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Scanning the USAF's "Area 51" Mystery Base

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- **How the Military Brass Views Monitoring**
- **Checking Out the GMRS**
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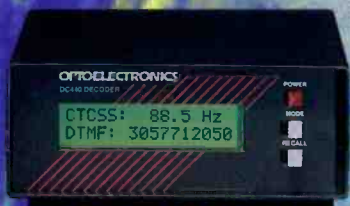
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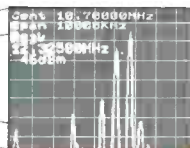
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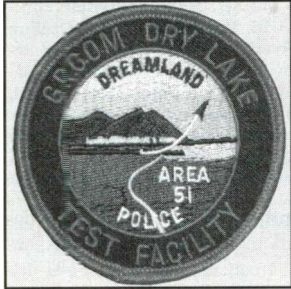
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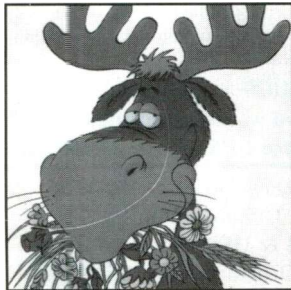
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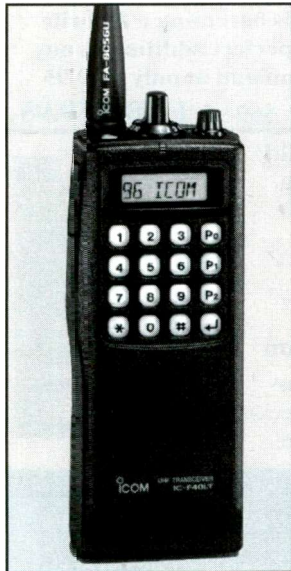
8



48



72



32

FEATURES

Scanning "Area 51" 8

Listen in on the USAF's mysterious test base!
By James A. Williams

Shortwave Curiosities 10

DX shortwave's exotic stations.
By Gerry L. Dexter

POP'COMM Reviews: 17

JPS Communications' NTR-1 Noise/Tone Reducer.
By POP'COMM Staff

Radio: The Press Wireless Era 18

Discover the value of the telegraph service American war correspondents relied on.
By Alice Brannigan

We Review: 23

Radio Shack's PRO-2035 scanner.
By POP'COMM Staff

Who Else is Listening? 24

Army officer discusses the hobby of monitoring military communications.
By Lt. Col. Constantine T. Papas, U.S. Army

COLUMNS

New Products	30
Emergency	32
Books You'll Like	34
Scanning VHF/UHF	36
Telephones Enroute	38
You Should Know	42
How I Got Started	46
The Ham Column	47
Listening Post	48
CB Scene	54
Pirates Den	56
Broadcast DXing	58
Communications Confidential	62
Clandestine Communique	71
Satellite View	72
Handi-Chat	77
Washington Pulse	78

DEPARTMENTS

Beaming In	5
Mailbag	6
World Band Tuning Tips	44
Communications Shop	81

This month's cover: Air Force security officers at the law enforcement desk at Wright-Patterson AFB Dayton, Ohio. Photo by Larry Mulvehill, WB2ZPI.

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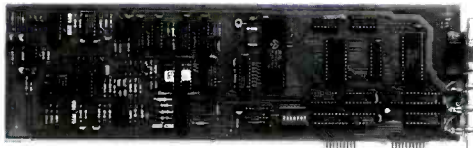
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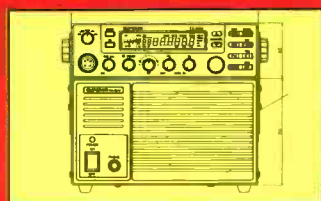
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BEAMING IN

BY TOM KNEITEL, K2AES

AN EDITORIAL

A Curious Dilemma

Last November in the *Telephones Enroute* column, I wrote (in connection with drug sales, etc.), "Cellular carriers that allow their facilities to be repeatedly used for criminal activity do not get into trouble with the FCC...Weigh this against the FCC's...sanctions against broadcasters that carry Howard Stern."

Doug, a reader in Tacoma, sent a particularly well worded letter representative of a number of letters this comment brought. He wrote to say that this jumped right off the page at him. Yes, he did understand the point I was making, "but hold on a minute, pal!" Mostly, he was having major problems with, "allow their facilities to be repeatedly used for criminal activities."

His point was that, upon payment of a fee, cellular carriers allow their facilities to be used for the exchange of information. Period, end of story. It was his opinion that the nature, content, and purpose of that information was nobody's business beyond its sender and receiver. Surely it was no more the business of the cellular company, he felt, than the contents of a First Class letter are the business of the Postal Service. However, with respect to Howard Stern, he acknowledged that broadcast stations were quite another matter inasmuch as there was no question of privacy involved.

Doug didn't believe I could actually want cellular service providers (or wired phone companies, for that matter), to monitor their subscribers' conversations on behalf of the government—at least any more than they want the government doing that job itself. "Without such eavesdropping, on a very large scale," he wrote, "the carriers cannot be liable for the criminal activities of their customers. That is as it should be. Would commercial invasion of whatever privacy we do have be any better than government prying?"

Those who were kind enough to write about my comments kicked open the door to a topic with wide-ranging potentials. The remarks in my column weren't intended to encompass points of ethics, First and Fourth Amendment rights of the subscribers, and other relevant factors brought regarding cellular companies and their relationship with criminal activities regularly using their facilities. Nothing so complex. I was merely commenting upon the FCC's potentials for taking action based solely upon its own existing rules and regulations.

Notwithstanding important moral and Constitutional issues, the FCC has always required all of its licensees to exercise full control over, be responsible for, and accept the penalties for improper operation of

their facilities. The only way a licensee can adequately deal with this responsibility is by monitoring the licensed facilities they control. This is so important that many licensees record all communications just in case they need to defend the integrity of their operations at a later date.

Based on the views of those who objected to the idea that cellular companies might eavesdrop on calls under the pretext of seeking out criminal activity, companies might not be able to meet basic FCC requirements for licensees. Federally licensed communications stations being repeatedly used to facilitate activities regarded as felonies by the federal government sounds like something is out of kilter somewhere.

This isn't a new problem. We found a story on this that ran back in 1988 in the *Fort Lauderdale News & Sun-Sentinel*, a Florida newspaper. The commander of the Broward County Sheriff's narcotics squad said, "Everybody we deal with has them. I mean everybody. A cellular phone is a great tool for drug traffickers, but for us it's a killer. It's the biggest hurdle we've run into."

The head of the Palm Beach County Sheriff's organized crime bureau said, "We've found them almost every time we've made an arrest in the last year."

A spokesperson from the DEA in Florida was quoted as stating, "Initial efforts to do interception were hampered by the fact that the guys were using cellular phones."

Yet, this blatantly illegal use of cellular (and radio paging) facilities continues with impunity from FCC reprisals. In this instance, the FCC has been of no help in the Fed's war against drugs, which is being lost. In passing, I did note in curious counterpoint, that by its continual pressure on stations carrying a popular air personality like Howard Stern, the FCC seems interested in being the only Fed agency safeguarding America's moral integrity. At least, its own perception thereof.

