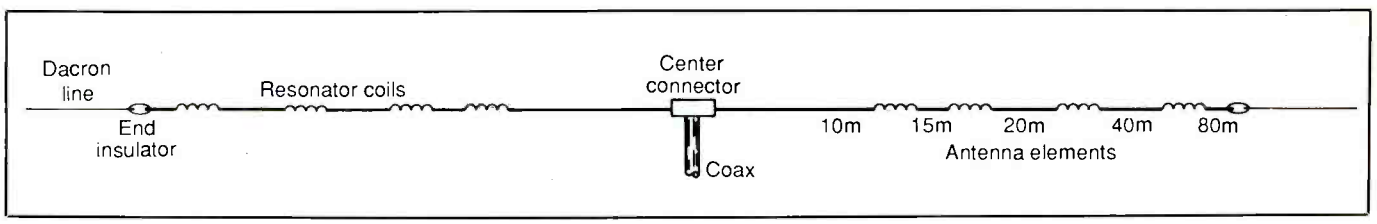


Fig. 2 - Multiband short dipole.

By now the 17M WARC is available for ham operation and, all three bands, 30, 17 and 12M are filling with signals. W9INN has developed an excellent WARC dipole designed just for these three exciting DX bands. It is only 30 feet long, Fig. 1, and is ideal for DX'ing from a location where you have little mounting space: thanks to the two efficient W9INN resonactor coils on each side. These coils permit shortening the antenna length and permit a single transmission line operation with or without a tuner. The W9INN Hideaway dipole, Fig. 2, is a similar design. It operates on 10, 15, 20, 40 and 80M and is only 50 feet in length, and is an ideal antenna for a small lot, attic mount or for portable application. A set of four resonactors are used in each dipole segment. Antennas can be hung as dipoles, inverted V's and slopers.

Small, single wire stubs can be cut to obtain some precise resonant frequency if you desire. Stub wire is included in the package. You can trim the wire stubs carefully if you wish to obtain the lowest SWR possible on each of the three bands, or on all the bands of the Hideaway, too. A good idea is to cut the antenna to the high-frequency side of a band and use a stub to bring the resonance down to a preferred frequency. Furthermore, if you wish, the stubs can be preset at the plant if you specify the center frequency you desire on each band. However, you may have to do some touch-up tuning to take care of any interaction that can occur at the mounting site.

W9INN sent the some tips and details on using the stubs. Stub tuning provides a method of adjusting an individual band center frequency without the need to actually change element lengths. By adding a stub at the outboard end of an element section, Fig. 3, the effective length of the element can be increased. If the element segments are initially made a little short, so that natural resonance (frequency at which the minimum SWR occurs) is located at the high-frequency end of the band, stubs can be used to lower the frequency to the desired parts of the bands without changing the physical length of the element. You need not disconnect wire from the resonactor coil, Fig. 4.

Stubs are made of the same 14 gauge solid wire used in the elements. Stubs can be cut in small increments to adjust the resonant frequency to the point desired. If you cut too much, it is easy to make another set of stubs! The frequency change caused by the stub approximates the frequency change that results from a similar change in element length. There is some coupling, where a change in the resonant frequency of one band with the stub also causes a change in the frequency of the following element (band). But, it is minimal and the change is less than that caused by changing the actual element length.

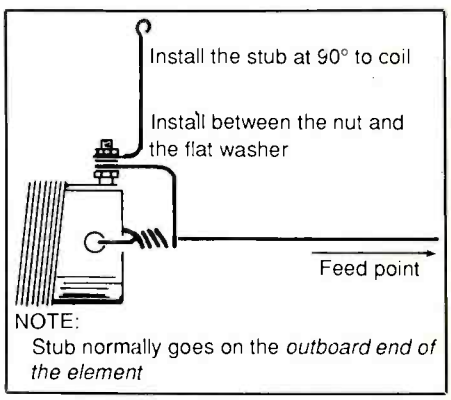


Fig. 3 - Single-wire stub held by nut and flat washer.

The standard connection to the resonactor coil provides a simple method of connecting the stub, Fig. 3. Just loosen the nut, slide the hook on the stub between the nut and the flat washer, and re-tighten the nut. Bend the stub so it is at 90 degrees to the coil, sticking straight out. The "eye" formed at the end of the stub is made to reduce the possibility of corona. The voltages developed on short antennas are appreciable, particularly if you use a linear amplifier! The stubs themselves seem to reduce the possibility of corona by increasing the surface area of the element and dissipating the elec-

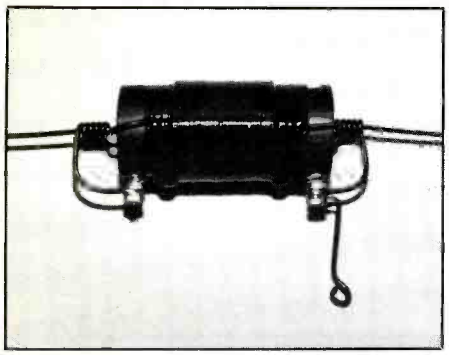


Fig. 4- Stub attached to a resonactor coil.

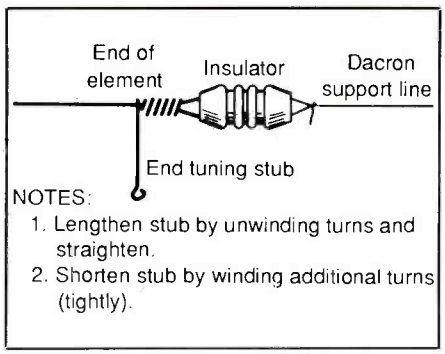


Fig. 6- Stub attached to end insulator.

trostatic charge. High-power tests made so far have not revealed any problems!

There is a practical limit to the length of stub that can be used, Fig. 5; 6″ or 7″ seems to be thoroughly practical. If a longer stub seems to be needed, it is a good idea to lengthen the element in the usual way, by splicing in additional wire, or replacing it with a longer element segment. When making adjustments, it is a good idea to be scientific about it and keep a careful record of each change and the effect on each resonant frequency. Changes should be small; and, alternating between elements will keep one of the frequencies from getting away from you.

A stub can be attached ahead of the end insulator, too, Figs. 6 and 7, to adjust the resonant frequency of the lowest frequency band. End insulators should be located so they cannot cause a problem if they should melt or ignite, with any antennas. Any plastic insulators have the potential to burn or melt. Stubs appear to minimize this potential. The stub-tuning method can be used with dipoles or slopers.

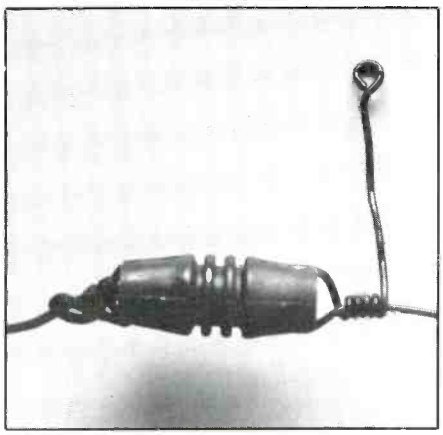


Fig. 7- Stub attached to end insulator.

Transmission Line Length.

When a multi-band antenna and its stubs are tuned, use as high a mounting position as practical. The antenna may often be mounted permanently at much greater height and with a different length of transmission line. Sometimes, when up in the clear, one or more of your minimum SWR frequencies may have shifted. In this case, a tuner can be used to establish the exact match to the transmitter with little loss if the SWR has not been changed drastically. All you are doing is setting up a small standing wave on the line to transform the impedance at the antenna feedpoint to the 50 ohms resistive located at the transmitter antenna terminal.

An alternative plan, as suggested by W9INN, is to cut and dress short sections of the same type of line which you will add to the transmitter end of the line and then connect to the 50 ohm antenna terminal In the old days I used this technique to match many 10, 15 and 20 meter multi-band V-beams and rhombics to my transmitter when cutting a very long wire length antenna so one of each band's odd harmonic lengths fell reasonably near to each other in physical length of wire. Thus, I could operate on each band without a tuner, making band switching much simpler without going through the tuner adjustments.

W9INN suggests one ideal way to so this to make several lengths of coax of the some type you use in your line with a PL-259 on each end. These can be combined with PL-258 connectors in a binary basis to make 1 foot increments from a foot through 15 feet using just four lengths, 1 foot, 2 foot, 4 foot and 8 foot. By adding to your transmission line length in one foot increments you can find a best length for operation on 10, 15, and 20 meters. You can do the same for the WARC antenna. When this best length to replace the test set-up. This section of line can be coiled up and located in an appropriate place at the operating position.

As you increase the length, one foot at a time, write down the resonant frequency (frequency at which there is minimum SWR). You will note the resonant frequency and SWR change at a different rate for each band. Try to find the length that gives you the happy compromise that produces the minimum SWR at the desired location on each of the bands. Multi-band operation of long wire antennas on several bands at high efficiency and with little tuning is an interesting subject. It can provide you, however, with a low-cost and surprisingly good antenna. Patience is required if you wish to avoid use of a tuner. PC

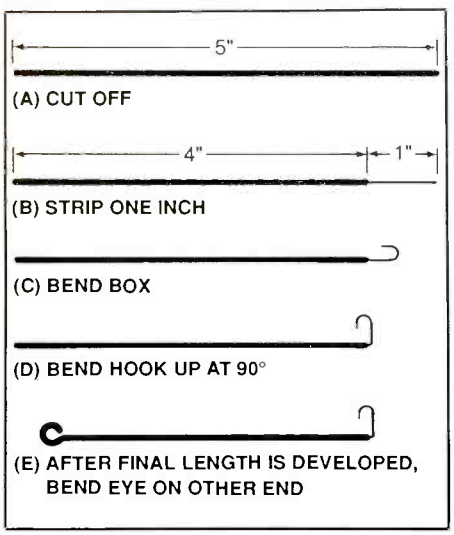


Fig. 5- Construction of single-wire stub.

EMERGENCY

COMMUNICATIONS FOR SURVIVAL

BY GORDON WEST, WB6NOA

"Omni Gain On VHF And UHF"

Disasters may put your VHF and UHF propagation skills to the task. When the big quake, or hurricane, or flood hits, many times it will take out repeaters. Winds may topple mountaintop and building-high repeater antenna systems. Severe quakes could cause an entire building to collapse, taking the commercial or amateur radio relay station with it.

At the disaster command post, you may need to establish communications on VHF and UHF frequencies well outside of your normal communications range. That little whip on the top of the cab might not make it. The ground plane, jacked up on a 10-foot pole, might not have enough transmit and receive gain to make the circuit. And while discone antennas are omni-directionally great for short range contacts, their zero-dB-gain characteristics don't give your signal that added punch necessary to talk further than usual.

What about directional beam antennas? They may have more disadvantages than gains:

- High gain, but only in one direction
- Cumbersome, and tough to store
- Require a rotator
- Substantial wind resistance when moving
- May miss weak stations to the sides, and rear

Your communications answer to extended VHF and UHF coverage is the high-gain vertical collinear. The advantages of a vertical collinear are great for emergency teams:

- Omni-directional coverage
- Low wind resistance
- No need to assemble, or disassemble
- Lightweight and ground-free
- Dual and tri-band capabilities
- Possible isolation from fallen electrical wires (fiberglass shell)

Collinears have been around for a long time. The business radio base stations have been using *aluminum* collinears for years. These business radio base station collinears are not what we're talking about here!

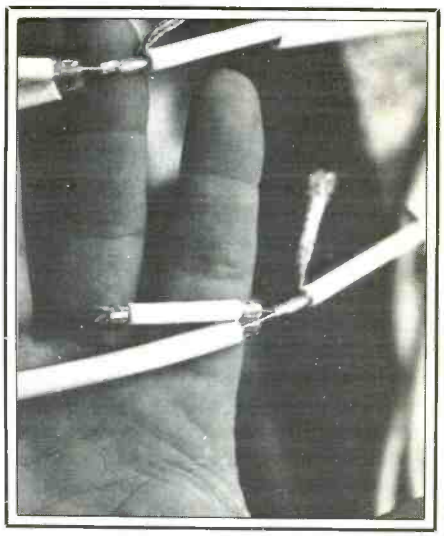
I'm talking about the new lightweight fiberglass collinear gain VHF and UHF antennas, available from the following companies:

- NCG, Inc.
  1275 N. Grove Street
  Anaheim, CA 92806
  714/630-4541
  Contact: Bruce
- Diamond Antennas
  Available from:
  R.F. Parts Company
  1320 Grand Avenue
  San Marcos, CA 92069
  800/854-1927
- Maldol Antennas
  Distribution Points Uncertain
  Carried by some ham radio dealers

All these fiberglass antennas are imported from Japan. Japanese hams are 100 times more active on VHF and UHF work than we are over here. This is why these omni-directional, high-gain, VHF and UHF antennas are such terrific performers, at a bargain price far below comparable U.S.-made business band antennas.

A collinear antenna features halfwave and ⅝-wave elements, stacked end to end, incapsulated within a durable fiberglass tube. The inside elements may be configured from pieces of coax cable stripped back, or may be constructed of thin brass tubing. The brass tubes yield a broader band width.

Stacking elements, end to end, lowers the angle of radiation, and concentrates both transmit and receive energy down close to the horizon, achieving gain. Here are some typical gains found in these antennas:

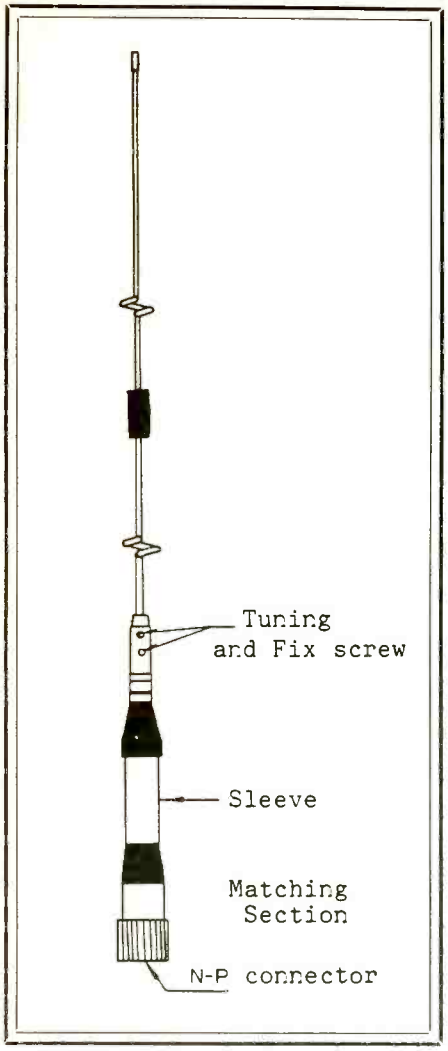


Close-up of phasing harness that goes inside the fiberglass mast.

3 db = 2 X power increase
6 db = 4 X power increase
9 dB = 8 X power increase
10 dB = 10 X power increase

Let me give you an example of the popular line of Comet antennas, and what they might do for you.

Comet Base Model CX-701	Tri-band, lightweight, base antenna for 50 MHz/146 MHz/446 MHz. Length: 8 feet. Weight: 2 pounds. Typical gain, 2 dB 50 MHz, 6 dB 146 MHz, 8 dB 446 MHz. Construction: heavy duty fiberglass. Works well at band edges on emergency channels, too.
Comet Base Model CX-901	Tri-band, including 1.2 Gigahertz. 3 feet, 1 pound, with respectable gain on all bands.
Comet Mobile CA-2X4M	Dual-band on 146 MHz and 446 MHz. Operates nicely out of band on emergency COM frequencies. 5 dB gain, typical, 5 feet long.
Tri-Band Mobile	146 MHz, 446 MHz, 1.2 Gigahertz, 2 feet long, 2 dB gain.
Tri-Band Mobile	146 MHz, 440 MHz, and 915 MHz, Model CX-809P, 3-8 dB gain, 18 inches tall.



Dual band mobile whip for 2 meters and 450 meters.

Yes, most of these antennas will work quite nicely on 150 MHz special emergency channels, as well as REACT GMRS frequencies above the ham bands. The SWR will be slightly elevated, but their performance is outstanding.

If it's just 150 MHz that you're looking for with a high gain, all fiberglass antenna, consider Shakespeare Antenna Company (Newberry, SC; 802/276-5504). They offer over 15 models of VHF marine omni-directional gain antennas. While the marine antennas are typically cut for 156 MHz, they work like a champ on 2 meters ham, and they work exceptional on 155.160 MHz, the National Search & Rescue VHF frequency.

If your single band mobile whip isn't making it, consider the substantial gain of a collinear array, housed in a safe fiberglass tube. Many offer up to 3 bands of operation, and give your signal as much as an 8 X power increase on transmit, and 8 X sensitivity boost on receive. Write these companies for their catalogs—and you won't be disappointed with their performance. PC

BROADCAST DX'ING

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

BY ROGER STERCKX, KVT1JH

It was a case of down, but not totally out, when an F-15 aircraft out of Tyndall AFB, Panama City, FL made contact with the uppermost guy wire of the 1,500 foot transmitting tower used by Panama City stations WMBB (TV 13), WFSG (TV 22), and WPAP-FM (92.5 MHz). The pilot brought his F-15 down for an emergency landing. The 1,500 foot tower also made an emergency landing, falling directly down on the nearby transmitter shack used by the stations.

Luckily for WMBB, the majority of its audience views the station over the TV cable, and so the station was able to feed its programs to the cable company via microwave with only a few hours of interruption. The station was also able to put a 6 kW standby transmitter on the air from a 300 ft. tower located slightly more than ten miles away from the original tower site. This provided somewhat reduced fringe coverage, but at least kept the station on the air.

WPAP-FM also got back on the air, but the make-do arrangement reduced their signal coverage.

The crashed tower was a twisted mess beyond repair. The USAF accepted full blame for the whole sorry incident.

In an interesting move, the FCC is going to permit WNZK to file for a waiver of the rules that would allow the station to operate with higher power on 690 kHz daytimes, then switch over to 680 kHz for night operation. Split frequency operation isn't normally permitted under FCC AM/FM broadcast regulations.