To the best of anyone's knowledge, no cellular or radiopaging company has ever been zapped for permitting facilities to be used for criminal activities. Nobody knows why. FCC Regulation 22.901(a) states that in order to be eligible for holding a cellular license, a company must provide service that is in the "public interest, convenience, and necessity."

FCC Regulation 22.912(a) spells out how a cellular base station licensee is responsible for exercising effective operational control over all of its associated mobile units.

(Continued on page 80)

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MAILBAG

LETTERS TO THE EDITOR

Each month we select representative reader letters for our Mailbag column. We reserve the right to condense lengthy letters for space reasons. All letters submitted 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 N. Broadway, Hicksville NY 11801.

Scannerspace?

As a long-time POP'COMM reader and dedicated scanner enthusiast, I have learned many things from other hobbyists who have shared their ideas. I'd like to pass along information on something I found that should be of use to other readers.

What I've come upon is a computer BBS totally dedicated to us "radio freaks." Based in San Diego, Calif., it's called *The Hertizian Intercept*. Basic services are free, and it operates after about 5:30 p.m. Pacific Time weekdays, 24-hours a day on weekends. It supports all modems from 300 bps to 28,800 bps. Settings are 8NI TTY or ANSI emulation. There are over 100,000 files, and nearly 1,000 public message areas. It even receives WEFAX satellite images that can be downloaded. After a simple log-on, you are part of the system as long as you log-in at least one every 90 days. Enhanced access is available for a small fee.

This BBS may be what many people have been looking for, and (except for the long distance toll charges), the basic BBS is free to use. The Sysop's name is Bill. The number is (619) 578-8247.

Motley Valentine,
Phoenix, Ariz.

Serendipity

Since grade school, SWL'ing, and VHF/UHF monitoring have been my hobbies. On a recent trip to visit my wife's grandmother, I learned that my wife's late grandfather had been a ham operator. After his passing, all of his radio equipment had been stored in the attic. But as my wife's grandmother and uncle were cleaning out the attic, they planned to throw it all out. Upon learning they had the radios but now regarded them as "junk," I told them I'd like to have the equipment. They agreed.

Included was a National NC-57B multi-band receiver in mint condition. Looks to have been manufactured in the early to mid-1940's. The warranty card was still with the set! Turns out the tubes were still good, and the receiver works beautifully. I use it very often.

Also in the treasure trove was a U.S. Army Signal Corps key, Type J-36, in its original box. A hefty pup, and also in great condition. It's dated 1942.

These items have added a bit of nostalgia to my shack. More than that, they remind me that our radio hobby has a rich and important heritage. I like being part of a vital and contemporary hobby with an ancestry dating back before the advent of modern circuitry that made possible the subsequent creation of new communications technologies, media, and hobbies.

Paul Carlsen,
Boise, Idaho

We agree with your view of the hobby's legacy, and it seems many members of the hobby also do. It's the reason for the popularity of Alice Brannigan's writings. The National NC-57B is a desktop (original price: \$100) receiver manufactured only in 1951. It was one of several receivers National marketed that was a slightly modified version of the Model NC-57. The original NC-57 had been sold from 1947 through 1951. The NC-57B version has nine tubes, and tunes from 550 kHz to 55 MHz in five bands. The National Co., based in Mass., was well known over a 50-year span for its many different receivers, used at commercial, federal, military, ham, and SWL stations. The company went out of business in the mid-1960's.—Editor.

Doin' it for Dollars

In the October '94 *Beaming In* you explained why broadcasters changed formats. In particular, you used the example of a floundering classical music station, WNCN/104.3, in New York City. It's owners had recently turned it into hard rock music station, WAXQ (Q-104.3). As a former WNCN listener, I still miss my favorite station, despite your explanation. Is there any evidence that the format change improved its ratings, as the owners hoped?

F. Rafferty,
Forest Hills, N.Y.

The format switch proved the owners right. More listeners now tune to 104.3 MHz since it plays rock music than when it ran a classical format. Hard to believe, since New York City has so many other rock stations. The spring ratings showed a hefty WAXQ weekly audience of 872,200 listeners. This is almost 100,000 more listeners than WNCN had in its last days! The format change was of significant benefit to the station in the important and highly competitive New York City market. Other area stations regard it as a coup.—Editor.

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*The SP 150, PR 150 and the HF 150 shown
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Two or three tier rack mounts, along with a variety of accessories are also available from EDCO. Keypads for the HF150 and HF225, Carrying Cases, Mounting Brackets, and a Computer Control Interface are just a few of the extras which can give you optimum performance of your LOWE product. Contact EDCO for full details.



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Scanning "Area 51"

The USAF's Most Mysterious Test Base: Secret New Spy Planes & Maybe a Couple of UFO's!

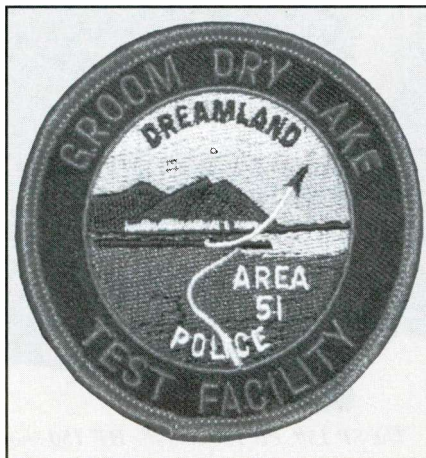
BY JAMES A. WILLIAMS

Area 51 is certainly our nation's strangest and most controversial test site! It's a military aero facility with the longest paved runway in the world (more than five miles in length). Yet, Area 51 is so secret that it isn't shown on aeronautical charts. It isn't shown in any USAF facility directories. Its phone numbers are unlisted. Its access roads are closed and guarded. It's been in operation since 1954, yet, officially, it doesn't seem to exist.

However, there really is an Area 51 test facility. It's near a tiny community named Rachel (pop. 100), Nevada, 120 miles northwest of Las Vegas. Rachel (not shown on most maps) is accessed from State Route 375, after it splits from U.S. Route 93 north of the larger community of Alamo (pop. 250). Area 51's geographic coordinates are 115-53W, 37-15N. Late last year, while standing at the perimeter of the base, CNN's Larry King did a two-hour cable TV special about Area 51.

Area 51, popularly known as *Dreamland*, *S-4*, *The Ranch*, *The Pig Farm*, *The Skunkworks*, *Watertown Strip*, and *The Box*, is specifically located at Groom Dry Lake, in the remote Pappoose Mountain Range of Nevada. This has been the site where spy planes like the A-12, U-2 and SR-71 were tested developed, as well as the F-117A and other secret tactical aircraft. Other exotic new military aircraft, still secret, such as the SR-75 *Aurora* are now on site and undergoing tests.

In addition, Area 51 has long been a primary site where it is reported (or at least often rumored) that the U.S. government is trying to back-engineer alien technologies from several crashed UFO's. Furthermore, there are those who insist that (live or dead) extra terrestrials are at Area 51.