The FCC revoked the license of KRGL, Myrtle Creek, OR because when it went dark on the AM band in 1986, the owner didn't advise the FCC. Well, that's really adding insult to injury, isn't it? Of course, with the station gone for the past three years, the whole revocation thing comes across as being rather bureaucratically silly at this point!

Speaking of going dark, a letter from John Hickman, Halls, TN tells us that WIRJ on 740 kHz in Humboldt, TN, and WMPS on 1380 in Millington, TN have both gone off the air. Hope they notified the FCC.

John also tells us that while WALR, 104.9 MHz, in Union City, TN changed its "official" callsign to WKWT (which is announced at the top of each hour), it also uses an "unofficial" callsign of KYTN to denote its location near the KY and TN state borders. John thinks the use of the KYTN identification throughout the hour is "ridiculous" and probably confuses people into thinking that WKWT and KYTN are two different stations.

Applications Filed For New AM Stations

MI	Sault Ste. Marie	1400 kHz
NV	Winchester	620 kHz
OH	Batavia	1160 kHz

Applications Filed for New FM Stations

FL	Conway	88.3 MHz
FL	Crystal River	91.9 MHz
GA	Sylvester	91.9 MHz
IA	Rocky Valley	106.9 MHz
ID	Idaho Falls	105.5 MHz
IL	Christopher	103.5 MHz
IL	Herrin	92.7 MHz
IN	Henryville	88.3 MHz
KS	Emporia	99.5 MHz
MN	Duluth	101.7 MHz
MN	Granite Falls	93.9 MHz
MN	St. James	100.5 MHz
MS	Port Gibson	100.5 MHz
TX	Burnet	92.5 MHz
TX	Jacksonville	102.3 MHz
TX	Johnson City	107.9 MHz
TX	Santa Fe	90.5 MHz
TX	Stamford	92.1 MHz
VT	Brandon	101.9 MHz
WA	Vancouver	105.9 MHz
WV	West Liberty	91.5 MHz
WY	Burns	101.9 MHz

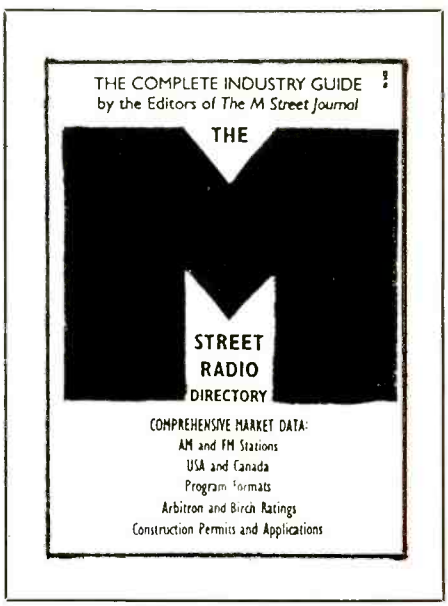
New Construction Permits Granted: AM

FL	Pensacola Beach	1570 kHz
IN	Union City	1030 kHz
MN	Sartell	1010 kHz
VA	Cloverdale	820 kHz
VT	Berlin	870 kHz
WA	Camas	700 kHz

New Construction Permits Granted: FM

AL	Dadeville	97.3 MHz
CA	Atwater	92.5 MHz
CA	Morgan Hill	96.1 MHz
DE	Laurel	95.3 MHz
FL	Springfield	101.9 MHz
GA	Lakeland	105.9 MHz
IL	Carrier Mills	104.5 MHz
IL	Dekalb	94.9 MHz
IN	Washington	107.9 MHz
KY	Saylersville	97.3 MHz
MS	Jackson	105.3 MHz
MS	Utica	92.9 MHz
NM	Gallup	106.1 MHz
NC	Erwin	88.3 MHz
OK	Wagoner	102.1 MHz
PA	Erie	88.1 MHz
SD	Rapid City	104.3 MHz
TN	Alamo	93.1 MHz
VA	Lawrenceville	98.9 MHz
WA	Colfax	102.3 MHz

Boston's WBOS-FM, 92.9 MHz, dropped its country music format in a most unusual manner. The station played a few hours worth of *Take This Job and Shove It*, then entered its new "album classics" format. That kicked off a battle for the attention of the country music fans who had previously enjoyed that format on WBOS-FM. Those attempting to capture those listeners are



The exciting new AM/FM guide that was just issued.

Requests for Facilities Changes: AM

KCHU	770 kHz	Valdez, AK	Incr. nites to 9.75 kW
KYOO	1270 kHz	Bolivar, MO	Reduce to 1 kW
WFSR	1470 kHz	Harlan, KY	Move to 970 kHz
WGRM	1240 kHz	Greenwood, MS	Reduce to 730 watts
WNOG	1270 kHz	Naples, FL	Incr. nites to 5 kW
WQQW	1590 kHz	Waterbury, CT	Reduce nites to 4.6 kW
WWES	1270 kHz	Hot Springs, VA	Increase to 5 kW

Requests for Facilities Changes: FM

KAFM	99.3 MHz	Red Lodge, MT	Move to 99.5 MHz
KKTX-FM	95.9 MHz	Kilgore, TX	Move to 96.1 MHz
KMKS	92.1 MHz	Bay City, TX	Move to 102.5 MHz
KMXQ	92.7 MHz	Socorro, NM	Move to 104.7 MHz
KVDB-FM	94.3 MHz	Sioux Ctr., IA	Move to 93.9 MHz
WAYW	105.5 MHz	Vero Beach, FL	Move to 103.7 MHz
WCOS-FM	97.9 MHz	Columbia, SC	Move to 97.5 MHz
WCCW-FM	92.1 MHz	Traverse City, MI	Move to 107.5 MHz
WDAL	107.1 MHz	Linden, AL	Move to 98.5 MHz
WDKS	103.1 MHz	Dunn, NC	Move to 103.5 MHz
WPKT	90.5 MHz	Middlefield, CT	Move to Meriden, CT
WPSA	89.1 MHz	Paul Smith, NY	Move to 98.3 MHz
WZNJ	106.3 MHz	Demopolis, AL	Move to 106.5 MHz

Facilities Changes Approved: AM

KJVN	1450 kHz	Puyallup, WA	Move to 1440 kHz, 5 kW/2 kW
WCPA	900 kHz	Clearfield, PA	Power 2.5 kW/500 watts
WNDT	1180 kHz	Danville, VA	Increase power to 7 kW

Facilities Changes Approved: FM

WKLG	102.3 MHz	Rock Harbor, FL	Move to 102.1 MHz
WMGP	99.3 MHz	Parkersburg, WV	Move to 99.1 MHz
WVVY	99.3 MHz	Grifton, NC	Move to 99.5 MHz

Callsign Changes Granted: AM

New	Old	
KFXE	KADI	Camdenton, MO
KMOW	KEYU	Austin, TX
KNDA	KJJT	Odessa, TX
KNYO	KESR	Independence, CA
KTID	KCAF	San Rafael, CA
WCUM	WJBX	Bridgeport, CT
WORG	WDIX	Orangeburg, SC
WKZJ	WIPC	Lake Wales, FL
WRKT	WHYP	North East, PA

Callsign Changes Granted: FM

KBZE	KWYD-FM	Colorado Spgs., CO
KHTT	KREO	Healdsburg, CA
KKOZ	KCOZ	Ava, MO
KTID-FM	KTID	San Rafael, CA
KUUL	KIIK	Davenport, IA
WALR	WAGO	Athens, GA
WCLR	WPTW-FM	Piqua, OH
WECO-FM	WGTG	Wartburg, TN
WGTC	WSPW	New Carlisle, IN
WKQR	WSYE	Citronelle, AL
WKSO	WORG	Orangeburg, SC
WLHM	WSAL-FM	Logansport, IN
WLKA	WFLC	Canandaigua, NY
WRKT-FM	WRKT	North East, PA
WSHQ	WACS-FM	Cobleskill, NY
WSPX	WKAA	Ocilla, GA
WWZR	WJST	St. Joe, FL
WZIP	WAUP	Akron, OH

New Callsigns Assigned: AM

KBAZ	Basile, LA
KBIX-FM	Wagoner, OK
KMWC	Hayden, ID
KQQK	Galveston, TX
KRAR	Erath, LA
WBVN	Carrier Mills, IL
WHLE	Holly Springs, MS
WKKB	Key Colony Bch., FL
WKKU-FM	Salladasburg, PA
WKPB	Henderson, KY
WLIC	Frostburg, MD
WSWZ	Lancaster, OH
WTBK	Manchester, KY
WUVX	Knox, IN
WXKI	Salem, WV
WYQT	Grand Marais, MN

WORC, 1310 kHz in Worcester, WOKQ-FM, 97.5 MHz in Dover, NH, and WCAV-FM, 97.7 in Brockton.

Calling All Serious AM/FM DX'ers

We have long commiserated with fellow AM/FM DX'ers about the lack of a top quality up-to-date directory of all U.S. and Canadian broadcasters. That little problem has been solved by the issuance (just recently) of the new *M Street Radio Directory*. This gigantic 608-page book is exactly what you've been hoping, looking, and waiting for.

In six sections, it's got the whole story on North America AM/FM stations. There's a state-by-state section, which has city breakdowns that provides in-depth information on each individual station including the frequency, power and other technical details, address and telephone number, names of executives, programming format, markets served, the station's Arbitron rating, etc., etc. Another section lists stations according to callsign, yet another section lists stations by frequency. There's a section listing Canadian stations that is arranged by province, then cities. Other sections provide individual market frequency listings, and also pending applications for broadcast stations.

It's *all* here in this massive book, which is a treasure trove of valuable and easy-to-use information for DX enthusiasts as well as industry people and those who are avid broadcast listeners. For those who seek the very best guide for general all-purpose DX'ing use, this looks to easily fill that big order.

The M Street Radio Directory is $29.95 per copy, plus $2 postage/handling to addresses in North America from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725. Residents of New York State please add $2.25 sales tax.

Until November

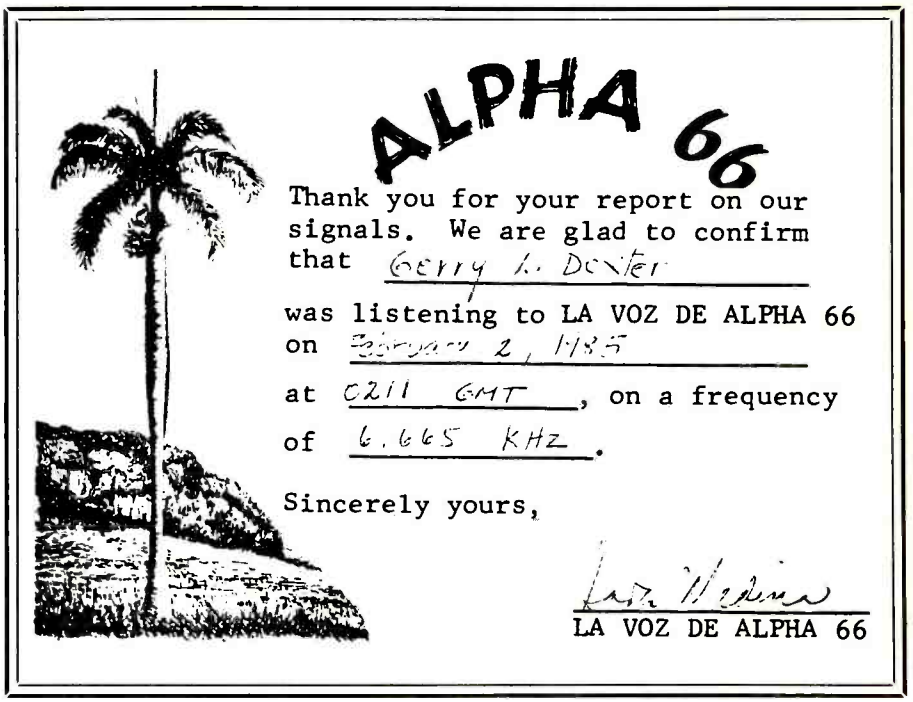
This column seeks station photos, shack photos, broadcast loggings, bumper stickers, news clippings, etc. relating to AM/FM/TV broadcasters. PC

CLANDESTINE COMMUNIQUÉ

WHAT'S NEW WITH THE CLANDESTINES

BY GERRY L. DEXTER

For the time being, at least, we have to bid goodbye to *La Voz de Alpha 66*, the anti-Castro clandestine of the Miami-based Alpha 66 group. The station was located and closed down by the FCC. Operated by 57 year old Dr. Diego Medina, a Cuban-born resident of Miami since 1963, La Voz de Alpha 66 broadcast from a van which apparently was moved from place to place in the Miami area. La Voz de Alpha 66 is one of the longest running of the anti-Castro broadcasters active over the past ten or more years. It has been active off and on since the early 1980's, although the FCC has shut it down at least twice before. It's most recent run saw it putting in good signals across much of North America. The FCC confiscated all of the equipment and was seeking a court order to bar any further transmissions by the station. A spokesman for Medina (who is General Secretary of Alpha 66) said the organization plans no further broadcasts from the U.S., although they are exploring other possibilities, including broadcasts from the Dominican Republic. The station was active on 6666.6 several evenings a week. If we had to make a wager on it, we'd bet on the eventual return of this one!



During its most recent run La Voz de Alpha 66 issued this nice QSL card.

As one station leaves another returns. The anti-Colombian *Radio Patria Libre* has resumed its activity. George Zeller, spotted this one's return, hearing them between 0040 and 0104 sign off on 6750. George notes that, although it was clearly audible, the signal wasn't as strong as it had been during its first period of activity last fall. It operated in the area around 6765 at that time. George notes that the station now airs Latin folk music all the way through the broadcast, rather than just Latin music "riffs" as it did before. The station is believed to be operated by ELN - the National Liberation Army. During its first series of broadcasts, direction finding placed it at a location inside of Columbia and there's no real reason to believe that has changed, though quite likely the specific location has. At a guess we'd say the first effort was probably located and destroyed and this is a second try from a new hideout. Unfortunately, like all too many clandestines, Radio Patria Libre provides no way of making contact with it and so there are no QSL's for this station. Not yet, anyway!

A *Washington Post* story in the April 29 edition reports on the U.S.-backed anti-Noreiga broadcasts, part of a $10 million administration effort to dislodge the dictator in Panama. In April, Panamanian authorities arrested one Kurt Frederick Muse, 39, and seized about $350,000 worth of radio equipment in 8 different apartments in Panama City. Muse said the aim of the broadcasts was to "get out the vote" in the May 7 elections. Apartments had been used as sites because the U.S. military Southern Command refused to allow such broadcasts from its bases since they would violate the Panama Canal Treaty and potentially jeopardize US base rights in other countries, according to comments by U.S. officials. Some sources, according to the *Post* story, thought the sloppy handling of the broadcasts indicated that the CIA wasn't enthused about them either. One joke was that the station was so clandestine that nobody could hear it. Apparently the first effort was *Radio Constitutional* on an FM frequency but no one could hear it and it was closed down.

In December the *Voice of Liberty* opened and broadcast for 15-20 minutes per day until March. Muse is also accused of engaging in "espionage" by listening in on frequencies used by the Panamanian military, the Presidential Palace, Noreiga's High Command and so on. He said he was paid $3000 per month to make the broadcasts. Panamanian authorities claim there were two Americans involved in the broadcasts and say they are hiding out on a US military base in Panama. Five Panamanians are also being sought. The *Post* story was by William Branigin of the paper's foreign service. No indication of who it was that forwarded the story here—but thank you!

Don't look for any drastic changes in the anti-Iranian clandestine scene now that the Ayatollah Khomeini has left the picture. Experts think there'll be a long period of jockeying for political power by various government factions. Even after things finally settle down there will be plenty of groups on the outside still using their radio transmitters.

We've learned that letters sent to *Radio Iran Toilers* at its P.O. Box 49034, 100 28 Stockholm, Sweden address are indeed reaching the station, even though there have been no replies. The address is a mail drop and the owner is forwarding letters to the station. Radio Iran Toilers can occasionally be heard (poorly) at its 0230 or 1530 sign on time on 10870.

Clandestine hunter Robert Ross of London, Ontario reports a couple of QSL's. He got a card for his reception of the US sponsored *Radio Free Afghanistan* via Radio Free Europe/Radio Liberty's Portugal

transmitter site. And he received a QSL for the *Voice of the Libyan People* via the usual maildrop address, Al-Inquad, 323 South Franklin, Box A-246, Chicago IL 60606-7093. You can occasionally hear this Arabic speaking station around 2100 on 9500.

Time constraints have kept us from doing much monitoring lately so we cannot report first hand on the status of the contra stations *Radio Liberacion* and *Radio Quince de Septiembre*. With the contras virtually finished as an opposition force, and finances in short supply it's an open question as to how much longer these two will survive. Let us know if you hear (or don't) hear them.

There were two or three Tamil stations active at the height of the Tamil opposition to the Sri Lankan government. The *Voice of Tamils* (Thamizan Kural) is the voice of the Eelam National Democratic Liberation Front and is scheduled at 0130-0215 and 1030-1115 on a frequency varying between 6995-7005. Broadcasts are in Tamil only. There's very little chance we'll hear this one in North America, unfortunately.

Please forward any information you find in clandestine radio subjects, whether in the form of loggings, schedules, information received from the stations or the groups which run them, press clippings and so on. Copies of clandestine station QSL's or other material for use as illustrations will also be very welcome.

Thanks and, until next month, good hunting! PC

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CB SCENE

27 MHz COMMUNICATIONS ACTIVITIES

BY BILL SANDERS, SSB-295

We hadn't heard from K40 in a long time, but they just sent us some information on their new Speech Processor Radio System, which consists of three components. They include the new K40 Speech Processor transceiver, the K40 mike, and the K40 mobile antenna. K40 mentions that the Speech Processor circuitry electronically adjusts the loud and the soft portions of your voice "resulting in increased dB gain for clearer voice signals." I take this to mean, in plain CB lingo, more talk power.

The transceiver is a compact AM unit featuring a full time ANL and seven watts of audio output. The manufacturer claims that its "K40 Speech Processor is the only CB system in the world guaranteed to transmit further and receive clearer, or your money back."

For more information on this product, contact K40 Electronics, 1500 Executive Drive, Elgin, IL 60123, or circle 101 on our Readers' Service.

The K40 Speech Processor Radio System.