The only place you'll ever want to see this emblem is in your patch collection. Definitely not on the person wearing one.

These factors have drawn considerable attention to Area 51, despite government efforts to maintain the facility's low profile, with back-up on-site military and private security guards. Serious investigators and the casually curious interested in military aircraft technology or UFO's are firmly discouraged from setting foot on posted, patrolled base property. Yet, Area 51 has become somewhat of an open book!

An Open Book, You Say?

Surrounding hills block the view of Groom Lake, and armed ground and helo security patrols, scary "Restricted Area-Deadly Force Warning" signs, among other things are how the USAF lets people know they aren't welcome at this remote desert site.



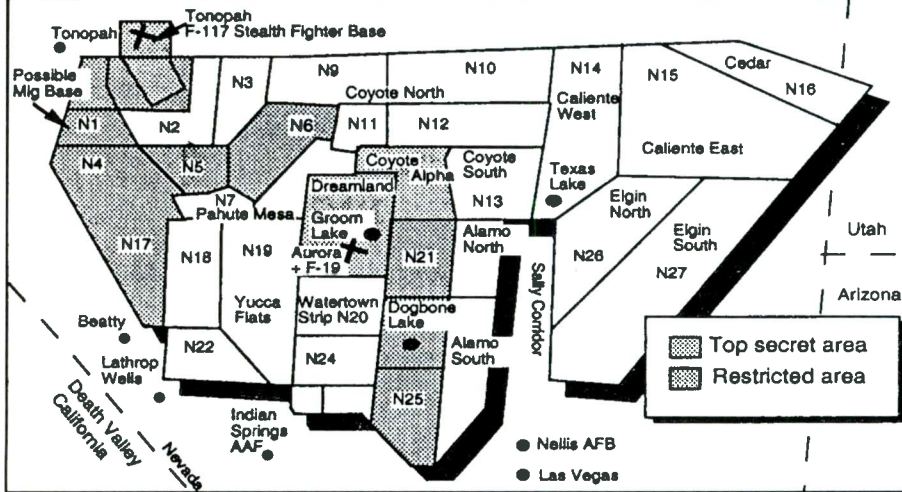
In 1988, a Soviet satellite peered down upon Groom Lake and it looked like this. It has been significantly expanded since then.

This hasn't stopped the large number of people who regularly show up in the vicinity of Area 51, along the public highways, where they don't chase anyone away. Armed with cameras, binoculars, and scanners, people try to catch whatever they can. Scanner owners know that Area 51 needs communications, so scanners let them enter the facility's activities from afar.

Area 51 Groom Dry Lake Test Facility

Roving Security Patrols in vehicles:	142.20 MHz
Security backup frequency:	141.50 MHz
Base Station frequency:	409.025 MHz
Ground Intrusion Sensors:	496.25, 496.275, 496.30 MHz
Video Surveillance Perimeter Cameras:	210.01 MHz
Groom Lake AWACS Frequencies ("Darkstar"):	376.2, 391.8 MHz
Dreamland Frequencies:	118.7, 126.15, 253.4, 255.8, 261.1, 392.1 MHz
Groom Lake 554th Range Group:	238.3, 259.4, 268.2, 293.5, 389.1 MHz
EG&G Co. (Contractor) ("Janet"):	153.05, 464.50, 464.55, 469.50, 469.55 MHz
Project Skunkworks:	252.4, 264.1, 264.6, 275.2, 283.7, 289.4, 292.1, 345.4, 349.3, 379.9, 382.6, 407.40, 407.50 MHz
Unknown use, but reported:	167.70 MHz

Nellis Military Operation Area



Groom Dry Lake, the site of Area 51, is in the center of this depiction of the military operations areas surrounding Nellis Air Force Base, Nevada. (Reprinted with permission from *The Comprehensive Guide to Military Monitoring*, by Steve A. Douglass, published by Universal Electronics.)

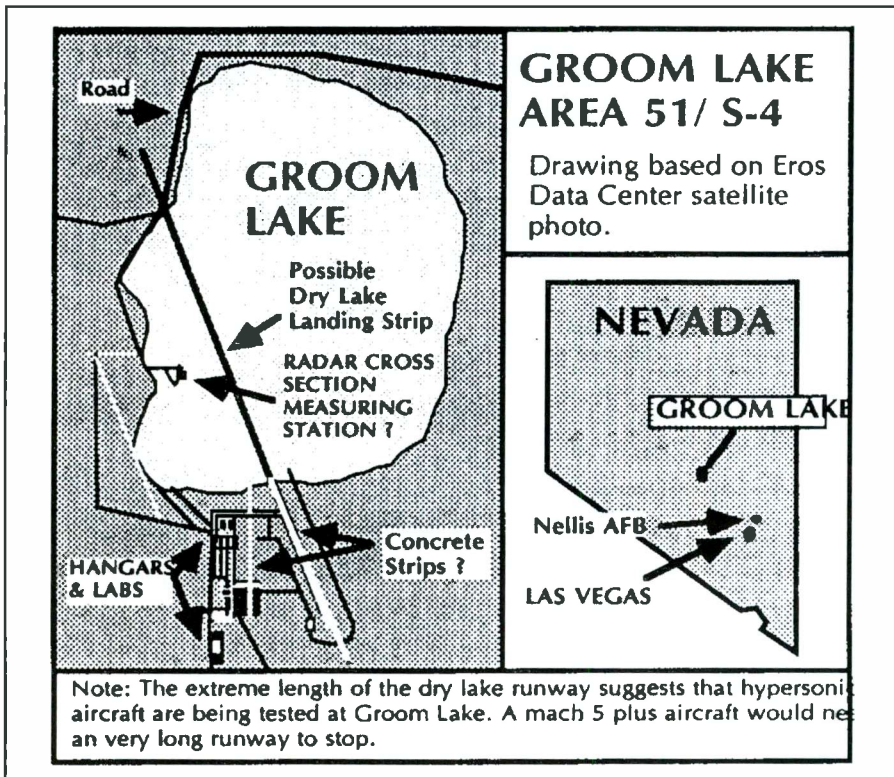
safely and legally, beyond the jurisdiction of security patrols.

Communications that are available to monitor include security forces, flight tests (*Project Skunkworks*), air traffic control, among others.

Some thoughts on bringing a scanner to this place. It's remote, so you will want to bring along some extra batteries, gel packs, or any way of powering the scanner from

your vehicle. Bring a backup power source, just in case the unexpected happens. You may want to bring a tape recorder for some of the transmissions. If so, use a patch cord to run from the scanner's earphone jack into the recorder's mic jack. Avoid holding the recorder's mic up to the scanner's speaker, as the reproduction quality is awful.

If you come up with additional frequencies for Area 51, please let us know! ■



Close-up diagram of the Groom Dry Lake Test Facility. (Reprinted with permission from *The Comprehensive Guide to Military Monitoring*, by Steve A. Douglass, published by Universal Electronics.)