Band Blaster

A few issues ago we mentioned that we have gotten some glowing user reports on the Wilson 1000 mobile antenna. The folks at Wilson Antenna, Inc., eyeballed our comments and promptly packed one of these antennas off to us with a note reading, "See for yourself!" We did, and we were impressed, were we ever.

Physically, the Wilson 1000 consists of a 61-inch steel whip that is mounted in a loading coil base made with high impact Mobay Thermoplastic. the antenna can be mounted on a vehicle roof, on a trunk lip, or with a mag mount.

Electrically, there were silver-plated internal parts, connector, and loading coil. The patented "floating coil" design eliminates 95% of any dielectric loss. The Wilson 1000 can be resonated throughout the CB band and as high in frequency as the Novice/Tech portion of the 10 meter ham band (28.500 MHz). It can handle 1500 watts of transmitter power.

The Wilson people tell us that an independent electronics lab ran comparison tests of their Model 1000 alongside another popular mobile antenna. The result was that the Wilson 1000 tested out to have 58% more power gain on both transmit and receive than the other antenna. Wilson gladly sends out literature explaining the test and how the unique design of the Model 1000 enabled it to show up favorably under a controlled comparison.

Still, we had one in the flesh and we wanted to see how it would prove itself in day-to-day AM and SSB operation. Of course, we aren't a lab, and our comparison was not under highly controlled conditions on an antenna test range. However, what we did was get a hold of a friend whose mobile signal has been legend in these parts and asked him to see if there was any substantive difference in the coverage with the Wilson 1000 mounted in the same spot as his usual antenna. This was with a stock transceiver normally running AM on Channels 2 and 19, plus SSB on Channel 39.

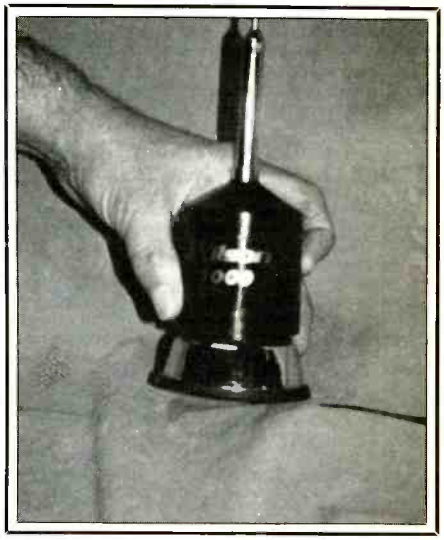
The installation was straightforward and simple. With the antenna system matched for peak operation on Channel 19, we got a 1.1:1 SWR reading which remained essentially uniform across the band. It's a neat looking antenna, by the way, and draws a lot of attention from other operators who see it mounted on a vehicle.

In a week of daily operation, the Wilson 1000 performed like a trooper, offering hefty signal reports all around. Coverage areas which had previously been marginal were moved into the "solid copy" column. Not only that, the mobile unit was able to extend the area from which shouts could be made back to the base. Previously, those were blank coverage areas and totally dead spots.

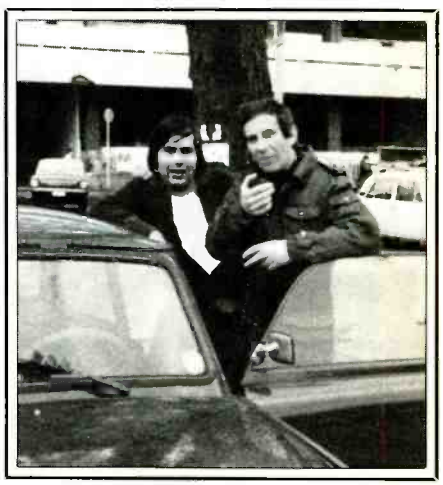
There's absolutely no question that the Wilson 1000 offered a *significant* improvement in communications coverage. Considering that this was tried on a mobile installation that had already been known as one of the best in town, it proved itself to be a real band blaster. From our personal in-use observations, we can *highly* recommend the Wilson 1000. For further information contact Wilson Antenna, Inc., 2 Commerce Center Drive, Henderson, NV 89015, or circle 102 on our Readers' Service.

We Get Letters

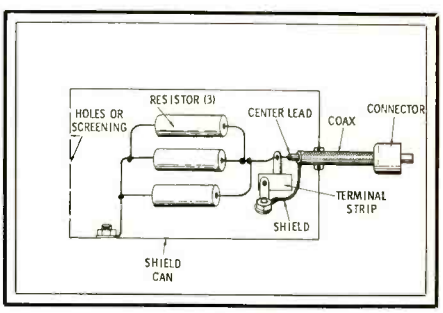
A letter came from Adelheid and Michael Schroter, P.O. Box 884, 1064 Berlin, Ger-



Base coil of the excellent Wilson 1000 mobile antenna.



On the left is Hungarian CB'er Andor, CB-801, showing his mobile station to visitor (from the GDR) Michael Schroter (at the right). Michael was in Budapest when the photo was snapped.



An accurate CB dummy load.

NEAC monitors Channel 9 in Luxembourg.

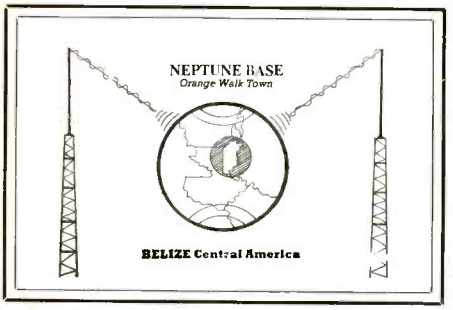
man Democratic Republic. Although CB doesn't exist in the GDR, they have both monitored the world's CB frequencies for ten years and have corresponded with and received CB QSL cards and photos of CB'ers from many nations. They listen on a SONY ICF-2001.

Accompanying the letter was a photo of Michael (at the right) talking on the mobile rig of Hungarian CB'er CB-801, whose name is Andor (at the left). This photo was taken when Adelheid and Michael flew to Budapest to visit Andor.

The Schroters invite our readers to write to them, or send them QSL's or photos.

Roger Neyens, of the National Emergency Assistance Communications group sent along one of his organization's decals. NEAC is the highway emergency monitoring team in the European nation of Luxembourg. Their address is P.O. Box 17, Mamer, Luxembourg.

While we're hopscotching the world, we want to acknowledge the QSL the column received from Hernan Urbina, Jr., *Neptune Base*, of P.O. Box 23, Orange Walk Town, Belize, Central America. Hernan says, "Tell the people that I am finding friendship from other countries and always looking for QSL's from other 27 MHz operators." He signed his QSL, "A proud Belizean." Incidentally, *Neptune Base* monitors Channel 1 'round the clock.



One of this column's most ardent supporters is Hernan Urbina, Jr., who lives in Belize, Central AMerica. Here's his QSL.

A bit closer to home, Tom Kneitel, SSB-13, tells us about CB'er Mark Singer, *Rock Pit Base*, 134 Stevens St., Hallandale, FL 33009. Mark is a CB'er of high-school age. Due to several serious long-term health problems, Mark has been confined to the home QTH for a while, and still has a way to go before he's out of the woods. If any of our readers have a few moments to drop Mark a QSL or a letter, he would definitely appreciate each and every one.

Last April, Newfoundland made its entry into monitoring CB Channel 9. The Royal Newfoundland Constabulary, the local police at St. John's, and the Channel 9 Monitoring Committee got together to put a base station on the air at police headquarters. As soon as it went into operation (on a 24 hour sked) it began receiving requests for assistance. All of the equipment was donated by the public and local businesses, and the installation was done at no cost by a public spirited local firm. Thanks to Paul Neary, P.O. Box 93, station C. St. John's, NF A1B 2N1, Canada for this information.

Scott Glicker, P.O. Box 25174, Tamarac, FL 33320 has an older Royce CB rig that needs service work. If any readers know the name of a company that can fix a Royce transmitter, please contact Scott.

Who's a Dummy?

According to FCC law, a transmitter being operated during tests and troubleshooting should not be connected to an antenna except for extremely brief transmissions. For this reason, a dummy load to convert output power into heat is recommended. An ordinary No. 47 pilot lamp will work, but it provides only an approximate match into a transmitter with a 50-ohm output impedance. Since the lamp filament acts as a coil, it cannot perfectly substitute for a normal transmission line and antenna. An accurate dummy load, however, can be easily constructed from several resistors.

As shown, the unit is made of three resistors wired in parallel. Each resistor is rated at 150 ohms, with a tolerance of five percent and a power rating of two watts. Note that they are wired and soldered by their own leads. The total resistance of this combination is 50 ohms, and therefore it provides a good match to the transmitter. The two free leads of the dummy load are soldered to a short length of coax cable which is connected to the CB antenna socket.

The dummy load is capable of handling six watts of power, or about double the output of a typical CB transmitter. The load, however, will get warm in operation as it converts RF energy into heat. For this reason, allow a slight air space between adjoining resistors when wiring them together. This adds air circulation and, consequently, cooling. The only precaution is to keep all leads as short as possible to prevent a coil effect that could upset the 50-ohm impedance presented in the transmitter.

The shield for the dummy load can be any convenient size. Note that one end of the load is bolted directly to the side of the can, while the other end goes to a terminal strip which keeps it insulated from ground. The center lead of the coax cable also connects to this point. Connect the coax shield to ground, which is the mounting foot of the terminal strip. A rubber grommet in the hole where the coax enters the can prevents the metal from cutting the cable.

The other end of the can should be sealed, except for several small holes drilled into it for cooling purposes. If you wish to use an ordinary tin can for the shield, this end can be where the top was removed. Some metal screening or scrap sheet metal should be used to recover the opening to prevent any escape of RF energy.

This column wants your own QSL's, photocopies of your DX QSL's, photos of your station, information on your coffee breaks, and any other questions and information about CB radio activity. PC

LISTENING POST

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

BY GERRY L. DEXTER

Late spring and early summer found our TV screens and newspapers filled with stories of historic events on the world scene. Datelines like Beijing, Tehran, Moscow, and Warsaw brought a continuously unfolding drama. It's an especially good time to own a shortwave radio! We know a number SWL's who monitored Radio Beijing as the student demonstrations led to a government crisis and massacre; following the near daily changes in how much or how little the station was reporting. On US network TV we noted several stories on the theme of how the people in China were able to find out what was happening by listening to the Voice of America and the BBC. But not once in any of those stories we caught did we hear anyone use the dreaded "S" word (shortwave). Which makes it hard for those who barely know the word to understand how it was being done.

Deutsche Welle is now being relayed by the Radiobras transmitter in Brazil. It's currently operative at 2300-0100 on 6145, 0100-0300 on 6075 and 9545. The much troubled DW relay at Trincomallee in Sri Lanka is reported to be back and working in full operation.

Also on the relay scene, the Canada/Austria arrangement went on line late last March, first with Canada's Sackville site handling Radio Austria International on 6015 from 0500 to 0700 and later with RCI being carried over Austria's transmitters at Moosebrunn. Meantime, Austria and China have discussed a mutual exchange. Austria is interested in improving reception of its programs in Southeast Asia.

Radio France International is now being carried six hours per day over Radio Japan's facilities. Transmissions are beamed to China, Korea, Vietnam, Laos and Cambodia.

Radio Veritas Asia in the Philippines has put a second 250 KW transmitter in the air for broadcasts to the Indian subcontinent and four new antennas are under construction. Once those are completed the Radio Veritas transmission schedule is due to be revamped.

Some of the transmitters once used by the USSR to jam foreign broadcasts are now being used to relay various home and republic services within the country, especially so natives of those areas who are living in Moscow can hear them. The full list is not yet complete but here are a couple which haven't been audible an shortwave: ASSR (Tatar) at 0230-1400 on 11945 and 1405-1800 on 17810; Kirghiz (Frunze) at 2259-1500 on 9735 and 1505-1700 on 17785 and Moldavia (Kishinev) at 0215-1430 on 6070 and 1435-1950 on 9560. Note that these are just broadcasts of various home services and are unlikely to actually be from transmitters within those particular regions.

Randall Reese operates this easily movable listening post in Bangkok, Thailand.

Liberia's ELBC has returned to shortwave. It signs on at 0500, though that may be as much as 15 minutes late. Steady checks of 3255 should bring it in during good African conditions.

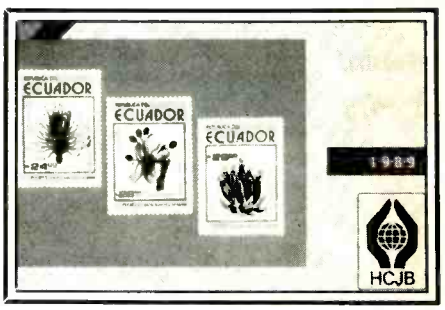
Radio New Zealand appears to be on solid ground at long last, from the standpoint of its shortwave service, at least. The government of New Zealand is allocating $3 million to build a new transmitting facility and another $1 million annually for operating costs. It's hoped the new Radio New Zealand will be on the air in time for the Commonwealth Games in Auckland next year.

HCJB has purchased three used single sideband transmitters from the Swiss government. The Ecuador station will use them for experimental broadcasts to developed areas where SSB receiving equipment is more likely to be available. They'll operate on the higher shortwave frequencies.

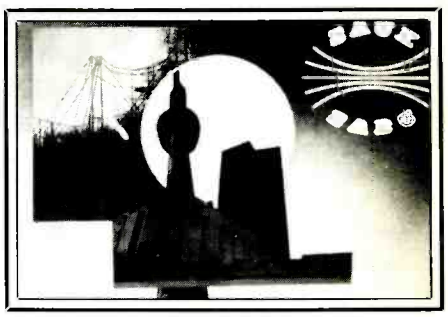
If you need to log Kiribati this is a good time to try. Radio Kiribati is currently using 14917.7 lower sideband and many report hearing it from 0555 sign on. BBC news is aired at 0600.

Here's The Mail: Welcome to Mark Pugh in Hartford, Michigan who's a newcomer both to shortwave and to this column. Mark uses a DX-440.

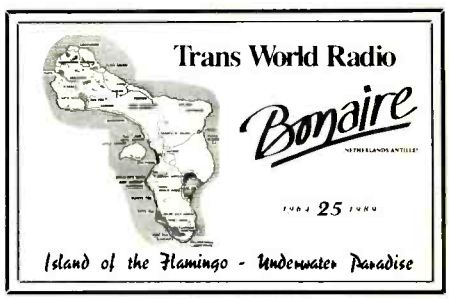
Joel Roaupe says DX'ng from his new location in Pantego, North Carolina is "decidedly different" from his former central Texas location. Now he's in the "shadow" of the VOA—Greenville transmitters just a few miles west of him. Joel says there are times when he can't hear the transmitters at all and others when the adjacent bleedover is all over the dial. Joel has been DX'ing since 1971.



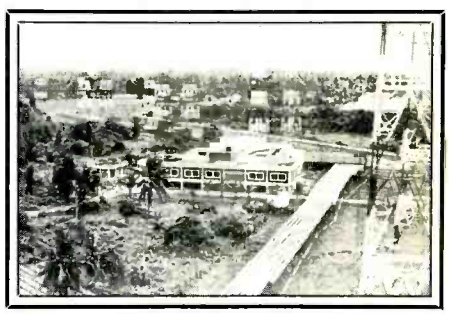
Here's one of the 1989 Ecuadorian Stamps QSL card series from HCJB. (Thanks to John Miller.)



The South African Broadcasting Corporation sent this QSL for their Radio Five service in 4800. (Thanks to Michael Yohnicki)



Trans World Radio in Bonaire is celebrating 25 years this year, as their new QSL indicates. (Thanks Anthony Pannone.)



This QSL shows the BBC Far Eastern Relay Station in Singapore. (Thanks to Chris Merchant for this one.)

"Nervous" Neal Smith of Moline, Illinois has been listening since 1976, uses a Panasonic RF4900 and is trying to "make it" as a professional musician. Good to get your reports, Neal. How'd you get the nickname?

A QSL from Radio Damascus, registered, no less, graced the mailbox of Anthony Pannone in East Haven, Connecticut recently. Now, says Anthony, Radio Baghdad is next on his list. Syria has started replying again—at least to some, Anthony, but Radio Baghdad remains a tough one right now.

Marty Foss in Anchorage, Alaska says he gets very good reception of the Pacific, China and the USSR. He has three antennas and three receivers—a Hammarlund HQ140X, Sangean ATS-803A, and Sony 2010.

Randall Reese works for a drilling company and is currently in Bangkok. He moves around a lot so his shack has to be a study in a quick knockdown and go. Though his featured photo shows a Sony 2001, that's been replaced for field work with a Panasonic RFB65. His main receiver remains a Yaesu FRG8800.

If you have a spare SRS-Surinam folder QSL card you can help out Stephen Foley (Room 433, 89-25 Parsons, Blvd., Jamaica NY 11432) who lost his QSL from this station and would very much like to have some sort of replacement.

Remember to send in your shortwave broadcast loggings regularly. List them by country, with space between each and your last name and state abbreviation after each. We also need shack photos and spare QSL cards you don't need returned for use as illustrations. Schedules, news clippings and your letters are all welcome. We look forward to hearing from as many of you as possible each and every month!

That's all folks—except to extend the hand of thanks to the following:

John Tuchscherer, Neenah, WI; Michael Watson, Samona, CA; Carol Parrish, Bethel Park, PA; Willian O. Dickerson, Williamsport, PA; Neal Smith, Moline, IL; Marty Foss, AL7JF, Anchorage, AK; Anthony Pannone, East Haven, CT; Jonathan D. Berman, Amboy, WA; Joel C. Roupe, Pantego, NC; Mark C. Northrup, Danbury, CT; Aris Giannarelis, Athens, Greece and Mark Pugh, Hartford, MI.

How about sending us your shortwave braodcast loggings? Our address is: Listening Post, Popular Communications Magazine, 76 North Broadway, Hicksville, NY 11801.

We would also like to have a photo of your listening post.

Abbreviations Used In Listening Post

AA	Arabic
BC	Broadcast/ing
CC	Chinese
EE	English
FF	French
GG	German
ID	Identification
IS	Interval Signal
JJ	Japanese
mx	Music
NA	North America/n
nx	News
OM	Male
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

Shortwave Broadcast Loggings
All Times Shown Are UTC
English, Except As Noted

Afghanistan: R. Afghanistan, 15520 at 1240 in un-ID lang. No ID heard, but WRTH lists it here (Northrup, CT).