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BY GERRY L. DEXTER

Shortwave is a novelty for most people. For us who tune shortwave bands regularly, the excitement and adventure shortwave offers can get to be a bit old hat now and then. We may get a little tired of the same voices, the same general program line-up, but if you look a little deeper there's almost an unlimited number of stations and broadcasts on shortwave that have an unusual twist to them, a more exotic flavor beyond the easily heard international broadcaster. Or the latest new Peruvian—one of the seemingly hundreds of sound alike or yet another preacher pleading, begging, or screaming at you.

In spirit of "Vive la difference," we've selected a few shortwave broadcasters we feel fall into the category of the unusual or offbeat. Many of these broadcasters will take some serious expenditure of time and

effort to log—in fact, we certainly can't guarantee you'll be successful with all (or any) of them. Also, keep in mind that the tendency of shortwave broadcasters to change frequencies and schedules at the drop of a sunspot means we can't guarantee that the times and frequencies reported here will still be in use. For that matter, not even the existence of the broadcasters can always be assured. Still, you should be able to hear some of them if you decide to give 'em a go!

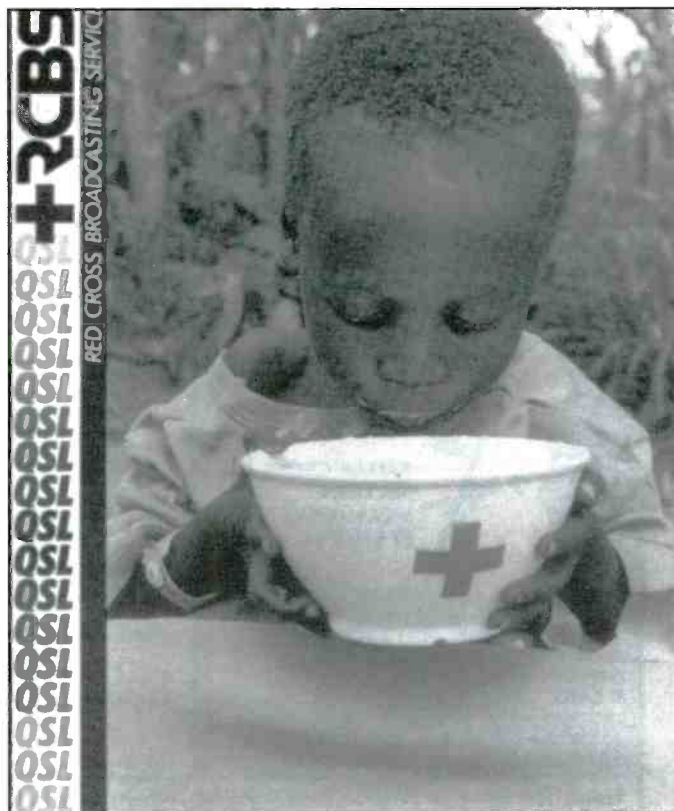
On Guard

Sometimes when a nation sends troops overseas on a military or "peacekeeping" mission, that country's shortwave outlets will carry special programming for the troops, produced and sometimes transmit-

ted by the country's armed forces broadcaster—the national equivalent of our Armed Forces Radio television service. Presently, there are at least two countries involved in such activities.

Australian Defense Forces Radio is broadcasting to Aussie troops serving in Rwanda from a 60 kW transmitter at Northwest Cape Point. The station is on the air from 1700 to 1900 UTC on 10375 (alternate frequencies, one of which might be in use instead, are 10429.5, 10458, or 10650, all using upper sideband mode). There are also broadcasts for Australian troops serving in Malaysia. These are on the air from a 40 kW Navy transmitter located in the Capitol Territory. This is scheduled from 0100-0200, 0430-0630, and 1000-1100 on 15525.

Canadian Forces Radio has a broadcast



↑ The BBC is producing and broadcasting a program for the International Red Cross for those who have lost track of friends and relatives in the former Yugoslavia.

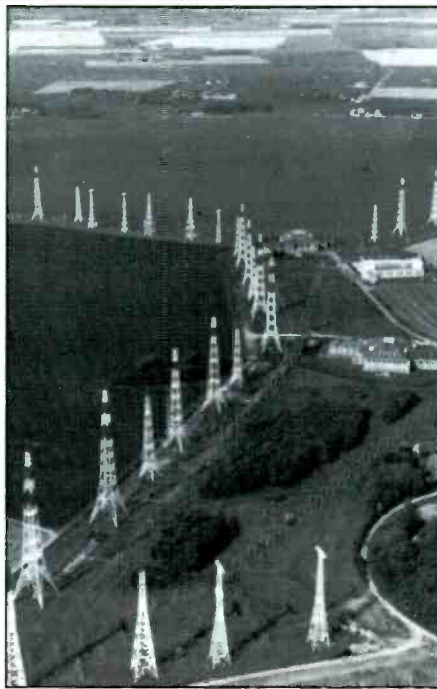
← Radio Ropa, a program service produced in Germany, is being broadcast over transmitters in the Czech Republic.

via Radio Canada International which is on the air in English and French Monday through Friday from 0500 to 6050, 6150, 7295, 15430, and 17840. RCI's Sackville transmitter site carries 6150; the rest are via the BBC's Skelton site in Britain.

One of the few military broadcasters which still operate on shortwave using their own transmitters is in Myanmar (Burma), of all places. The Defense Forces Broadcasting unit operates a 1 kW broadcast station at Taunggyi, in Shan State. For us in North America, the only logging opportunity is during the 1030 to 1330 broadcast period. Programming is in the Bamar language and other local languages. The station has been heard by several DXers in North America, but no QSLs are known to exist, perhaps partly because the station is said to respond only to reports in Bamar!

Argentina is mostly represented on shortwave by the government-owned Radio Nacional/RAE. But if you keep a close watch and get a little bit lucky besides, you can pick up outlets on shortwave. Several such stations use shortwave periodically in order to relay special news or sports programming. Station FM Total uses 4588, a frequency once used by Buenos Aires station Radio Rivadavia on a regular basis. Others which are active from time to time include Radio El Mundo (once a regular shortwave broadcaster) assigned to 6622.5 and 10063; Radio Colon, 8965; Radio America and Radio Continental using 15780; Radio Rivadavia, 15780 and 20276, and Radio del Plata on 20276.

These stations, broadcasting in Spanish, are most likely to be heard during weekend afternoons, especially while national sporting or events which have national news importance. Some use shortwave to relay programming to the Argentine contingent in Antarctica. All of these stations broadcast using the upper sideband mode. If your receiver has a memory bank it might be a



Radio France International is heard in Zambia via Radio Zambia on 3270. This picture is of an RFI installation—Radio Zambia's antenna farm isn't quite as extensive.

good idea to program these frequencies into your receiver and then make a practice run through them during each listening session.

Another South American Broadcast Curiosity

Radio Caracas Radio is reported to be broadcasting on 25705, also using upper sideband. The 500-watt transmitter is supposedly used for relays of the station's newscasts for an audience throughout Latin America. The explanation of the pur-



Radio Bulgaria is relaying domestic station Radio Varna once per week.

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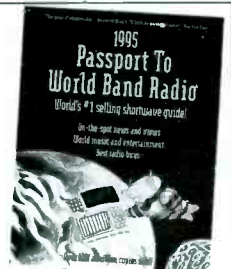
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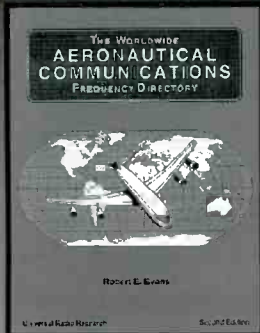
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Delhi is one of three All India Radio transmitter sites carrying the same service on 10330 simultaneously. In fact, there may be four sites involved by now.

pose comes from the station itself. But there is a reason to believe the station is active on shortwave. If it is indeed on the air, it may be only during the daytime. It's a good spot to keep an ear on, just in case!

Hear Me Talkin' to Ya!

In the U.S., some FM broadcasters carry a radio reading service for the visually handicapped using a sub-channel—what's known as a Subsidiary Communications Authorization. In New Zealand there's a station which uses shortwave for this same purpose. The Print Disabled Radio Reading Service operates from the town of Levin, using three shortwave frequencies. The station is on the air daily from 0600 to 1000 (Sundays only 'til 0900) on 3935, and from 2030 to 0600 (Fridays to 0500) on 5960 upper sideband and also 7290. At most, this pumps out only 1 kW, and that's up from what it was initially! This is definitely a tough one to catch. Your best chance is probably after 0700 on 3935.

Triple Threat from India

All India Radio has been adding new shortwave sites with remarkable, er, frequency, over the past few years. A new site or transmitter seems to come on about as often as Channel 9 airs the "Walking Tall" movie. AIR's engineers have made logging some of these an extra challenge because they double up, putting two sites on the same channel carrying the same program. Obviously it's near impossible to know which one what you're hearing. But that's not the biggest challenge AIR offers. The Vividh Bharati Service of AIR, on 10330, is a broadcast from three different sites simultaneously! Transmitters at Delhi (Kingsway), Bombay, and Madras are all at

this party. And it may well be that, by now, an AIR transmitter at Gauhati has turned it into a quartet! This channel is in operation between 0100-0430, 0630-1300, and 1330-1730.

Czech Out This German

A German-based broadcaster, Radio Ropa, is now on the air from the Litomysl transmitter site of Radio Prague, the Czech Republic. It's on 5980 from 0300-2200, broadcasting entirely in German.

Strait Talk From the PLA

The Cold War may have ended, but there are still areas of the world where hostilities from the great post-war's spread of communism continue to be aired on shortwave. One of them is mainland China vs. Taiwan. The Beijing government, through the People's Liberation Army, continues to operate the Voice of the Strait, which beams programming towards Taiwan. There are two Voice of the Strait networks. Network One are from 2155-0200 and 0855-1700 on 4940, 5050, 6115, 7280, and 11590. Network Two broadcasts from 0255-0600 and 0955 to 1500 on 6000 and 9505. Best chance to hear one or more of these will be around your local dawn.

Taiwan also has an entire broadcast division devoted to broadcasting to the mainland. The Central Broadcasting System has several networks programming to various segments of the mainland population over medium and shortwave. The full CBS schedule is quite long and complex so we won't include all of it here. You might check 6087—that carries the fourth network which features a news and music format. The First Network (a general program) uses 7150 and 7250, among others. The Sixth



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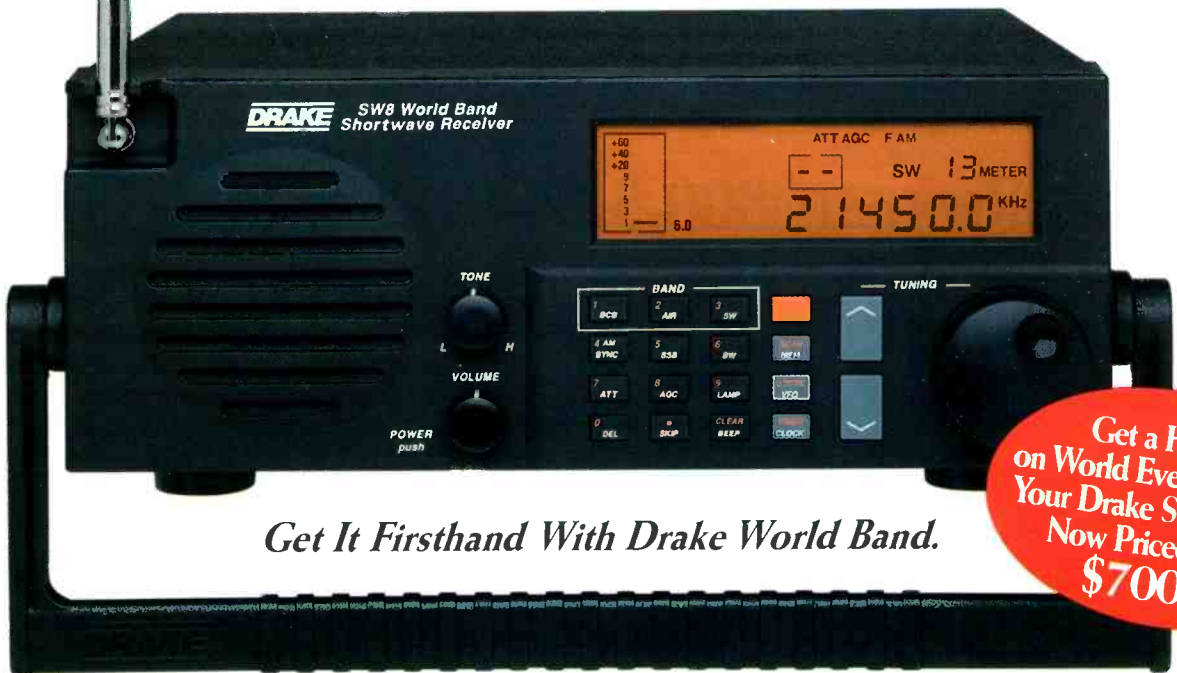
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- c) wide open 24 to 2150 MHz, low noise figure 2 dB gain. Comes with a BNC connector. Requires 12 VDC or 9V battery.



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\$139

The ATS-808 is a full featured digital receiver. Measuring 7 3/4" wide by 4 1/2" high and 1 1/2" deep, the 808 is an excellent receiver for short wave broadcast stations. It includes such high-tech features as a continuous coverage 150 to 29999 kHz receiver, AM/FM/stereo, 45 presets, color display, dual time readout, FM stereo signal & battery strength indicator, sleep timer and tone control. Suede case and stereo headphones included. Requires 6 AA batteries or AC adapter (ADP-808 AC adapter for ATS-808 \$9.95). For the world traveler, the 808 is the way to go!