Alaska: KNLS, 9870 w/ID in CC. Chariots of Fire theme for IS to 1102, then CC pgms (Smith, IL)

Albania: R. Tirana, 9480 at 1530 w/nx & **Musical Page** (Giannarelis, Greece); 9500 w/nx & opinion at 0330 (Smith, IL).

Algeria: R. Algiers, 15215 w/nx in AA at 1931 (Roupe, NC); 17745 at 2019 w/mideast mx, pops & oldies in SS (Tuchscherer, WI).

Argentina: RAE, 9690 at 0100 & 0300 w/ID & mx (Pannone, CT).

Australia: R. Australia, 9580 at 1126, also on 17795 at 0350 but QRM'd by R. RSA's IS (Roupe)

ABC Perth, 9610 at 1315 (Foss, AK).

Austria: R. Austria Int'l., 9875//13730 at 0130 w/nx & mx (Pannone, CT); 17715 at 1155 w/o ID (Northrup, CT).

Belgium: RTBF, 17675 at 1135 in un-ID lang. ID not heard (Northrup, CT).

Bolivia: R. Illimani, La Paz, 4945 in SS at 0148 w/commentary, ID as **Radio Illimani, La Voz de Bolivia** & s/off (Berman, WA).

Brazil: Radiobras, 11745 at 0039 w/Brazilian pops (Dickerman, PA); at 0200 being splattered by Moscow (Pannone, CT).

R. Nacionol Amazonia, 11780 at 0930 & 2145 w/local pops, all PP (Smith, IL).

R. Cultura Araraquara, 3365 in PP at 0135 w/Brazilian pops, refs to Sao Paulo, full ID 0200 (Berman, WA).

R. Araguaia, 4905 at 0815 w/pops, ID, cammercials, promos, refs to Goiania (Berman, WA).

R. Cancao Nova, Cachoeira Paulista, 4825 in PP w/local pops at 0805, ID's (Berman, WA).

Bulgaria: R. Sofia, 9700//11720 at 2300 w/nx, comments, mx (Ponnone, CT); 11720 at 2234 (Roupe, NC); 11735 at 2300 w/nx (Pugh, MI); 15290 at 0330 (Smith, IL).

Canada: RCI, 9755 at 2233, & 11720 at 1314 (Roupe, NC); 17820 at 1900 (Giannarelis, Greece).

CBC N. Quebec Svc, 6195//9625 w/blues & classic rock on weekends to 0600 s/off (Smith, IL); 9625//11720 at 1500 (Roupe, NC).

CFCX Montreal, 6005 relaying BCB CFCF at 1356 (Roupe, NC).

CFRX Toronto, 6070 relaying BCB CFRB at 1400 (Roupe, NC).

China, Peoples Rep.: R. Beijing, 15560 at 1120 (Roupe, NC); 17855 at 0318 (Foss, AK).

Centr. People's BC Sta, Kunming, 7700 at 1134 (Foss, AK). Assume this was in CC-- Ed.

Colombia: Caracol Bogota, 5095 at 0155-0203, all SS except ID in EE. Nx in SS at 0200 (Tuchscherer, WI).

Costa Rica: R. Impacto, 5030 w/pops & frequent SS ID's as **Impacto** at 0500 (Smith, IL).

Cuba: RHC, 11820 at 0230 w/ID & nx (Pannone, CT); 11835 at 0729 (Dickerman, PA); 11840 via USSR at 2000 (Giannarelis, Greece).

Cyprus: BBC Relay, 17755 w/ID 2231 (Dickerman, PA).

Czechoslavakia: R. Prague, 11685 at 1730 w/nx & comment (Giannarelis, Greece); 21505 at 1421 w/ID's in several langs, regular EE pgm at 1430 (Watson, CA).

Denmark: R. Denmark, 15165 at 1900 in Danish (Giannarelis, Greece).

E. Germany: RBI, 13610 at 1730 w/nx, commentary, mailbag (Giannarelis, Greece); 15240 at 1528 (Roupe, NC).

Ecuador: HCJB, 9870 in PP at 0325 (Parrish, PA); 15155 at 0130 w/**Saludos Amigos** (Pannone, CT); 0000 (Pugh, MI); 15270 at 2147 w/**Music in the Mountains** (Roupe, NC).

England: BBC, 6175 at 0324 (Pannone, CT); in Greek on 6060//9635 at 2130 (Giannarelis, Greece); 5975 at 2308 strong sigs, also 9515 at 1300, 9915 at 0340, 11775 at 1316, 12095 at 2009 (Roupe, NC); 25750 at 1400 w/sports, world nx 1500 (Watson, CA).

Finland: R. Finland Int'l., 15400 at 1304 (Roupe, NC); 21550 at 1340 w/nx of major changes in

nation's TV bc svcs (Watson, CA).

France: RFI, 17620 at 1603, but better on 21645 at 1257 (Roupe, NC); 21635 (new) at 1531 to 1555 close w/FF & EE ID's (Tuchscherer, WI); 25820 in FF at 1430. This is one of the 11 meter freqs RFI has long used when condx permit (Watson, CA).

Gabon: Africa #1, 15475 at 1947 in FF (some EE) (Tuchscherer, WI).

Ghana: GBC, 4915 at 2228 to 2302 off (Roupe).

Greece: V. of Greece, 9420 at 2335 w/nx, but s/off is in Greek 2350 (Pugh, MI).

Guam: KTWR, 11650 at 1518 w/rx pgms (Tuchscherer, WI); 11805 at 1029 w/**Through the Bible**, ID/IS/off 1056 (Smith, IL).

Guatemala: R. K'ekchi, Fray Bme de las Casas, 4845 in SS at 0334, pramos, freq listing & off 0341 (Berman, WA).

TGNA, 3300 at 0209 (Pannone, CT).

Honduras: HRVC, 4820 w/rx pgms to s/off around 0400 (Smith, IL); 0336 (Roupe, NC).

La V. de Mosquita, Pto. Lempira, 4910 in SS & presumed Miskito at 0233 w/pops & rx mx, ID 0259 (Berman, WA).

Hong Kong: BBC relay, 17875 at 0000 w/**Newsdesk**(Dickerman, PA).

Hungary: R. Budapest, 6100//9585 at 0030 (Pannone, CT).

Indonesia: RRI, Ujung Padang, 4753 at 1545 w/rx pgm, ID, nx at hour, steel guitar & off 1611 (Berman, WA).

Iraq: R. Baghdad, 9515 w/commentary & ID (Pannone, CT); 9770 at 2139 in SS for S. America, also 13665 at 2100 (Roupe, NC); 15110 at 1826-1900 in AA w/some mx (Tuchscherer, WI).

Israel: V. of Israel, 11605 at 2010 w/Hebrew lesson & off 2016 (Pugh, MI).

Japan: R. Japan, 11865 at 1526 w/talk, then JJ lang lesson (Tuchscherer, WI); 17825 at 0307 w/ID & freq anncts (Dickerman, PA).

Lesotho: BBC Relay, Maseru, 3255 w/nx of Africa 0340, ID at hour (Berman, WA).

Libya: R. Jamahiriya, 15450 in 1947 in AA (Roupe, NC).

Lithuanian SSR: R. Vilnius, 7400//9860 at 2200 (Pannone, CT).

Luxembourg: R. Luxembourg, 6090 at 0100 w/ID (Dickerman, PA).

Madagascar: R. Netherland relay, 15570 at 1630 w/nx, **Newsline & Media Network** (Giannarelis).

Mauritania: Rdf. Mauritanie, 4845 tentative logging at 0615 w/non-stop AA-type mx, no ID's (Smith, IL).

Mexico: R. Mexico Int'l., 15430 at 0330 (Parrish, PA). EE??-- Ed.

R. Educacion, 6185 around 0630 frequently playing album sides including lite jazz (Smith, IL).

Mozambique: R. Mozambique, Maputo, 3210 in PP at 0400 w/ID, nx, pops (Berman, WA).

N. Korea: R. Pyongyang, 11735 at 1123 w/commentary (Roupe, NC).

Northern Marianas: KYOI Saipan, 9530 at 0953 w/WCSN IS, then KYOI ID & into WCSN relay (Smith, IL).

Netherlands: R. Netherlands, 9860 at 2030, 13770 at 1430, 15560 at 1830, & 17605 at 1130 (Giannarelis, Greece); 13700 at 2105, & 17605 at 1924 (Roupe, NC).

Netherlands Antilles: TWR, 15345 at 1130 w/nx (Northrup, CT).

Paraguay: R. Nacional, 6025//9735 in SS at 0840 w/local pops, political messages, mentions of Asunsion, ID. The 6 MHz sig faded before 0900 (Berman, WA); 9735 in SS at 1035, local mx, many ID's (Smith, IL).

Philippines: VOA relay, 9760 at 1100 w/nx (Smith, IL).

R. Veritas Asia, 15220 at 1500-1530 off w/talk re Asian economics (Tuchscherer, WI).

Poland: R. Polonia, 5995 at 2230-2300 w/nx, ID, mailbag (Pannone, CT); 7270 at 2340 w/talk on local fashions (Dickerman, PA).

Portugal: R. Portugal, 9705 at 0200 in PP, 11840 at 0230 in EE (Smith, IL).

Qatar: QBS, 17825 (new freq) at 1613-1657 w/AA talks, AA type mx (Tuchscherer, WI).

Romania: R. Bucharest, 5990//9570 at 0200 & 0400 w/ID, nx (Pannone, CT); 11940 at 0400-0429 off (Smith, IL); 11775//11940//15250//17720 at 1522 to Asia (Roupe, NC).

Rwanda: DW relay, 7225 at 0404, an ID during nx (Dickerman, PA).

Singapore: Singapore BC, 5010//5052 at 1404 w/nx & EZ listening mx (Berman, WA).

S. Africa, Rep. of: R. RSA, 9580 at 0200 (Pannone, CT); 25790 at 1450 w/talk on nature (Watson, CA).

Namibia Svc., 4965 in GG at 0405 w/classical arias & "bierfest" mx (Berman, WA). This is easily misteken for SW Africa BC Svc in Namibia, but it's a svc to Namibia from S. Africa-- Ed.

Spain: Spanish Nat'l. R. External Svc., 9530 at 0039 (do you mean 9630 kHz?-- Ed.); 9630 at 0100 w/tourist info (Pugh, MI); 15110 at 0059 w/ID & s/off (Dickerson, PA); 17770 at 2050 in SS (Northrop, CT).

Sweden: R. Sweden, 9625 at 1435 (Roupe, NC); 17880 in FF 1519-1555; EE to NA at 1530 (Tuchscherer, WI).

Switzerland: Swiss R. Int'l., 6135//9725 at 0215 (Pannone, CT); 9725//9885 at 0130 in II (Parrish, LA); 13635 at 2100 (Roupe, NC); 15430 at 1530 (Giannarelis, Greece); 21695 at 1355; into FF at 1400 (Watson, CA).

Syria: R. Damascus, 15095 at 2125, but better on 17710 at 2137 (Roupe, NC); 15095 at 2215 in AA (Pannone, CT).

Taiwan: VOFC (via WYFR), 5955 at 0300 w/CC lesson (Parrish, PA).

WYFR (via Taiwan), 15055 at 2159-2209 w/IS, hymns, talk in CC (Tuchscherer, WI).

Turkey: V. of Turkey, 9445 at 2300 w/NA ogm (Parrish, PA).

Ukranian SSR: R. Kiev, 7400//9860 at 2300 (Pannone, CT); 9860 at 2330 (Smith, IL).

U.A.R.: UAE R., Dubai, 17865 at 1537 in AA (Roupe, NC).

U.S.A.: VOA, 6020 to 0715 close when annced as a test. Not the usual s/off format & no Yankee Doodle (Smith, IL).

WHRI, 13760 at 2102 (Roupe, NC).

WINB, 15185 at 1135, ID not heard (Northrup).

WRNO, 9570 at 1431; 11965 at 1645; 13720 at 2100 (Roupe, NC).

KVOH, 17775 at 2207 (Roupe, NC).

KUSW, 9850 at 1457; 15650 at 2135 (Roupe, WSHB, Cypress Beach, SC, 6915//9455 at 0357. Anybady else copy them on odd 9 MHz channel?-- Ed.

U.S.S.R.: R. Moscow, 5950 at 2100 in Greek (Giannarelis, Greece); 9810 (Khabarovsk site) at 1024 in RR (Foss, AK).

Magazan R., 5940 at 1253 in RR (Foss, AK).

RS Rodina, 11790 (new) at 0056 into nx in RR (Tuchscheret, WI).

Vatican: Vatican R., 9645//11715 at 0510, into SS 0520 (Smith, IL).

Venezuela: R. Nacional, 9540 in SS at 1107 (Smith, IL).

R. Continental, Barinas, 4940 at 0900 w/SS s/on (Berman, WA).

R. Mara, Maracaibo, 3275 at 0900 s/on w/anthem, ID, Latin mx (Berman, WA).

Vietnam: V. of Vietnam, 15010 at 1600 w/nx & talk (Giannarelis. Greece).

W. Germany: DW, 9670 at 0100 w/nx (Pugh, MI); 17810 at 1502 w/nx. USSR co-channel, also in EE (Tuchscherer, WI).

PC

ON THE LINE

NEW AND EXCITING TELEPHONE TECHNOLOGY

BY JULIAN MACASSEY, N6ARE

Sssh! I'm Watching SilentRadio

We all know what television is, we all know what radio is. Television is for watching and radio is for listening to. Radio gives us music, news and advertising. Television provides us with Vanna White, news, rasslin' and reruns. Television also gave us "Sound-bites", little quickie bits of information—audio headlines.

The origin of the sound-bite can probably be traced to the old streaming news announcement billboards on Times Square, New York and Picadilly Circus, London. Before television, satellites and cellular phones, there were big billboards covered in thousands of light bulbs. The bulbs illuminated messages, news and advertising—just quickie headlines such as "War is Over". If you wanted to know more, you bought a paper or huddled over the RCA Console.

One thing about the Times Square signs was they certainly helped pass the time. If you were waiting for something to happen, you could watch the news headlines scroll by. But the signs with all the lightbulbs were big bulky and expensive. Behind the sign was a man sitting at a Teletype machine, most of the time he ran punched tape, but he had to cut the tape and keep things whirring. Because they were unwieldy, these machines were limited to the centers of major cities.

Then came the LED (Light Emitting Diode) and the microprocessor. Using these two wonders of the seventies the "Times Square" scrolling display could be made, small, cheap, portable, and low power. Sitting in Los Angeles garage in the mid seventies was a young man who had already made his mark as the designer of the system that took a TV picture and printed it on a T-shirt. The young man was Mike Levin who put together hundreds of LED's and controlled the whole thing with a microprocessor using one kilobyte of RAM. The text was loaded in locally with a detachable keyboard. It was a simple device by today's standards. The first units which were sold in 1979 had a one line display. By sitting at the keyboard the owner could type in "Eat at Joe's" or "Try our pastrami on rye".

The drawback to the first units built by Mike was that the owner had to be a writer and a typist. So his next enhancement was to add a computer modem to the display and download news and ads from a remote location. This was the beginning of the bright idea. Other manufacturers had scrolling displays, some were programmable in the field and some were shipped with canned messages. Mike Levin, who was calling himself Cybernetic Data Products, now had the only unit that could change the message and besides changing the message could offer the latest news in headline form. These first units were installed around Los Angeles in Supermarkets, cinema lobbies, liquor stores and banks—any location where customers would be standing around waiting.

One day Mike was driving down the freeway listening to his car radio when he heard that the FCC was allowing TV stations to experiment with Teletext. Teletext is a way of sending text and data over the unused lines of a TV picture. The unused lines are often referred to as the Vertical Blanking interval (VBI). The Closed Caption system used for the hearing impaired and for language translation uses the same system. This, Mike realized, would be the best way to address thousands of display units without going broke paying phone bills. So SilentRadio was born.

Mike, who learned his video technology when designing the TV picture on T-shirt equipment, had no trouble coming up with a way of sending text via TV signals. He contacted the local Public Television station KCET and offered to pay to put data on one of their unused picture lines. No one else wanted to use this wasted bandwidth and KCET, like most PBS stations, was always looking for a new way to pay the bills. A partnership was born and SilentRadio could address every unit at once to provide the latest news updates and sports results, even the winning lottery numbers. Also, besides sending news to every unit, SilentRadio was designed so each individual unit could be addressed. This meant that each SilentRadio unit could carry a special ad or message such as "Thanks for eating at Joe's—free Tums with every monster sandwich" or "Happy birthday Tom at table three". The telephone modems didn't all go away, but from hundreds of modems, one at each SilentRadio site, they went to one leased phone line to the TV station. The SilentRadio units had a custom receiver and TV antenna attached to them.

The first units, built in 1982, were a big hit in Los Angeles and were soon improved and updated to two line models. Advertisers could buy time on SilentRadio or businesses could have a SilentRadio unit with only their own ads on it, and all the local and national news and sports.

In 1984, SilentRadio went international.

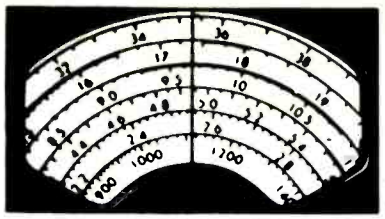
Established (VSAT)	Call Letters
Atlanta	WGTV
Boston	WNEV
Chicago	WTTW
Chicago	WCFC
Cincinnati	WXIX
Dallas	KERA
Denver	KMGH
Detroit	WTVS
Houston	KUHT
Las Vegas	KRLR
Los Angeles	KCET
Milwaukee	WMVS
Minneapolis	KTMA
New York	WNET
Philadelphia	WGBS
Sacramento	KVIE
San Diego	KPBS
San Francisco	KQED
San Jose	KSTS
Seattle	KTZZ
Stamford	WEDW
Established (Telco)	**Call Letters**
Baltimore	WMPB
Charlotte	WTVI
Evansville	WEHT
Greenville	WGGS
Miami	WBKS
Orlando	WORL
Raleigh	WPTF
Washington D.C.	WJLA
Winston-Salem	WNRX

List of cities that carry SilentRadio and the carrying TV station call letters.

Units were installed in Paris, France. The French are fascinated by text processing, they have computerized phonebooks. Some phone subscribers do not get phonebooks anymore, they get a computer terminal from the phone company. Obviously, something like SilentRadio was a natural. Pierre could sit in the cafe and watch the horse race results come through.

After the French connection SilentRadio

(Continued on page 72)



COMMUNICATIONS CONFIDENTIAL

BY DON SCHIMMEL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

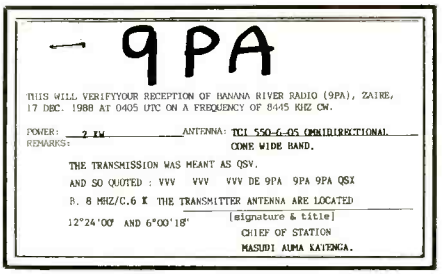
A request for a QSL address came in from Howard Kemp, NH. Howard, here is the information for station WIX heard on 6521.3 kHz. Indiana-Michigan Electric Co., P.O. Box 86, Lakin, WV 25250.

An error inadvertently crept into the comment for the April 1989 intercept on 7552.1 kHz. Traffic provided by J.M., KY established that KGD34 was the callsign for the National Coordinating Center, Arlington, VA. See the feature in this issue of POP'COMM regarding the NCS and SHARES.

An unidentified contributor sent in a short article from what appears to be an AT&T publication which described some features of High Seas station WOM located at Fort Lauderdale, FL. WOM monitors 32 different frequencies, has five technician positions, with 32 speakers and 17 antennae, including one omni-directional; some antennae are 100-foot tall wire-curtains, called log periodics, facing in different directions. When a good circuit has been established with the particular vessel, the call is turned over to the international operating center in Pittsburgh; where high-seas operators place the calls.

AT&T also owns two other HF SSB stations: WOO in Manahawkin, NJ and station KMI at Point Reyes, CA.

With reference to the comments in the Feb 88 column concerning "Sweeping Signals," James Hubbard, Guam wrote in part:



9PA

THIS WILL VERIFYYOUR RECEPTION OF BANANA RIVER RADIO (9PA), ZAIRE, 17 DEC. 1988 AT 0405 UTC ON A FREQUENCY OF 8445 KHZ CW.

POWER: 2 KW ANTENNA: TCI 550-G-OS OMNIDIRECTIONAL.
REMARKS: CONE WIDE BAND.

THE TRANSMISSION WAS MEANT AS QSV.
AND SO QUOTED : VVV VVV VVV DE 9PA 9PA 9PA QSX
8. 8 MHZ/C.6 K THE TRANSMITTER ANTENNA ARE LOCATED
12°24'00" AND 6°00'18" [signature & title]
CHIEF OF STATION
MASUDI AUMA KAITENGA.

PFC returned to Patrick O'Connor, NH. The QSL address is: Banana Marine Radio, Regie des Voies Maritimes, B.P. 5, Banana, ZAIRE.

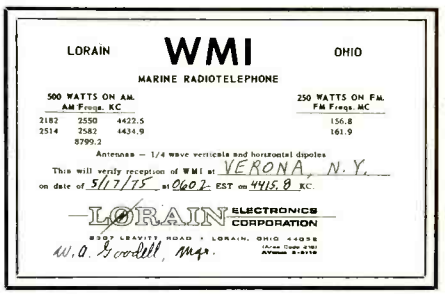
"I am intrigued by those 'strange sweeping signals,' and I'm wondering why the subject never saw the light-of-day. Surely everyone hears them. Where is HAVANA MOON when we need him?

Here I am 1300 miles away from the nearest land mass and my ears are tortured by sweepers that I can track from 3.5 to 30 MHz night or day. Either my antenna has exceedingly good signal gathering ability, or that sweep operator has his machine out there by my antenna."

Maybe some of our readers have some information they can share with us regarding these strange "sweepers."

A note from Andy Gordon, CT advised

The Indiana National Guard has obtained 20 RF-3200 SSB HF transceivers from the Harris Corporation. This new equipment is rated at 125 watts continuous duty and will replace older crystal-controlled units.



LORAIN **WMI** OHIO

MARINE RADIOTELEPHONE

500 WATTS ON A.M. A.M. Freqs. KC			250 WATTS ON F.M. F.M. Freqs. MC
2182	2550	4422.5	156.8
2514	2582	4434.9	161.9
	8799.2		

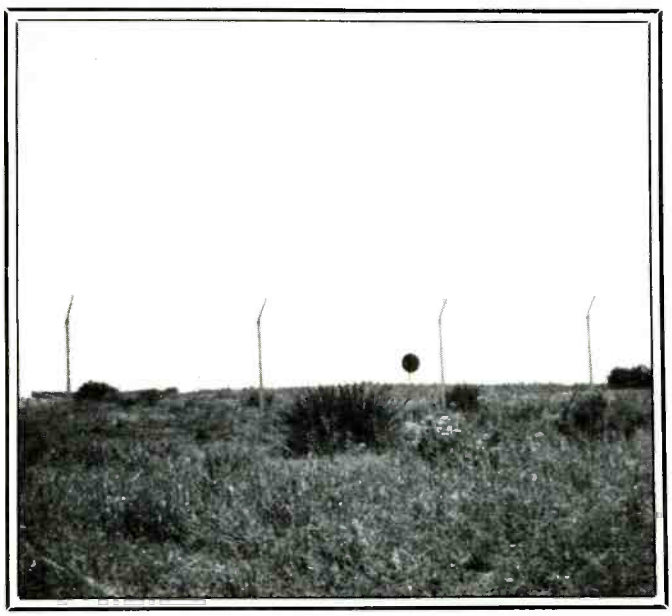
Antennas — 1/4 wave verticals and horizontal dipoles

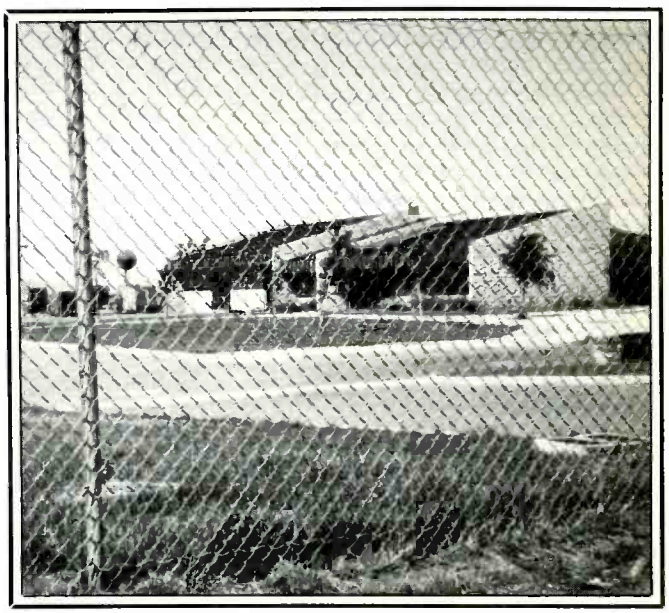
This will verify reception of WMI at VERONA, N.Y.
on date of 5/17/75 at 0602 EST on 4415.8 KC.

LORAIN ELECTRONICS CORPORATION
8327 LEAVITT ROAD • LORAIN, OHIO 44053

W.O. Goodell, Mgr.

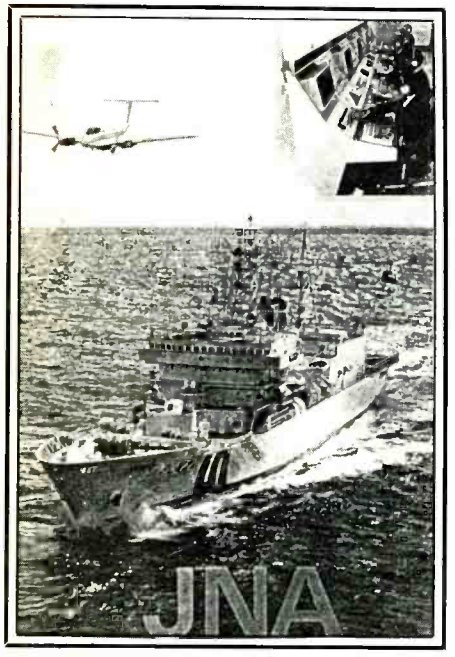
A golden-oldie from the collection of Vincent Reh, NY. Vince said this QSL dates back to 1975 when Marine work was still on AM. He remembers also hearing WOU, Boston and WBL, Buffalo on AM.





These two photos of a USAF combat communications station were taken by Dave Carlson, CA. The installation is located near San Diego, CA.

The USAF San Diego antennas included a dish and some folded dipoles. If you look carefully, you can see the two masts for the dipoles.



Chris Merchant, NH received this photo QSL from JNA.

LISTENING WORLD WIDE

FROM THE TOP OF BOWMANVILLE CANADA

SHORTWAVE

QSL REPORT

STATION: Radio Japan COUNTRY: Japan

DATE: Jan 05 1989 TIME: 0318 (UTC)

FREQUENCY: 5960.0 kHz SINPO: 55555

NOTE: Program transmitted via Radio Canada International facilities at Sackville NB. Program included the subject matter of the Japanese White Paper an out-line of the years defense proposals.
I hope this report helps you in knowing how well your programs are being received. Thank you for your QSL and any other information you can provide me.

SUBMITTED BY:

DAVID R BATE JR.

BOWMANVILLE, ONTARIO
CANADA,

RECEIVING EQUIPMENT: Radio Shack DX-440; PRO 2004; PRO 32 MT 400; MT 700; supported by a Commadore 64C.

REGISTERED MONITORING STATION
VE3OONT-19

PLEASE PLACE MY NAME-ADDRESS ON YOUR MAILING LIST FOR YOUR FREQUENCY-PROGRAM GUIDE PLEASE. . .

Here is the neat QSL report form Dave Bate, Ontario, uses which he made with the GEOS Computer program.

that the *USS Abraham Lincoln* CVN72 is due to be commissioned in November 1989 and the assigned MARS call is expected to NNN0NAL.

Some more first time contributors have joined our ranks: Chris Merchant, NH uses a Kenwood TS-430S for monitoring and says he has been a SWL'er for 8 years having started at age 12.

Jim Kelly, MA said, "I am new to UTE listening and find it fun and very interesting. I use a Kenwood R5000 receiver with a Heathkit HD-1424 active antenna, as I am an apartment dweller."

Rick Barton, AZ rediscovered the hobby about 3 years ago. He does his SWL'ing with AIWA cassette player/radio which has SW bands and does most of his DX'ing with a Realistic DX-440 and still uses a great old Realistic DX-160 as well.

Jack Pfister, NJ explained, "Most of my listening is on a Kenwood R-5000, Yaesu FRG8800, ICOM R-7000 and about a zillion various scanners around the house (Yes, in the bathroom, too!)"

Dave Bate, Jr., Ontario, Canada uses a Radio Shack DX-440, PRO-2021, PRO-2004 and PRO-32 for his SW and scanner listening. A MT-400 and MT-700HT are used for listening to marine activity around Lake Ontario and Lake Erie.

Richard Walton, CA has added a Micro-Log SWL cartridge to his computer and feeds it with a Sangean ATS-803A on a home made dipole.

We also heard from Vince Reh, NY who wrote, "Presently I am listening with a Panasonic RF-4900. I also have an old DX-160 workhorse. For ham work I have a Drake TS530S as well as a homebrew 450 watt rig for 75 meter AM work. I am using an 'over the roof' #22 wire antenna—don't want to upset the local 'Condo Commando."

And from frequent contributor Dave Sabo, CA, "I've been a radio enthusiast for a little over two years now. Besides the Kenwood, I've got a Panasonic RFB-300 SW radio and a Toshiba RFP-11 portable, and for VHF/UHF listening, a Realistic PRO-2021, PRO-34 and PRO-2005 scanners."

Utility Station Intercepts
All Times Are U1C

205: Beacon CQA, Celina, OH at 0850 (Simington, OH).

233: Beacon BR, Brandon, Manitoba. AD: EMM Brandon, Brandon Municipal Airport, Brandon, Manitoba, Canada (McDonald, BC).

269: Beacon ZW, Teslin, Yukon. AD: Electronics Centre Manager, Transport Canada, #204, 10006 101st Ave., Grand Prairie, AB, Canada T8V 0Y1 (McDonald, BC).

286: Beacon T, USCG Cape Spencer, AK. AD: USCG, Commander (OAN), 17th CG District, P.O. Box 3-5000, Juneau, AK 99802 (McDonald, BC).

332: Beacon VT, Buffalo Narrows, Sask. AD: Saskatchewan Highways & Transportation, Box 205, Buffalo Narrows, Sask., Canada S0M 0J0 (McDonald, BC).

341: Beacon DB, Burwash, Yukon. AD: Same as Beacon ZW (McDonald, BC).

365: Beacon MA, Mayo, Yukon. AD: Same as Beacon ZW (McDonald, BC).

375: Beacon FS, Ft. Simpson, NWT. Ft. Simpson also operates HF on 5803 & 5680 kHz. AD: Transport Canada, Box 320, Ft. Simpson, NWT, Canada X0E 0N0 (McDonald, BC).

Abbreviations Used For Intercepts

AM	**Amplitude Modulation mode**
BC	**Broadcast**
CW	**Morse Code mode**
EE	**English**
GG	**German**
ID	**Identifier/ied/ication**
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 (i.e. 5739)**
5F	**5-figure coded groups**
5L	**5-letter coded groups (i.e. IGRXJ)**

397: Beacon SB, San Bernardino, CA. AD: 1965th Comms Sqdn., Norton AFB, CA 92409 (McDonald)

423: Beacon CKP, Cherokee, IA. This beacon is a great propagation indicator for west coast NDB DX'ers. AD: Arport Manager, Cherokee Municipal Airport, Cherokee IA 51012 (McDonald, BC).

500: DVZF, **M/V Astro Mercury**, a vehicle carrier. AD: Astro Mercury, c/o NYK Line, 3-2. Marunouchi, 2-chome, Chiyoda-ku, P.O. Box 1250, Tokyo 100-91, Japan (McDonald, BC).

2670: NMF, USCG Boston, MA w/wx notices in USB at 0531 (Bate, ON).

2714: NJRS, **USS Saratoga (CV-60)** clg Tug Control at 1020 re vessel modernization at Portsmouth, VA (Andy Gordon, CT).

2716: Rangemaster & Snapper 825 wkg AUTEC ops at 0945; COMNAVSURFGROUP-4 clg **USS Edsan (DD-946)** at 1020-- CNSG-4 is at Naval Station Newport, RI; NRIZ, **USS Baton Rouge (SSN-689)** using tactical ID E6L clg ONM (Canaveral Control) at 1030; NAEH, **USS Berkeley (DDG-15)** clg San Francisco Control at 1000; NNIK, **USS Wabash (AOR-5)** clg Long Beach Tug Control at 1007. Tug Control is incorrect as the Tower at Long Beach NAVSTA uses ID of Long Beach Control 2; CGWP, **HMCS Skeena (DDH-207)** clg QHM Halifax at 0100-- Skeena last forward propulsion & awaiting tug escort back to port; NJEC, **USS Trippe (FF-1075)** wkg NPHC, **USS Aylwin (FF-2081)** at 0030-- both ships participating in a TGO exercise that links the ships in a given task force via TTY. Neither ship had any luck w/TTY after several hours of trying on 2 different circuits. TGO stands for "Task Group Oreste," meaning encrypted RTTY (Gordan, CT).

3170: Beacon X in CW at 2338. Stopped xmsn of X's & sent four 5F grps then back to X's (Bourne, England).

3258: YL/GG in AM-mode at 0401 w/several short 5F texts (each X2). Each ran about 3 minutes long (Fernandez, MA).

3325: ACTHX, un-ID sta in CW at 0003 clg 2TSPR. Requested QSA then s/off w/AR. Other sta not hrd (Bourne, England).

4066.1: NIGM, **USS Enterprise (CVN-65)** w/patch thru San Diego CSS-1 re parts needed. USB at 0506. QSX 4360.5 kHz (Sabo, CA); NAOP, **USS Elliot (DD-967)** wkg San Diego CSS-1 at 0225; NWZJ, **USS Cayuga (LST-1186)** wkg San Diego CSS-1 re a crew member with a family emergency (Gordon, CT).

4102: YL/Czech in AM-mode at 1920 w/5F grps (Charret, FRG).

4267.5: CKN, Vancouver, BC in CW at 0542 w/marker (Szalony, CA).

4360: NIGM, **USS Enterprise (CVN-65)** at 0540 clg San Diego CSS-1 w/o luck (Symington, OH).

4373: RIP asking 0E & Giant Killer to check for new Alligator freqs. Not successful so stayed on 4373. This USB net also included P1L, 6GS & K7D at 0113 (Willmer, MI).

4376: Boston Ops in USB contacting NRXD, **USCGC Evergreen (WAGO-295)** re illegal fishing. Hrd at 2348 (Willmer, MI).

4415: YL/GG in AM-mode at 2211 running 3/2F grps (Charret, FRG).

4464: Profile 12 (KCC593) of NH Wing CAP w/Profile 8 for SAR ops. Also monitoring VHF 121.5 & 123.0 MHz. Changed to 4582.5 kHz emergency freq (Bate, ON).

4582.5: Profile 12 (KCC593) as above w/Profile 8 & -70 at 0318. Freedom 1 (KCC592) of MA Wing CAP called in report of an ELT from their area at 0532 (Bate, ON).

4637.5: KSD699 Base wkg various of its own units for status reports, USB at 0307. Sounded like a barge company (Rome, LA).

4642: YL/FF in AM-mode at 2113 w/5F grps (Charret, FRG).

4990: YL/GG in AM-mode at 2030 sending 3/2F grps (Charret, FRG).

5063: NRO, Johnston Island LORAN wkg un-ID sta in USB at 0803. Talk of X/Y values + the center track (Sabo, CA).

5155: W1 & J0 talking re gators & playgrounds. Couldn't agree on which playground to use. USB at 0230 (Kelly, MA).

5177: YL/FF in AM-mode at 1900 w/5F grps (Charret, FRG).