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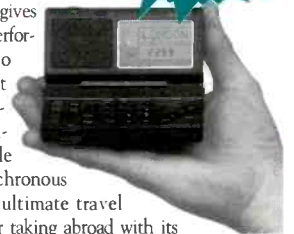
Sony ICF-SW100S

World Band Receiver

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WITH SYNCHRONOUS DETECTION

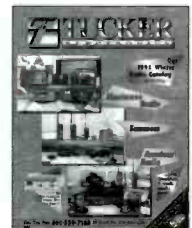
This new receiver gives you outstanding performance in a radio small enough to fit in your shirt pocket. It is the smallest radio available that features synchronous detection. This ultimate travel radio is perfect for taking abroad with its world time clock that is adjustable to any time zone by setting it to the names of major cities around the world. It can also wake you up every morning with its built in dual clock/alarm. Keeping track of each of its 50 memories is a snap because you can store the name of the station on the LCD display. Covers 150 kHz to 30 MHz continuously as well as AM broadcast and FM stereo. Comes complete with AC power adapter, stereo headphones, power supplied active antenna, shortwave guide and carrying case. Measures only 4 3/8" x 1 1/8" x 2 1/8".



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If you want to expand your range or just want to get better reception from the stations you currently listen to, we have developed the new TUCKER SW-500 Active Antenna. No longer do apartment and condo dwellers have to suffer poor reception because of antenna restrictions! Anyone wanting better shortwave reception should make the new Tucker SW-500 a part of their listening post! This portable (only 1.75" x 5.5" x 4.6") antenna is perfect for indoor use by itself, in conjunction with an outside antenna or both! As with all of our other Tucker Brand products, your complete satisfaction is assured with our no-risk 30 day SATISFACTION PLUS guarantee.



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CIRCLE 161 ON READER SERVICE CARD

Network is intended for Mongolia, Tibet, etc., and is on 11905, with other networks also using this particular channel at various time. Mornings provide the best opportunity for most North American listeners—say an hour or so before or after sunrise.

Gone Legit

Every now and then a rebel group will topple the government it's been fighting and when that happens the once clandestine radio the rebels operated becomes an official government voice. That's what happened when the Eritrean People's Liberation Front won independence for the Ethiopian state of Eritrea. Overnight the once clandestine Voice of the Broad Masses of Eritrea became an official government broadcaster. This station with the checkered past has been heard by several North American DXers, but it may require lot of

attempts and no small amount of patience. Your best chance is to check for sign on at 0330 on 7020 or 7390. Both frequencies open with a half hour broadcast in the Afar language, then go into Arabic at 0400.

Another ex-clandestine that's now a legit broadcaster (though not government run) is Radio Miskito, which once spoke against the Ortega government in Nicaragua on behalf of the Miskito Indians. Radio Miskito was active on 5770 variable for a while, running 1 kW transmitter from the town of Puerto Cabezas. At this writing, through, it is off the air due to technical problems, but it plans to return. It's probably best to try for this one in the late afternoons or early evenings, say between 2300 and 0100. Programs will likely be in the Miskito language.

Speaking of clandestine, there's a little known (and rarely heard) clandestine station active from Guatemala. Voz Popular

is the voice of Guatemalan National Revolutionary Unity (unidad Revolucionario Nacion Guatemalteca), an umbrella organization speaking for several resistance groups. The station has a very limited schedule, listed as 210-2245 on a frequency around 7000 and 000 to 0100 on variable 3500. The 0000 time period will give you the best chance (check both frequencies, just in case). It may well be that the station is not on the air on a daily basis. The station is said to use the sound of machine guns firing as its interval signal!

Rwanda

The civil war here sent broadcasting down the tubes along with everything else. The government station is coming back slowly though, and the Duetsche Welle relay is still getting itself back together. Meantime, there's an interesting broadcast being beamed to Rwanda. Radio Freedom and Liberty is operated by a group called Amahura (or "Peace.") and is based in Belgium. The broadcast is being aired via Africa Number One in Gabon on 9790 from 1700 to 1800 and via the Voice of Ethiopia on 9560 at 0430 to 0530. The Gabon broadcast will likely be the easiest to hear.

Rather Unusual Relays

Here are three to check for. Despite the downsizing of Radio Free Europe/Radio Liberty, this station is now aired over the VOA relay in the Philippines, carrying programming intended for an audience in eastern Russia. It's on from 0700-1100 on 11860 and 2000-2200 on 7230. (It would be easier to hear this in North America if those hour/frequency combinations were reversed!)

Bulgarian Radio is carrying a shortwave relay of a home service program originating over Radio Varna. Try this (in Bulgarian) Fridays only between 2100-2300 on variable 7142. The transmitter for this broadcast used to be a jammer. Sometime back the Bulgarians aired Radio Varna over one of their high power transmitters on 15 MHz but, for whatever reason, it didn't last but a few months.

Radio France International is being carried on Radio Namibia Monday through Friday at 0500 on 3270, apparently intended for a local audience. DX'er Marie Lamb was first to report this after spotting it while studying the RFI frequency schedule.

Finally

The Red Cross is using radio to help people find relatives and friends torn apart by the conflict in the former Yugoslavia. The program, called Radio Link, is produced and broadcast by the BBC. It is aired Sundays at 1930 on 5875, 6125, 9825, 9915, and 11680, in Croatian and Serbian.

Good luck hearing at least a few of these sorta-different shortwave stations and broadcasters!

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CIRCLE 53 ON READER SERVICE CARD

POP'COMM Reviews:

JPS Communications' NTR-1 Noise/Tone Reducer

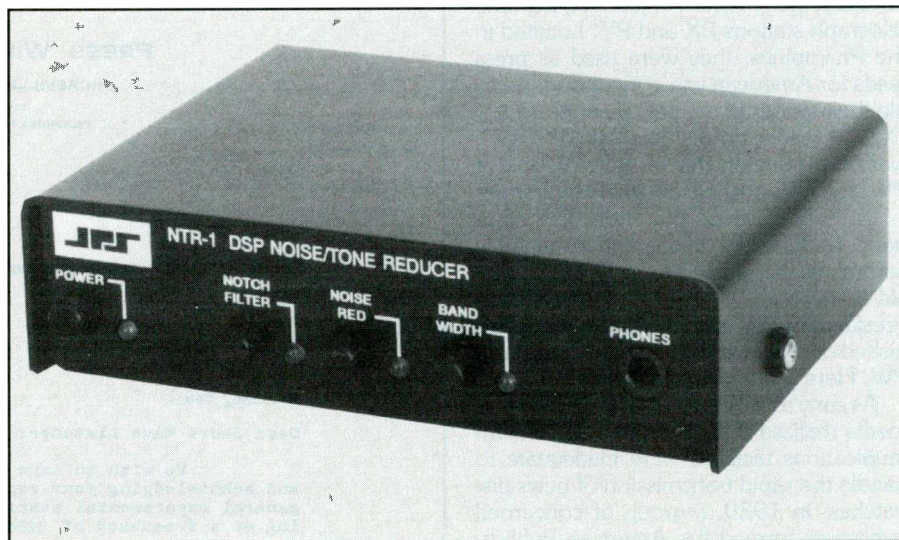
Digital Signal Processing (DSP) technology has revolutionized the design of "active" audio filters and processors over the past few years. Performance that was once only dreamed of is now attainable with state-of-the-art DSP technology. JPS Communications, Inc., a pioneer and leader in this field, offers the DSP-based NTR-1 noise and tone reducer audio processor to the SWL market.