5180: NHPA, **USS Stark (FFG-31)** clg DoD Cape for radio check at 0223 in USB (Kelly, MA).

5272: YL/Czech in AM-mode at 1933 clg 272 (Charret, FRG).

5383.5: USN MARS net in USB at 0008 w/NNN0BDS, NNN0KOJ & others (Tom Kneitel, NY).

5696: H3R TAC6 clg ComSta New Orleans. The ComSta asked for their location byt H3R refused to say since they were participating in an exercise. About 4 mins later they gave the position (Rome, LA).

5918: 5L grps in CW at 0519. Tfc had a Dec '87 header (J.M., KY). Apparently a training bc-- Ed.

6200: NQSP, **USCGC Vigorous** in USB at 0832 wkg ComSta Boston (QSX 6506 kHz) re radio adjustments; NODN, **USCGC Iris** in USB at 0855 wkg ComSta Kodiak re coordinating RTTY tfc (Symington, OH); NQOD, **USS Preserver (ARS-8)** clg Miami ComSta at 0426-- was answered by both Miami & CAMSPAC but couldn't copy either; NRPN, **USCGC Ironwood** & then NRPY, **USCGC Planetree** both clg Kodiak ComSta around 0504; NJSJ, **USCGC Cape Carter** wkg Kodiak at 0516; NODU, **USCGC Sedge** wkg Kodiak at 0817; NODN, **USCGC Iris** wkg Kodiak at 0842; ARAA vessel **Cajiba** wkg Miami ComSta at 0919 re RTTY tests on 8302 & 8680 kHz; NJSH, **USCGC Mustang** & U5Y both wkg Kodiak around 0925. All USB & QSX 6506.4 kHz (Sabo, CA).

6235: YL/GG in USB at 0414 sending 3/2F grps (Fernandez, MA).

6460: CKN, Canadian Forces, Vancouver, BC w/CW marker at 2330 (Walton, CA).

6480: KPH, San Francisco, CA in CW at 2400 mentioned Long Beach, cigarettes, beer, etc. (Walton, CA).

6506: NRV, USCG Guam in USB at 1152 getting selcall # from AROA, un-ID ship; ComSta Honolulu in USB at 0930 wkg K8L (QSX 6200 kHz) w/coded tfc (Symington, OH).

6518.8: Halifax CG w/wx at 0205 in USB (Kelly).

6521.8: Barge skippers in USB at 0440 w/barge ops around Vicksburg, MS (Fernandez, MA).

6577: KEA5, New York Aeradio getting pos report from American 676, USB at 0354 (Szalony).

6604: WSY70, New York VOLMET in USB at 0300. Also on 10051 kHz (Szalony, CA).

6712: 386 & 621, both un-ID, discussing 386's landing at unspecif location & coordinating on VHF 122.8 MHz unicam freq. Also referred to stas Vodka, Caravelle, & Babe Ruth. USB at 0436 (Sabo).

6750: Airevac 50221 a/c (C-130?) w/patch thru Lajes reporting several litters, 14 attendants aboard & needing 1 ambulance bus upon landing for transport to hospital (Fernandez, MA).

6757: Pretender in contact w/Exposure on W-103 channel, USB at 0208 (Willmer, MI); WAR46 (a/k/a Workout) in USB at 0329 wkg Air Guard w/exercise patch (Symington, OH).

6761: Anklebone clg Masa 77 w/all freq request. Tried several times but couldn't raise Masa 77. Hrd at 0300 (Bouley, CT).

6785: YL/EE at 0201 sending 3/2 grps (Hamlin, NY).

6800: YL/Czech in AM-mode at 1250 w/5F grps (Charret, FRG).

6840: YL/EE in USB at 2330 sent 3/2F grps (Kelly, MA).

6850: YL/SS at 0700 clg Atencion 98906 then into 5F grps (Winans, IL).

6892: Descending tones into YL/SS w/5F grps, AM-mode at 0455 (Balogh, ON).

7185: Goddard Space Flight Center Radio Club w/xmsn of Shuttle ground comms, LSB (Kelly, MA).

7475: [illegible], National Coordinating Center, [illegible] FAA mobile unit KDM50/Pprtable, [illegible] 1600 (J.M., KY).

7535: Hampshire, ID being used by US Naval Sta Roosevelt Roads, PR clg USN Sta Guantanamo Bay, Cuba (ID: Barbaric) at 2045 but neg contact; NDSD, **USS Barney (DDG-6)** wkg Norfolk SESEF at 1845 re tests of bridge/bridge comms-- SESEF told them to QSY to UHF 274.8 MHz, NDSD also using tactical ID of 1DQ; NFJF, **USS Savannah (AOR-4)** wkg Norfolk SESEF in rotation w/unknown USN sub w/ID of Outbound Navy Unit at 1815, both outbound Navy units & NFJF were testing 2 xmtrs (Gordon, CT).

7550: Bravo 301 & -302 in USB at 1533 before switching over to 85/75R RTTY. Bravo 301 reported being 200 meters from Bravo 302 (J.M., KY).

7588: YL/EE in AM-mode at 2100 clg 049 & 1-0 count (Charret, FRG).

7650: YL/EE in AM at 1913 w/5F grps (Charret)

7675: YL/SS at 0705 w/5F grps (Winans, IL).

7677.3: Beacon U in CW every 5 secs at 0515 (Fernandez, MA).

7740: YL/EE in USB at 1902 clg 023 & 1-0 count (Charret, FRG).

7763: YL/EE in USB at 0130 w/4F grps (Kelly)

7845: 2 un-ID stas in USB at 0450 using scramblers (Fernandez, MA).

8000: YL/SS at 0630 w/5F grps, off w/Final-Final (Winans, IL).

8144: Beacon K in CW at 1450 (Szalony, CA).

8186: YL/SS in AM-mode at 0703 w/5F grps (Balogh, ON).

8241.5: **USCGC Key Largo** at 0343 in USB wkg ComSta New Orleans. Vessel not listed, is it new? (Pat O'Connor, NH).

8291.1: Tug **Monitor** in USB at 0225 wkg Tug **Jacksonville** (Rome, LA).

8363.6: ELCP2, **M/T Iver Swan** (since changed to Norwegian flag & callsign LAFK2). AD: M/T Iver Swan, c/o Anco Tanker Svc., Ltd., 24/25 Mark Lane, Landon EC3R 7BE, England (McDonald, BC).

8483: DAN Norddeich R., FRG clg CQ in CW at 0432 (Szalony, CA).

8524.5: WNU33, Slidell R., LA clg CQ in CW at 0434 (Szalony, CA).

8688.5: ZSC6, Cape Town R., RSA in CW clg CQ at 0348 (O'Connor, NH).

8850: OM/RR in AM-mode at 2036 w/5F grps (Charret, FRG).

8891: Ascot 5394, an a/c of RAF Transport Command, in USB at 1453 wkg Gander Aeradio re altitude change request (O'Connar, NH).

8912: OM/EE w/poss ID of 43 clg Slingshot at 0240, later lots of tfc passed including some scrambled. Anti-smuggling opnerations (Vaughan, mid-Atlantic).

8993: YL/RR in USB at 0538 w/aviation wx for Moscow foll by wx for Kiev at 0550 (Fernandez)

8964: AGA, Hickam AFB, HI in USB at 0633 w/EAM bc (Bate, ON).

8989: Huff 06 in USB at 0325 wkg McClellan AFB w/patch to Travis CP; Pawn 81 at 0330 w/same (Symington, OH).

8993: MacDill AFB, FL wkg a/c Gull 16 in USB at 0424 w/wx for Charleston, SC (Hamlin, NY); Navy WR-08 in USB at 2350 wkg MacDill w/patch to NAS Bermuda (Symington, OH); MacDill in USB at 0224 wkg Daffy 32 w/patch to Little Rock CP & 50th Wing, also Little Rock Metea (Rome, LA).

8997: NPX, USN South Pole wkg NGD, USN McMurdo MAC Center, USB at 0800 (Sabo, CA).

9023: Sidecar & Darkstar November w/exercise at 1911 in the MA/NH (Bate, ON).

9032: Architect in USB at 0501 w/coded wx containing colors (Fernandez, MA).

9042: Beacon U in CW at 1437 (Szalony, CA).

9180: Very odd sounding YL/SS w/5F grps in AM-mode at 0536. Same YL w/diff bc on at same time on 7780 kHz (Sabo, CA).

9220: YL/SS in USB at 0320 w/4F grps (Kelly).

9225: Un-ID sta repeating 3TT (X3) 7410T (X3) in CW at 1204 (Bob Margolis, IL).

10256: YL/GG in AM-mode at 1922 passing 3/2F grps (Charret, FRG).

10384: OM/RR in AM-mode at 2012 w/5F grps (Charret, FRG).

10588: WGY908, FEMA Denver, & WGY948, FEMA Bismarck, ND closing weekly net, USB at 1516 (J.M., KY).

10599: CW xmsn of 5F grps at 0405, used cut 0's, each grp X2. Hi speed machine-sent (Kneitel).

10644: Beacon P in CW at 0311 (Szalony, CA).

10646: Beacon O in CW at 0029 (Szalony, CA).

10780: Cape R., clg **USS Stark** to QSY 5180 kHz USB at 0220 (Kelly, MA).

10788: NMB, USCG Charleston, SC advising a cutter w/tactical ID of L8X to arrest an individual wanted by a FL sheriff. USB at 1848. L8X passed names & SSN's of several persons (J.M., KY).

11055: SAM 130 enroute Elmendorf & Yokota in contact w/SAM CP w/spare parts request, USB at 1730 (Willmer, MI).

11176: SAM 130 w/Mainsail passing tfc, USB at 1638 (Westinghouse, MA); USAF Rescue 4852 wkg Ascension in USB w/patch re pregnant passenger (Symington, OH).

11200: RAF VOLMET at 0300, USB (Kelly, MA).

11234: Fandango in USB at 1936 w/patch thru Gun Shop to Fire Opal on SAC Alpha freq (Willmer)

11267: 6LT clg U5C for radio check but no reply, then tried clg 5PW w/o luck. Finally a response from F6H, 0042 in USB (Kelly, MA).

11300: SUC, Cairo, Egypt in USB at 1845 wkg Khartoum (O'Connor, NH).

11396: Guyana 715 to San Juan w/pos report, USB at 0052 (Sabo, CA).

11528: Un-ID sta at 1455 in scrambled USB (Kelly, MA).

12123: Skippers of vessels chatting in USB at 0444. One was apparent sailing yacht w/talk of rigging hardware, sails, masts, etc. (Sabo, CA).

12138: Slingshot ant-smuggler sta advising he was going back to scan, USB at 1624. This freq not previously noted in use (J.M., KY).

12267: WUI2, Army Engineers, Little Rock, AR; WUH4, Omaha, NE; WUJ3, Portland OR; WUJ5, AK;

WUO4 un-ID in USB comms at 1500. Switched to 16077 (Channel 13) at 1515 & picked up WUG3, Vicksburg, MS & a vessel w/callsign AEPD (J.M., KY).

12315: NDVW, **USS Nashville** ending HF xmtr tests w/Norfolk SESEF & going to UHF 274.8 MHz. Was USB at 1351 (J.M., KY). **USS Pasadena** w/test count to Norfolk SESEF at 1653 on USB, QSY 7535 kHz at 1655 (Margolis, IL).

12343: NMG, USCG New Orleans, LA asking an un-ID cutter to QSY 11162.8 kHz, USB 1335 (J.M.)

12648: KJDG, tanker **Tonsina**. AD: Keystone Shipping Co., P.O. Box 1589, Phila., PA 19105 (McDonald, BC).

12857: 6WW, Dakar Navrad, Senegal w/VVV marker in CW at 0425 (J.M., KY).

13040: KLC, Galveston R., TX w/Gulf & Carib wx bc in CW at 2340 (Walton, CA).

13196.9: NIKL, **USCGC Tampa (WMEC-902)** in USB at 1822 asking Miami re spare parts (Willmer)

13247: Cork Jar wkg Eight Amp & Zanzibar on Channel W-109 w/refs to W-105 as secondary, USB at 1930. Another day logged Tuna Fish, Cigar Box, & Gun Metal here w/refs to W-101, USB at 0207 (Sabo, CA).

13282: KMV70, Honolulu VOLMET, HI in USB at 0458 (Szalony, CA).

13450: YL/SS w/5F grps at 0710 (Winan, IL).

13457: A wire svc reporter on board AF-1 dictating his story to someone at Crown (WHCA). Patched thru Andrews. USB at 1354 (Margolis, IL).

13608.6: NRT3, Iwo Jima LORAN wkg NRV, Guam in USB at 0659 (Sabo, CA).

13637: Beacon K in CW at 0303 (Szalony, CA).

14373.5: 5F grps in CW w/cut #'s at 1211. Letters used were TMGIDRANWU (Kneitel, NY).

14441.5: NNNOCNE, **USS England (CG-22)** clg any W. Coast MARS sta at 0025; NNNOCWP, **USS Fife (DD-991)** wkg NNNONUW; NNNOCUY, **USS Illusive (MSO-448)** clg any stateside MARS sta at 0035 (this sta not hrd in years); NNNONCJ, **USCG Training Barque Eagle** wkg NNNONBL at 2345, The MARS sta aboard the **Eagle** is rarely used (Gordon)

14461: FHwA net in USB w/WWJ40 in Washington, DC as NCS wkg DOT & FHwA stas: WWJ74, Cadillac, MI; WWJ77, Brownwood, TX; WWJ92, Redding, CA; KWB407, DOT Durango, CO; KWB406, DOT Ames, IA; WWJ82, Grand Isle, NE; WWJ50, Newport, OR. Hrd 2131-2153. All stas have been QSL'd (Symington, OH).

14470: NNNOCAK, **USS Underwood** MARS wkg NNNOPRQ w/patch at 2259; NNNONXT, **USS Fearless** w/patch at 2308 thru PRQ (Symington)

14476: Beacon U in CW at 2357 (Szalony, CA).

14686: Shark 02 in USB at 2231 w/patch via Atlas to 395 re spotting vessel near Key West, FL. Believed to be running drugs as had been previously boarded & drugs confiscated (Willmer, MI).

15031: DHM95, Lahr Military (Canadian Forces), FRG asking CHR to meet a/c UN303A on 15035 kHz. Hrd at 1832 in USB (J.M., KY).

15046: JJF, Tokyo Navrad, Japan wkg 8YP in EE & JJ, then scrambled. USB at 0539 (Sabo, CA).

16270: SSB comms in SS between Commando Antarctico Argentino & mainland Argentina, vio LPL, Gen. Pacheco R., Buenos Aires. Hrd 3 dates at times ranging between 1533-1646 (Benevolo, Brazil).

16339: 7RY60, Angerian Embassy, Bonn, FRG w/CW telexes in FF to 7RV80 in Berlin (Margolis).

16362.7: KKN50, DoS Washington, DC in CW w/marker at 1840 (Szalony, CA).

16463.1: Ship **Al Attared** in USB at 1849 wkg GKT62 (O'Connor, NH).

16911.2: JNA, Tokyo Navrad, Japan clg CQ in CW at 1155 (Kneitel, NY).

17016: Beacon C every 2 secs in CW at 1902 (O'Connor, NH).

17016.2: Beacon P every 2 secs in CW at 1903 (O'Connor, NH).

17194.4: PPR, Rio de Janeiro, Brazil in CW w/marker at 0410 (O'Connor, NH).

17081.6: JFA, Matsudo R., Japan in CW calling CQ at 1200 (Kneitel, NY).

17332: PPL, Belem R., Para, Brazil in SSB 2126 w/PP comms w/PPYB, vessel **Brotas**. Due to QRM, tried 5 other 8 & 12 MHz freq pairs! AD for PPL: EMBRATEL, Avenida Presidente Vargas, 1012, 20071 Rio de Janeiro RJ, Brazil. AD for PPYB: PETROBRAS, Avenida Repuplico do Chole, 65, 20031 Rio de Janeiro RJ, Brazil. Vessel was near French Guiana enroute USA (Benevolo, Brazil).

17760: Un-ID sta here senting T's in CW at 1950 (Balogh, ON).

18018: Architect at 0200 in USB reading off list of UK cities w/4F grp after each (Kelly, MA).

18245: YL/SS in SSB at 2110 running 2/1/2F grps. Similar groups this freq another date by OM/SS. Opr chatter was "adelante" (go ahead), "continuo" (I follow), & "coincidiu?" (did it match?) (Benevolo, Brazil).

18666: Atlas, Washington, DC w/Flint 701 in USB at 1918 for anti-smuggler ops (A. Nonymous).

18735: OM/SS at 1932-1942 w/5L grps. Op chatter included "repita" (repeat), "cambio," (over), "por favor, debido a que esta llegando muy mal repita grupos despues WWLHS grupo por grupo" (since reception is very bad, please repeat groups after WWLHS group by group) (Benevolo, Brazil).

18980: SSB comms in SS between LOL, Buenos Aires, & Bolivar R. (Venezuela), Quito (Ecuador), & Inca (Peru) w/coded tfc. Stas also operated w/Radio Net Uno (location unknown) & R. Balboa (Panama) on 19980 kHz, also RTTY 22771 kHz RTTY (Benevolo, Brazil). This is the Inter-American Naval Communications Network-- Ed.

18993.5: SPW, Warsaw R., Poland, w/CW marker at 1347. Was between their ARQ & FEC xmsns (Margolis, IL).

19050: SAM 971 in USB at 1737 in contact w/Andrews AFB. Possible new Mystic Star freq (Willmer, MI).

19155: 12-note musical marker, split into 2 phrases (7 notes & 5 notes), on AM-mode 1205 (Margolis, IL).

19157: EHY78, PTT Madrid, Spain w/LSB comms at 1230 (Margolis, IL).

19244: A3P w/5L grps in CW at 1822 (J.M., KY).

20192: Peterson AFB, CO w/LSB tfc at 1552 (Margolis, IL).

20346.5: D6B403, PTT Moroni, Comoros w/LSB patches at 1900 (Margolis, IL).

20466.8: BPA in CW at 1514 w/marker consisting of run-on string of 0's, mostly 0's (Margolis, IL). BPA is Urumqui, PRC-- Ed.

20490: AQP, Karachi Navrad, Pakistan w/Navareas in CW at 1405. ID's as AQP2/4/6/8/10 (Margolis, IL).