Overview

The NTR-1 is an audio processor designed to improve the received quality of wide band AM and FM signals, as well as narrow band CW, SSB, or radio data communications signals. Designed around a Texas Instruments TMS320E15 Digital Signal Processor chip, the NTR-1 provides "real time" (read: no delay) audio processing with noise and tone reduction capabilities. The NTR-1 takes the audio from the receiver, converts this analog signal to a digital stream of "ones and zeros" for processing, and then converts it back into an analog audio signal for use with your headphones or speaker.

Housed in a well constructed and very rugged metal low-profile (1.7-in. H x 6.5-in. W x 5.1-in. D) enclosure, the NTR-1 circuitry also includes a 2 watt audio amplifier and the necessary input and output jacks to interface the unit to your favorite communications receiver. The front panel includes four pushbutton switches (POWER on/off, NOTCH FILTER on/off, NOISE REDUCTION on/off, and WIDE/NARROW BANDWIDTH select) and their corresponding LED indicators, plus a 1/4-inch PHONES jack that accepts either mono or stereo headphones.

The NOTCH filter in the NTR-1 is used to remove heterodynes and tones from any received signal. This feature is especially useful when listening to an adjacent channel broadcast station when heterodynes occur or from interfering CW or RTTY signals. The typical notch depth is 50 db with



a "lock time" of less than five milliseconds.

The NOISE REDUCTION mode offers "dynamic peaking" of the received signal by creating bandpass filters around intelligible frequencies within the signal's audio passband, thereby rejecting unintelligible signals and extraneous noise. Typical "white noise" reduction is 10 to 20 db.

BANDWIDTH selection in the NTR-1 include: 6.6kHz in the WIDE position and 3.4KHZ in the NARROW position. In the WIDE position the NOTCH and NOISE REDUCTION characteristics have been optimized for AM or FM broadcasts. Whereas for the NARROW position, they have been optimized for CW, SSB, or radio data communications signals.

Operation

Use of any sophisticated audio processor as the NTR-1 requires some operational time to maximize its performance. However, the excellent and succinct NTR-1 User's Manual expedites this process. The ergonomically simple, yet technically advanced, design of the NTR-1 makes removing heterodynes and tones or peaking of the desired signal almost totally automatic.

Gone are the days of manually notching or peaking a signal when using an analog audio filter, or for our "older readers, the ubiquitous Q-multiplier!

Operating from a 12VDC source, such as a 115VAC to 12VDC adaptor, this reviewer found the NTR-1 extremely fast in suppressing heterodynes and tones with the NOTCH filter. A great help when listening to shortwave broadcast stations within a band with any CW or RTTY activity. The NOISE REDUCTION mode worked well in reducing the extraneous "white noise" and adjacent channel interference that often surround broadcast station's signals. Overall operation of the NTR-1, including the selectable BANDWIDTH control, worked without a hitch during the period of the review. If you are looking for an audio processor to enhance your listening pleasure, take a serious look at the NTR-1.

For more information on the NTR-1, please contact JPS Communications, Inc., P. O. Box 97757, Raleigh, NC 27624-7757 (800) 533-3819 orders only, or (919) 790-1011. The NTR-1 is priced at \$169.95.

Reviewed by POP'COMM Staff

Radio: The Press Wireless Era

PW's Transmitters Filled the Shortwave Spectrum With News Stories, Sent Around the World

BY ALICE BRANNIGAN

In the January issue, we covered the Press Wireless, Inc. (PREWI, or just PW) wartime telegraph stations PX and PY. Located in the Philippines, they were used as press feeds for American war correspondents to file their stories in a timely manner. *POP*'s COMM reader Forrest Bartlett, W6OWP, was one of the key PW technical people at PW, and he furnished that interesting story.

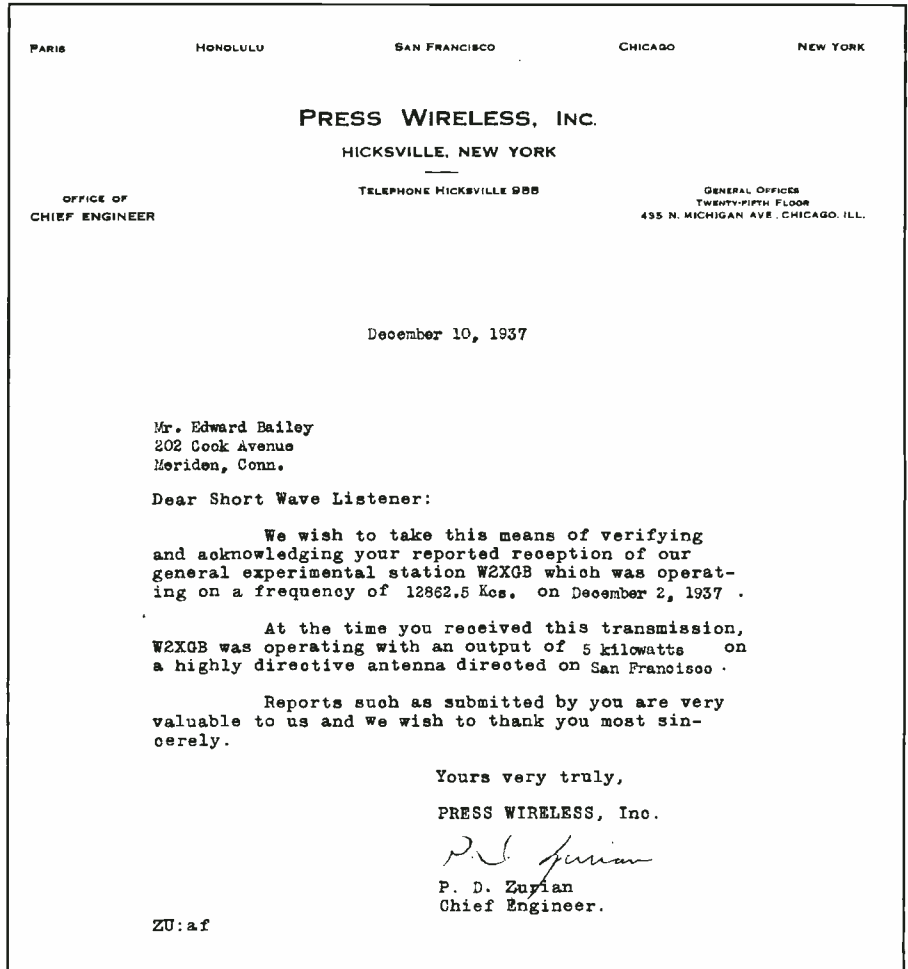
In a wider sense, the entire PW company, itself, was a unique and remarkable communications operation. The late Donald K. deNeuf, WA1SPM, who had been President of PW for many years, once furnished our archives with information about PW. Here's what he told us.