20600: SSB comms in SS & PP at 1900 between Bolivian AF & Brazilian AF Depts (locs of both stas not known). Flite plan submitted (Benevolo, Brazil).

20885: CPP67, USMAAG Bolivia in LSB at 2040 wkg AHF4 (Panama) w/patch (Symington, OH).

20969.9: CFARS net w/CIW202, CIW608, & VXV9 in USB at 2132. Gud sigs for all despite woodpecker QRM, which was mentioned by all stas (Sabo, CA).

20994: US Army MARS net w/AAT7ME wkg un-ID overseas sta w/patch, USB at 2125. Really poor sigs (Sabo, CA).

21919: WGY908, FEMA Denver, CO w/msg for WGY912, FEMA Berryville, VA. In USB at 1727 on FEMA freq F-61 (J.M., KY).

22398: JNA, Tokyo Navrad, Japan w/VVV marker in CW at 0004 (Kneitel, NY).

22446: EAD6, Aranjuez R., Spain in CW at 1210 w/marker (Symington, OH).

22973: GPB7, Portishead R., England w/CW marker at 1600 (Margolis, IL).

23287: K90 w/"no further tfc" for un-ID sta, USB at 1527 (J.M., KY).

23642: KWS78, US Embassy, Athens, Greece clg KWN98 at 1429. Call sent w/ZZM3 KWS78 ZUJ? (Margolis, IL).

23975: KKN50, DoS Washington, DC in CW at 1735 w/marker (Ross, ON).

25329: FUM, Tahiti w/VVV marker in CW at 1729 (Ross, ON).

25390: GKE, Portishead R., England w/CW marker at 1702 (J.M., KY).

25775: EAD/EDF/EDZ, Aranjuez R., Spain w/CW marker at 1935 (Margolis, IL). **PC**

EQUIP-tips

Tips from the expert on boosting the performance of your radio equipment.

By Bob Grove
WA4PYQ

Boost the Range of Hand-Helds

Today's hand-held VHF/UHF scanners and handie-talkies from Bearcat, Regency, Cobra, and Radio Shack, ICOM, Yaesu, and Kenwood have excellent sensitivity and talk power, but their range is reduced by their short flex antennas.

Tip: To increase the range of your hand-held scanner or transceiver, connect a Grove ANT-8 extendable whip antenna, equipped with standard BNC base.

PIRATES DEN

FOCUS ON FREE RADIO BROADCASTING

BY EDWARD TEACH

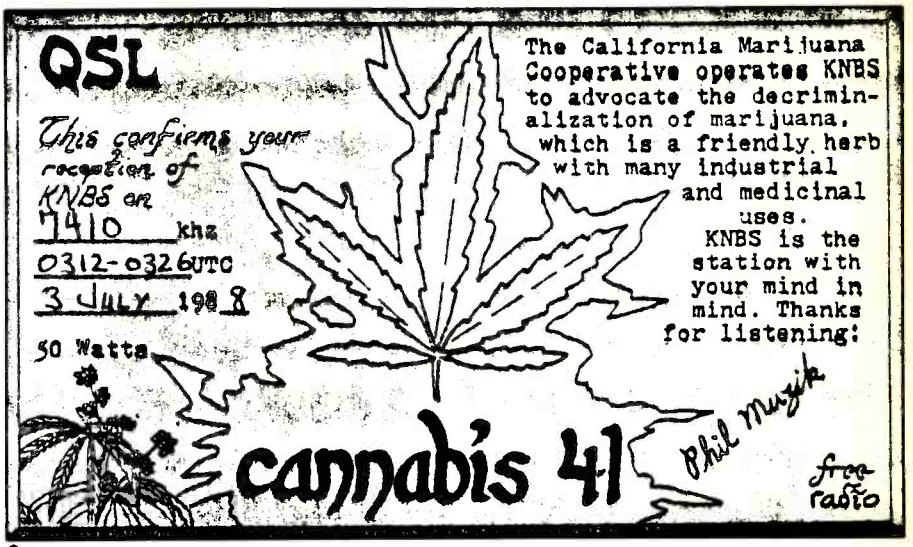
Radio Morainia is an apparently new shortwave pirate, at least to me. Dan Spooner in Massachusetts heard this station at 2321 on 7415. The broadcast included humorous songs, "news" reports and, says Dan, a great bit about "Morainia's" principal industry—chocolate mining. Dan says the announcer sounded like a Canadian and made references to "shipping chocolate south to the U.S." QSL" requirements were also given. Reports must be in Morainian time (GMT minus 53 seconds), frequency to the nearest 3 Hertz, the reporter must provide a detailed, 20 page report on the broadcast, photos and diagrams of the receiving installation and include antenna length to the nearest inch. Address given was: Pirate Radio Network, U.P.O. Box 3114, Kingston, NY 12401. The station indicated that it was part of the Pirate Radio Network which was announced as also including Radio Clandestine, the Voice of Communism, Radio No and Official Radio. The last two are new ones to this column. Fourteen minutes after the broadcast ended Dan heard Radio Clandestine sign on (on 7419) with the same announcer who closed the Morainia broadcast. This person, notes Dan, is not the announcer he's heard on Radio Clandestine in the past so Dan wonders if Radio Clandestine is being pirated. Fill us in if you learn more, Dan. Has anyone heard the other two—Radio No and Official Radio?

Incidentally, Fraser Bonnet in Ohio has information from a friend which confirms the above address for Radio Clandestine. Remember, there was a period when this station was announcing no address.

In Virginia Pat Murphy has heard **WKZP**—K-ZAP on 7414.5 at 2145. The program included rock and humorous commercials. Pat says the echo on the announcer's voice made it hard to understand (when will they learn, eh?) Pat noted the signal sounded "suspiciously similar to WKND." Fraser Bonnet also had the station with rock and parodies to 2231 sign off. Address announced as WKZP Radio, 3007 R., 4th Ave., Beaver Falls, PA 15101.

Still another new one is **Free Radio One**, heard by Fraser Bonnet on 7415 intermittently between 0048 and 0210. The signal was distorted and muffled but Fraser did copy the address, read several times by a female announcer, as: Free Radio One, 3434 North Pacific Highway, Medford OR 97501.

World Mission Radio, from on board the Radio Caroline ship, was heard by Dean Burgess in Massachusetts a couple of times on 6215, from 0015 to 0055 with gospel and names of people who had written the station. They were also asking for letters and giving the usual address of P.O. Box 3416, Corona, CA 91719.



Pat Murphy in Virginia recently QSL'd KNBS—Cannabis Radio, a station with an oddly placed sense of humor.

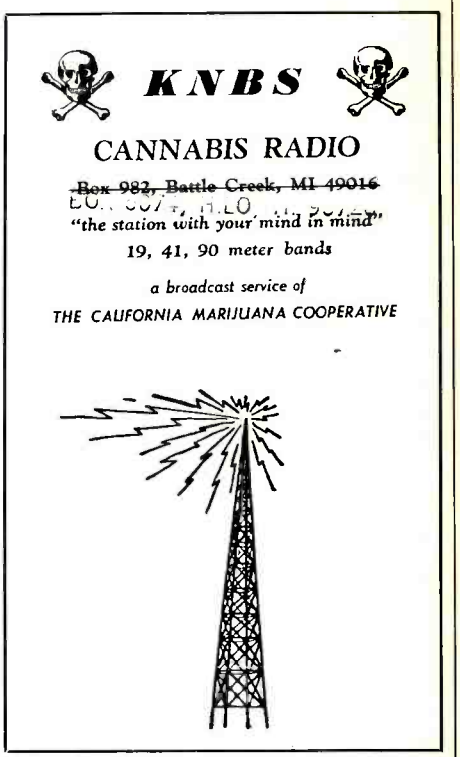
Richard Moore in Pennsylvania sends a press clipping about a former Philadelphia man fined over $300,000 and sentenced to 5 years in federal prison for mail fraud and perjury in the financing of a "Radio Carolina" (sic), back in 1981-82. The station was identified as a "pirate radio ship to resume operating in the (English) Channel." Quite obviously the station involved here is Radio Caroline.

Dan Spooner has heard a couple of other pirates recently. **Radio USA** on 7415 at 2204-2232 using "triple sideband" and running a T-shirt contest and giving the Hilo maildrop. Also **KNB Weekend Radio**, 6241 with rock from 0416-0439 but no talk or QSL address. Any relation to WKND, I wonder? Dan also heard WENJ on 1620 at 0300-0454 sign off, ID'ing as "WENJ, the Cadillac of pirates." They announced 1.5 kilowatts and said they would be off the air until the fall.

Dan says he got a letter from Curtis of **Radio Free Texas** noting that he'd been busted by the FCC and fined $750. Says Curtis: "If you play you've got to pay!"

The Chief Operator of WROX-FM contacted Fraser Bonnet by phone and told him the station was using a "highly modified" military transmitter and running 50 watts into a 3 element beamed aimed at Fraser's Massachusetts location.

Here's another offer a maildrop service.



P.R.M.S., P.O. Box 6527, Baltimore, MD 21219. The box holder says he has an "extreme interest in listening and QSL'ing pirate radio stations and is very sympathetic to the pirate radio movement."

Steven Clark in California spotted a commercial on TV for "Pirate Radio" on 100.3 FM. Steve tuned in and found the call letters are KQLZ and wonders if this is really a pirate or a legit FM station with an unusual promotional gimmick. It's all a promotional effort, Steven, see POP'COMM for August.

Carol Parrish in Pennsylvania sends a number of "bootleg" loggings of CB operators and other things in such frequency ranges as 27, 47, 123, 151, 155 and 464 MHz., mostly playing music. There's so much of this going on and it's so sporadic and localized I think we'll generally not include such loggings in the column, unless there's something especially unusual or interesting about a log now and then.

After a ten month wait, Pat Murphy got a QSL from **KNBS—Cannabis Radio.** The QSL has the Battle Creek address crossed out and Hilo substituted.

Now you can buy LP records of French pirates. Christophe Bourseiller (Brouillage Records, 15 Rue Miromesnil, 75008 Paris, France) has his own label specializing in such material. He currently has two LPs released, one covering French pirates from 1978-1981, the second covers 1982 and 1983. Additional LPs are in production. You can get information on prices and how to order by writing to the above address.

Remember that I need your pirate radio information—loggings, QSL copies, news clips and so on. If you operate a pirate station please make contact. Readers are very interested in your equipment, programming and future plans. Photos of your installation would be of great interest, too.

Keep those receivers on and keep tuning the pirate frequency areas. There's a lot of action out there! **PC**

WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Allocation of Spectrum in The 216-225 MHz Band

The Commission reaffirmed an August 4, 1988 action in which it: 1) maintained the maritime mobile allocation in the 216-220 MHz band allocation; 2) allocated the 220-222 MHz band on an exclusive basis to the land mobile service for both government and nongovernment operations; and 3) allocated the 222-225 MHz band on an exclusive basis to the amateur service.

Petitions for reconsideration were filed by the American Radio Relay League, Inc., the National Communications Systems (NCS), TV Answer, Inc. (TVA) and about 700 amateur radio organizations and individual amateur radio licensees. The amateur petitioners and NCS objected to the allocation of additional spectrum for land mobile service. TVA requested reconsideration to the extent that the allocation precludes the grant of its petition for rulemaking, which seeks a fixed allocation of one-half mega-Hertz in the 216-222 MHz band for a television viewer-response radio service.

In affirming its previous action, the Commission stated that it was particularly sensitive to the needs and concerns expressed by the amateurs. The FCC noted that the amateur service is vitally important to promote the development of individuals schooled in the radio art, to advance radio technology, and to provide public service, particularly in times of emergencies. Further, the FCC noted the valuable contributions the amateur service has made over the years and stated that it will continue to support this service.

The FCC emphasized that the allocation of the 220-222 MHz band to the land mobile service was driven by the need to provide spectrum for development of spectrum efficient land mobile technology. It noted that the demand for land mobile service has grown consistently for many years and this trend likely would not change in the foreseeable future. The agency believes that an important ingredient in the long-term solution to accommodating land mobile growth is through the implementation of spectrum efficient technologies.

The Commission continues to believe that allocating three megahertz in the 222-225 MHz band to the amateur service on a primary basis, together with other bands allocated to the amateur service, should continue to provide adequately for this service, including its requirements for emergency communications. It noted that amateur bands are located throughout the spectrum and provide for all types of communications. Further, the FCC noted that a number of these bands support amateur operations similar to those on the 220-222 MHz band. Specifically, the amateur service has allocations in the 28-29.7 MHz, 50-54 MHz, 144-148 MHz, 222-225 MHz, 420-450 MHz, 902-928 MHz and 1240-1300 MHz bands.

The Commission continues to believe that it will be possible to reaccommodate the operations from the 220-222 MHz band to the 222-225 MHz band. However, it recognized in some areas, particularly Southern California, the re-accommodation process will be more involved than other areas. In this regard, the American Radio Relay League (ARRL) suggests that the agency might might have considered a secondary allocation in the 216-220 MHz band as replacement spectrum for displaced amateur users at 220-222 MHz. The Commission stated that the ARRL may, if it so chooses, submit a petition making a specific proposal. However, the Commission did note there are potential concerns about the use of the spectrum by the amateur service and that additional justification would need to be provided in any petition that may be submitted.

The FCC also received a request for oral argument from the ARRL. This request was denied. The Commission noted that it is not its policy to routinely grant oral arguments in rulemaking proceedings, particularly in proceedings that have a full written record as in the case of this proceeding. Further, the FCC noted that oral *ex parte* presentations may be made to the Commissioners during the course of the rulemaking proceeding. In this proceeding a number of such oral *ex parte* presentations were made to each of the Commissioners, including several presentations by the ARRL.

As to TVA's petition, the FCC concluded that an allocation of 0.5 MHz to the fixed service in the 220-222 MHz band would undermine the intent of the allocation to the land mobile service, which is to foster the development of the narrow band technologies. The FCC believes that such an allocation would impede and even discourage manufacturers from making significant investments in the technical development of narrow band technologies. Accordingly, the FCC denied TVA's petition with regard to an allocation of 0.5 MHz for the fixed service in the 220-222 MHz band. An allocation below 220 MHz will be considered in a separate proceeding.

FCC Reorganizes The Amateur Rules

Because technological advances and operational changes have made the current Amateur Radio Services rules difficult to apply to modern amateur radio communications, the Commission reorganized Part 97 of its rules to create a regulatory environment designed to encourage modern techniques, technology and uses of amateur radio.

Specifically, the FCC revised and reorganized Part 97 in order to make the amateur service rules easier to understand and to provide a foundation which future advancements in communications can be incorporated into the amateur service. The Commission also deleted unnecessary, obsolete and redundant rule provisions.

The Amateur Radio Services consist of the amateur, amateur-satellite and radio amateur civil emergency services (RACES). The amateur service exists for the purpose of self-training, intercommunications and technical investigations carried out by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interests.

Prior to this action, Part 97 had not undergone a major restructuring since 1951 when most communications systems in the service were using high-frequency, hand-keyed telegraphy and amplitude modulated telephony. Since then, a number of emerging technologies, such as single-sideband and frequency modulated telephony, VHF and UHF repeaters, radioteleprinting, satellite transponders, digital communications, television, etc., have become popular with amateur operators. While rules have been modified or added to accommodate these technologies, the result has been a patchwork quilt of rules surrounding an antiquated structure that is often confusing, particularly to a prospective licensee.

Part 97 has now been restructured into a format consisting of six subparts and two appendices. These are: 1) Subpart A, General Provisions, which contain those rules concerned with license and station location requirements; 2) Subpart B, Station Operation Standards, which is comprised of those standards that apply to all types of amateur station operation; 3) Subpart C, Special Operations, which contains the requirements that apply to non-standard operations such as beacons, repeaters, and the amateur-satellite service; 4) Subpart D, Technical Standards; 5) Subpart E, Providing Emergency Communications, which contains the rules applicable to operations in distress and disaster situations, along with radio amateur civil emergency service; and 6) Subpart F, Qualifying Examination Systems. Appendix 1 lists the geographic areas where the amateur service is regulated by the FCC, and Appendix 2 lists volunteer-examiner coordinator regions.

The new rules combine the rules that per-

tain to an amateur station providing emergency communications with the rules that govern RACES stations. They do not, however, change the basic principles of purpose of the amateur service in the United States. Also unchanged is the "quiet hours" rule imposing restrictions, as necessary, on the operation of amateur service stations to eliminate interference to home entertainment equipment.

The general prohibition against amateur stations transmitting communications as an alternative to other authorized radio services has been classified to permit emergency communications to be provided. The new rules also permit the use of amateur stations to provide communications that relate to the public's safe observation and participation in parades, marathons, or similar public events, if the principal beneficiary of such communications and any benefit to the event's sponsor is incidental. Communications relating to the buying and selling of amateur station apparatus is also permitted as an exception to the general prohibition against business communications. The exception expressly forbids such communications by those seeking to profit from such sales or purchases on a regular basis. Another exception is for communications that assist journalists in filing reports. Such reports, however, must not detract from the efforts of other stations that are actually engaged in providing emergency communications.

With respect to operator license examinations, the Commission codified the policy that a telegraphy receiving test alone is adequate proof of both sending and receiving ability. A knowledge of all the telegraphy characteristics, however, is basic to sending and receiving texts correctly. The telegraphy message must be a minimum of 5 minutes in duration. Also, the Commission specified the number of questions that must be answered correctly on each written examination, rather than a percentage of correct answers. The new rules also give administering volunteer examiners (VE's) the authority to require expert verification that an examinee with a physical disability requires a reader or transcriber, other than one of the administering VE's. By another rule change, a volunteer-examiner coordinator is not limited to a designated region in the United States.

The new rules retain the "Definitions" section. Some terms used in the amateur service rules have been shortened and simplified. For example, "beacon," "repeater," "Earth station," and "Space station." The Commission also included an exception to the prohibition on international third party communications. The exception states that the prohibition does not apply to a message for any third party who is eligible to be a control operator of the station.

An exception to the time limitation for a RACES drill has been incorporated into the rules where an emergency planning official has specifically approved the drill or test. The good amateur practice requirement has been consolidated with the requirements concerning frequency selection, frequency sharing, and malicious interference. Also, under the new rules, a representative of a foreign government is not barred from holding a reciprocal permit.

With respect to repeaters, the new rules deleted the requirement that operation be discontinued within five seconds after cessation of radiocommunications by the user station. Also deleted was the restriction that a repeater cannot transmit on more than one channel from the same location.

Additionally, the Commission clarified the permissible emission types to be used by amateurs, and codified or clarified many other policies concerning amateurs that have evolved over the years as interpretations of existing rules. For example, it codified the the existing policy concerning state and local regulations governing the height and placement of amateur station antenna structures. The new Part 97 also will include the essential holding of the Commission's limited pre-emption ruling that state and local regulation of an amateur station antenna structure must not preclude amateur service communications. Rather, such regulations must reasonably accommodate those communications and must constitute the minimum practicable regulation to accomplish the state or local authority's legitimate purpose. PC

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Beaming In from page 4

the proposed land mobile stations. With realistic transmitter and antenna height/gain parameters for the land mobile operations authorized, there shouldn't be any interference problems.

Am I wrestling with my conscience about suggesting that land mobile continue to seek relief via the UHF-TV channels rather than in preference to the ham bands? Not really, especially since TV gives every sign of naturally evolving into cable-ization. TV 'casting is primarily a point-to-point activity, with relatively little need for signals to reach portable or mobile receivers. VHF/UHF ham radio is the haven for handhelds and mobile operations. Ham radio by wire would be - uh - the landline telephone.

Granted that land mobile is expanding. But it seems to me that there are still conservative routes that haven't been tried. The educational and emergency benefits of the VHF/UHF ham bands seem, to me, rather a lousy trade-off to make way for industrial communications.

In the meantime, while we are waiting for the entire nation to become fully wired up for cable TV, it wouldn't hurt for hams to make the fullest possible use of all authorized bands above 28 MHz. The less utilized these frequencies are, the more tempting they become to those who would seek to rip them off for other purposes. PC

On The Line from page 63

started spreading across the major cities of the U.S. The news and ads were shipped out from Los Angeles to the distant cities' TV stations via leased data links. This also meant that when the phones went down, so did SilentRadio. At the SilentRadio headquarters in Los Angeles is a newsroom with wire service feeds. Sitting in the newsrooms are editors and technicians putting the headlines together and feeding the ads to all the thousands of SilentRadio display units across the U.S. The whole operation is controlled by a large Pyramid computer. In the early days when money was short the silent radio staff built their own monster computer by tying 20 Apple II computers together. The old monster Apple is still sitting in the computer room.

With thirty cities on SilentRadio, the cost and problems of maintaining thirty 56 Kb leased data lines running was getting to be too much. The answer was to get a satellite channel. SilentRadio now leases a 56 Kb data channel on K2. At each host TV station they have a downlink dish. The system has been on satellite since fall 1988 and besides a small station-keeping accident in late 1988 when a control operator sent the satellite about 1,000 miles off course for a few hours, there have been no problems.

So next time you are waiting in line at the bank and you see a scrolling message that not only tells you the interest rate, but the baseball scores, you will be looking at SilentRadio. PC

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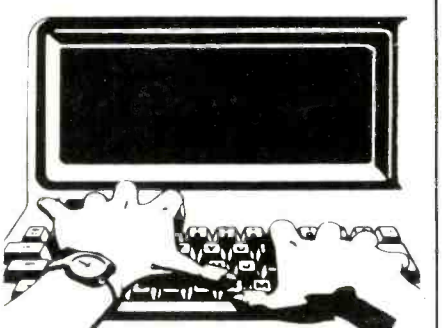

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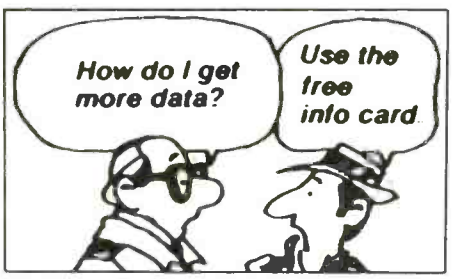

"The Largest Dealer of Scanners in the World"

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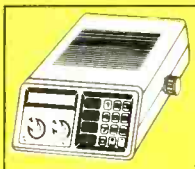


— SPECIAL —

Regency®

MX-3000

Special $149.99

($7.00 shipping)

30 CHANNELS—MOBILE/BASE

—SCANNER WORLD EXCLUSIVE—

Features include simple programming of the following frequency ranges: 30-50 MHz, 144-174 MHz, 440-512 MHz. Digital display, priority, search, lockout, delay, dim control, top mounted speaker, one year factory warranty. Includes AC & DC cords, mobile mounting bracket, telescopic antenna. All for only ~~$154.99~~ plus $7.00 shipping (optional extended warranty: 3 years $39.99; 2 years $29.99.) MX3000 Service Manual $5.00.

Regency® Z60

60 Channel Automatic Programmable Scanner

Includes Public Service and Aircraft Bands

Scanner World Special

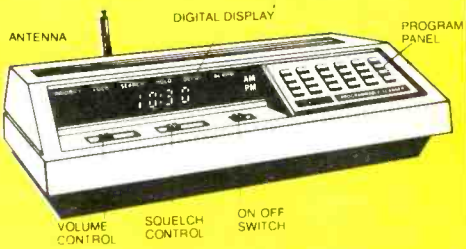
$109.99

(plus $7.00 shipping each)

Optional Accessories:

Cigarette Lighter Plug RGMPC . . . $4.95

Z Mobile Bracket — *Special* . . . $5.99



The Regency Z-60 is a compact, programmable 60 channel, multi band, FM monitor receiver for use at home or on the road. It is double conversion, super heterodyne used to receive the narrow band FM communications in the amateur, public safety and business bands. 30-50, 118-136, 144-174, and 440-512 MHz. Size 10¾"Wx2-7/8"Hx8-3/8"D.

Sophisticated microprocess-controlled circuitry eliminates the need for crystals; instead, the frequency for each channel is programmed through the numbered keyboard similar to the one used on a telephone. A "beep" acknowledges contact each time a key is touched. The Z60 scans approximately 15 channels per second.

Any combination of channels can be scanned automatically, or the unit can be set on manual for continuous monitoring of any one channel. In addition, the search function locates unknown frequencies within a band.

Other features include scan delay, priority and a bright/dim switch to control the brightness of the 9-digit Vacuum-Fluorescent display. The Z60 can be operated on either 120VAC or 12 VDC. Includes one year warranty from Regency Electronics (optional 3 yr extended warranty only $39.99, gives you a total of 4 yrs complete warranty or 2 yr extended warranty only $29.99, gives you a total of 3 yrs complete warranty.)

Cobra SR-15

$199.99 *($7.00 shipping)*

100 channel pocket sized hand-held scanner (6"Hx1"Dx2¾"W), no crystal, portable scanner, 29-54 MHz, 118-174MHz, 406-512 MHz, bank scanning, backlit LCD display, automatic search, lockout, scan delay, priority, key lock, plus much more. Includes rubber antenna, rechargeable Ni-Cad battery pack, AC adapter charger, earphone, and carry case, optional cigarette lighter adapter #15MPC $12.99

BEARCAT 100-XLT Hand-held 100 Channel	$199.99	(7.00)
BEARCAT 70XLT Programmable Hand-Held	169.99	(6.00)
BEARCAT 55XLT Programmable Hand-Held	119.99	(5.00)
AD100U AC Adapter/Charger for 50 XL/55XLT	12.95	(*)
BP55 Ni-Cad Battery Pack for 50XL	13.99	(*)
VC001 Carry Case for 50XL/55XLT	11.99	(7.00)
PS001 Cigarette Lighter Adapter for 50XL/100XL/100XLT	12.95	(*)
BEARCAT 140 AC Programmable Scanner	94.99	(5.00)
BEARCAT 145XL AC Programmable Scanner	98.99	(5.00)
BEARCAT 175XL AC Digital Scanner	159.99	(5.00)
REGENCY TS-1 Turbo Scan AC/DC	169.99	(7.00)
REGENCY TS-2 Turbo Scan 800 AC/DC	274.99	(8.00)
BEARCAT 210 XLT AC/DC Digital Scanner	189.99	(7.00)
BEARCAT 800 XLT AC/DC Digital Scanner	264.99	(7.00)
REGENCY MA-257 Cigarette cord for HX1000/1200	16.99	(7.00)
REGENCY MA-917 Ni-cad Battery for HX1000/1200	24.99	(*)
REGENCY HX-CASE Hvy Leath. case for HX1000/1200	19.99	(*)
REGENCY MA-549 Drop in charger for HX1000/1200	29.99	(5.00)
REGENCY MX-3000 AC/DC Digital Scanner	149.99	(7.00)
REGENCY Z-60 AC/DC Digital Scanner	109.99	(7.00)
Mobile Mounting Bracket for Z Scanners	5.99	(*)
REGENCY RH-256 High Band Transceiver w/Ant	329.99	(9.00)
REGENCY UC-102 Hi-VHF Hand Transceiver	124.99	(5.50)
REGENCY RH-606B High Band Transceiver w/Ant	469.99	(9.00)
REGENCY R806 AC/DC Crystal Scanner	79.99	(6.00)
REGENCY INF-3 AC Informant Receiver	139.99	(7.00)
REGENCY INF-5 AC Informant Receiver	119.99	(7.00)
COBRA SR15 100 Channel Hand-Held	199.99	(7.00)
COBRA SR12 Digital Hand-Held Scanner	189.99	(6.50)
COBRA SR10 Digital Hand-Held Scanner	124.99	(6.00)
COBRA SR900 AC/DC Digital Scanner	104.99	(5.00)
COBRA SR925 AC/DC Digital Scanner	99.99	(7.00)
Book "Top Secret Registry of Gov't Frequency" 6th	14.99	(3.00)
Book "Covert Intelligence, Electronic Eavesdropping"	8.95	(*)
Book "Betty Bearcat Frequency Directory"	7.99	(*)
Book "Rail Scan Directory"	7.95	(*)
Book "Air Scan Directory"	12.95	(*)
RCD MRP-1 Single Channel Hand-Held	38.99	(3.00)
FANON M8HLU DC Crystal Scanner	89.99	(5.00)
FANON PSK-1 AC Adapted for M8HLU	12.99	(*)
REGENCY HX-1500 Hand-held Scanner	199.99	(8.00)
FOX Mounting Bracket for BMP-1060	9.99	(*)
ANT-1 Magnet Mount Mobile Scanner Antenna	29.99	(3.00)
ANT-6 Base Scanner Antenna w/50' cable	29.99	(4.00)
REGENCY CB-ONE CB Radio	34.99	(5.00)

UNIDEN Bearcat BC-600 XLT

$199.99 *($7.00 shipping)*

Digital Programmable 100 Channel Scanner

BC-600 XLT covers the following frequencies: 29-54 MHz, 118-174 MHz, 406-512 MHz. Features compact size of 6-5/16"Wx1-5/8"Hx7-3/8"D, scan delay, priority, memory backup, channel lockout, bank scanning, key lock, AC/DC power cords, telescopic antenna, mounting bracket supplied, one year factory warranty, search, direct channel access, track tuning, service search including pre-programmed frequencies by pushing a single button for police, fire, emergency, aircraft, weather and marine services. Plus exclusive optional features never available on any scanner before. First is an RF receive amplifier for boosting weak signals for only $24.99 plus a CTCSS tone board is available for only $59.99 to make this the number one scanner available in the USA. Optional cigarette lighter plug #600MPC $4.99

BEARCAT BC-950XLT

Same features as BC-600XLT but also receives 800-954mhz.

$249.99 *($7.00 shipping)*

BEARCAT 70XLT

20 CHANNEL HAND-HELD SCANNER

Small size 6"Hx1"Dx2¾"W, full digital readout, priority, search, channel lockout, scan delay, key lock. Covers following frequencies: 29-54mhz, 136-174mhz, 406-512mhz. Package includes rubber antenna, rechargeable Ni-Cad battery pack, AC adapter/charger, and carry case.

SPECIAL PACKAGE DEAL **$169.99** ($6.00 shipping each)

SCANNER WORLD EXCLUSIVE UNIDEN BEARCAT BC205XLT

$259.99 *(7.00 shipping each)*

Digital programmable 200 Channel hand-held portable scanner with raised button keyboard for easy programming of the following frequency ranges: 29-54MHz, 118-175MHz, 406-512MHz, 806-956MHz. Features include: Scan delay, memory backup, key pad lock, sixteen liquid crystal display, channel lockout, 10 twenty channel banks, direct channel access, automatic search, full one year factory warranty, 10 priority channels, Ni-Cad battery pack, AC adapter/charger, flexible rubber antenna, carry case are all included. Size is 2-11/16Wx1-3/8"Dx7-1/2" high. (Optional extended 2 yr warranty $59.99, 3 yr extended warranty $79.99).

SCANNER WORLD SPECIAL

COBRA SR-925

$99.99

(plus $7.00 shipping each)

Digital programmable, 16 channel, AC/DC mobile/base, with raised button keyboard for easy programming of the following frequency ranges: 29-54mhz, 118-174mhz, 406-512mhz. Covering aircraft, marine, police, fire, weather, trains, public service, plus much more. Features include: digital display, priority, scan delay, weather button, channel lockout, search, scan speed, automatic squelch, memory backup, one year factory warranty, external speaker jack. (Extended warranty 2 years extra $29.99, 3 years extra $39.99.)

Regency HX-1500 Hand-Held Scanner Package

Deal includes MA-549 Drop in Charger

$199.99 *(plus 8.00 shipping)*

ORDERING INFORMATION

Call (518)436-9606 to place orders by phone or mail orders to ***Scanner World, USA*** 10 New Scotland Av., Albany, NY 12208. Orders will be shipped same day received by United Parcel Service. ***Scanner World*** accepts Visa, MasterCard (COD shipments by United Parcel will be cash or certified checks only). Mail orders with personal or business checks will be held 4 weeks for bank clearance. Orders with cashiers checks or money orders shipped same day received. Prices, specifications and terms subject to change without prior notice. If items are out of stock we will backorder and notify you of delivery date. All shipments are F.O.B. ***Scanner World*** warehouse in Albany, NY. We are not responsible for typographical errors. All merchandise carries full manufacturers warranty. Bid Proposals and Purchase orders accepted only from Government agencies. Free full line catalogue available upon request. New York State Residents add 7% sales tax. Any claims must be made within 7 days of merchandise receipt.

SHIPPING CHARGES

(*) Add ($) per scanner, and $3.00* for all accessories ordered at same time. C.O.D. shipments will be charged an additional $3.50 per package. Full insurance is included in shipping charges. All orders are shipped by United Parcel Service. Shipping charges are for continental USA only. Outside of continental USA, ask for shipping charge per scanner.

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Yaesu has serious listeners for the serious listener.

Yaesu's serious about giving you better ways to tune in the world around you.

And whether it's for local action or worldwide DX, you'll find our VHF/UHF and HF receivers are the superior match for all your listening needs.

The FRG-9600. A premium VHF/UHF scanning communications receiver. The 9600 is no typical scanner. And it's easy to see why.

You won't miss any local action with continuous coverage from 60 to 905 MHz.

You have more operating modes to listen in on: upper or lower sideband, CW, AM wide or narrow, and FM wide or narrow.

You can even watch television programs by plugging in a video monitor into the optional video output.

Scan in steps of 5, 10, 12½, 25 and 100 KHz. Store any frequency and related operating mode into any of the 99 memories. Scan the memories. Or in between them. Or simply "dial up" any frequency with the frequency entry pad.

Plus there's more, including a 24-hour clock, multiplexed output, fluorescent readout, signal strength graph, and an AC power adapter.

The FRG-8800 HF communications receiver. A better way to listen to the world. If you want a complete communications package, the FRG-8800 is just right for you.

You get continuous worldwide coverage from 150 KHz to 30 MHz. And local coverage from 118 to 174 MHz with an optional VHF converter.

Listen in on any mode: upper and lower sideband, CW, AM wide or narrow, and FM.

Store frequencies and operating modes into any of the twelve channels for instant recall.

Scan the airwaves with a number of programmable scanning functions.

Plus you get keyboard frequency entry. An LCD display for easy readout. A SINPO signal graph. Computer interface capability for advanced listening functions. Two 24 hour clocks. Recording functions. And much more to make your listening station complete.

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FRG-9600 SSB coverage: 60 to 460 MHz.

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NEW RZ-1 Wide-Band Receiver.

Hear it All!

R-5000
R-2000
High performance receivers.

Scan the entire frequency range from 100 kHz to 905 MHz with Kenwood's R-5000, R-2000 and RZ-1. Listen in on foreign music, news, and commentary. Monitor local police, fire, and other public safety services, as well as the Marine channels, and the many other services 50 MHz and above.

(The VHF converter options must be used in the R-5000 and R-2000.)

R-5000

The R-5000 is a high performance, top-of-the-line receiver, with 100 memory channels, and direct keyboard or main dial tuning—makes station selection 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.

R-2000

The R-2000 is an all band, all mode receiver with 10 memory channels and many deluxe features such as programmable scanning, dual 24-hour clocks with timer, all-mode squelch and noise blankers, a large, front-mounted speaker, 110 volt AC or 12 volt DC operation (with the DCK-1 cable kit), and 118-174 MHz VHF capability with VC-10 option.

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 • **YK-88A-1** AM filter • **YK-88SN** SSB filter • **YK-88C** CW filter • **MB-430** Mounting bracket.

Other Accessories:

• **SP-430** External speaker • **SP-41** Compact mobile speaker • **SP-50B** Mobile speaker • **HS-5** Deluxe headphones • **HS-6** Lightweight headphones • **HS-7** Mini-headphones.

RZ-1
Wide-band scanning receiver

The RZ-1 wide-band, scanning receiver covers 500 kHz-905 MHz, in AM, and narrow or wideband FM. The automatic mode selection function makes listening easier. One hundred memory channels with message and band marker, direct keyboard or VFO frequency entry, and versatile scanning functions, such as memory channel and band scan, with four types of scan stop. The RZ-1 is a 12 volt DC operated, compact unit, with built-in speaker, front-mounted phones jack, switchable AGC, squelch for narrow FM, illuminated keys, and a "beeper" to confirm keyboard operation.

Optional Accessory

• **PG-2N** Extra DC cable

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Specifications, features, and prices are subject to change without notice or obligation.

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