As early as WWI (1914-1918), the news media realized that international telecommunications facilities were inadequate to handle the rapid transmission of news dispatches. In 1920, a group of concerned publishers formed the American Publisher's Committee on Cable and Radio Communications, which, a year later, decided to enter the communications business.

The British Post Office agreed to place a longwave transmitter at the disposal of press interests. The Committee opened another station at Halifax, Nova Scotia, Canada, to receive the London signals. Halifax was selected because it was a good location for longwave reception, and also there would have been problems trying to establish the station in the USA. The problems involved U.S. Patents, which were owned by large communications companies, that prevented APC from purchasing many types of equipment in the States!

Traffic received at Halifax was turned over to a landline telegraph company for delivery to U.S. addressees. This was expensive, and inserted a delay factor. APC then discussed radio licenses in the USA with the Federal Radio Commission. As a result, in 1929, Press Wireless, Inc., was formed by a group of newspapers. It was licensed to handle press material on numerous shortwave frequencies.

PW's first station opened in 1930. This was WJK, Needham, Mass. It was used to communicate with Halifax, thereby cutting the landline telegraph company expenses and delay out of the PW loop. PW then began expanding its facilities. Stations were constructed in 1932 at Hicksville and Little Neck, in New York, at San Francisco,



Staffed by many hams, Press Wireless was SWL-friendly. This SWL veri letter dates from 1937. (Courtesy Ed Bailey, Conn.)

and Honolulu. Often imported tubes had to be sent for use in the transmitters to circumvent U.S. Patent restrictions.

Then, negotiations were carried out to lease French PTT transmitters and receivers, and for PW to conduct operations from its own office in Paris. Soon, many American newspapers and news services centralized their dispatches at Paris from other European cities in order to use this new rapid and direct PW service.

As PW grew, it assembled a staff of top engineers and operators. Many were hams. PW soon found itself serving news agencies of various nations, including AP, UP, Agence France Press, Reuters, ANSA,

DPA, and others. It supplied the U.S. Information Service with transmission service to embassies around the world.

PW was often the first to develop and use new radio communications technologies, including FSK for both RTTY and radiophoto-FAX, and the *Duo-Plex* keying system which doubled the number of teleprinter channels over a single transmission circuit.

PW constructed hundreds of its own transmitters with powers as high as 50 kW. Some were also made world during WWII for the U.S. Army Signal Corps, and went into service all over the world. Years after WWII, former Army PW transmitters were

being used in Cuba as Fidel Castro's private circuit to Moscow! The PW Model C fixed frequency receivers popularly used for reception of PW's multiple-point presscasts and photocasts by news services.

It served 62 different countries. Each year, PW carried over 450-million words of textual material, 36,000 radiophotos, and 83,000 minutes of voice programs. At its 500-acre site in Centereach, N.Y., PW operated 47 transmitters, and had 70 different antennas. There were ten transmitters at Belmont, Calif. Diversity receiving equipment was used at both stations.

Although press transmissions were the primary function of PW, communications between many airline pilots and ground stations were handled through PW facilities. The company provided all of the HF transmission and receiving ground facilities for Aeronautical Radio, Inc. (ARINC), serving all airliners entering and leaving the USA.

In addition, the U.S. Weather Bureau awarded PW all of its weather FAX (WEFAX) map service from Washington to European and Pacific points. PW provided all of the leased teleprinter channels to the UN between its HQ in New York and several overseas points, including Geneva, Switzerland. The U.S. State Dept. private leased full-time teleprinter channel between Washington and Montevideo, Uruguay, was provided for many years using the transmitters of PW's subsidiary stations in Uruguay.

PW stations in California provided facilities for Japanese and Chinese press services. They accommodated the two ideographic languages by means of FAX systems inasmuch as teleprinter keyboards, of course, could not handle the characters required.

PW had reliability problems with its direct HF circuits between New York and

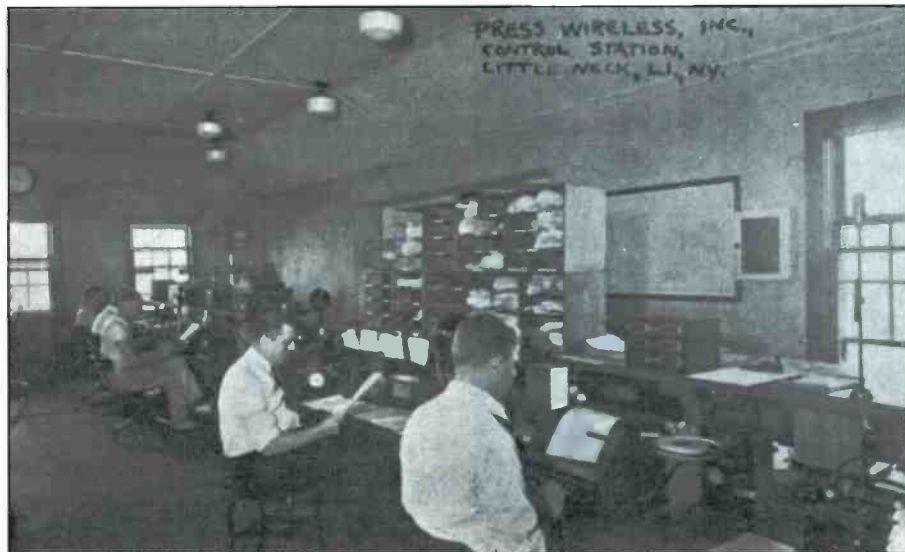
Moscow. E-W paths ran close to the North Pole, which caused them to suffer propagation difficulties caused by the Aurora Borealis (Northern Lights). PW therefore developed two very effective and innovative alternate routes using automatic HF repeaters. One, which provided two N-S paths, used its Montevideo station. The other was a PW California relay using a circuit to a

Soviet station in Khabarovsk, Siberia. These were the only circuits of their kind.

Many other challenges were successfully met by PW. In the January issue, we wrote about the company's WWII mission in the Philippines. When WWII broke out, PW sent a mobile station and staff with the invasion forces to handle press dispatches. Between the Normandy invasion in June, 1945, and the arrival in Berlin, the following July 1, PW had rolled 2,214 miles and made 24 set-up stops. It had strung 26,000 feet of antenna wire, operated 8,600 hours, transmitted more than eight-million words of press copy, and passed more than 400 voice programs to all U.S. radio networks.

Another PW challenge came during the 1962 "Cuban Missile Crisis." The UN's Director of Communications contacted PW on a Friday night with a request he suspected would be impossible to fulfill. First thing Monday morning he needed a complete UN radio teleprinter station ready to air ship to Cuba! This required gathering transmitters, receivers, terminal gear, generators, complete antenna systems, teleprinters with paper supplies, ribbons, and spare parts. PW delivered the station to the UN, on time. This "can do" philosophy endeared PW to its customers.

At its peak, PW had 100 HF radio transmitters operating in its own stations in New York, San Francisco, Manila, Rio de Janeiro, and Montevideo. It maintained press



Control room at the PW station, Little Neck, N.Y., during the 1930's.

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- * "Our best seller." -EEB in their recent ads and catalogs
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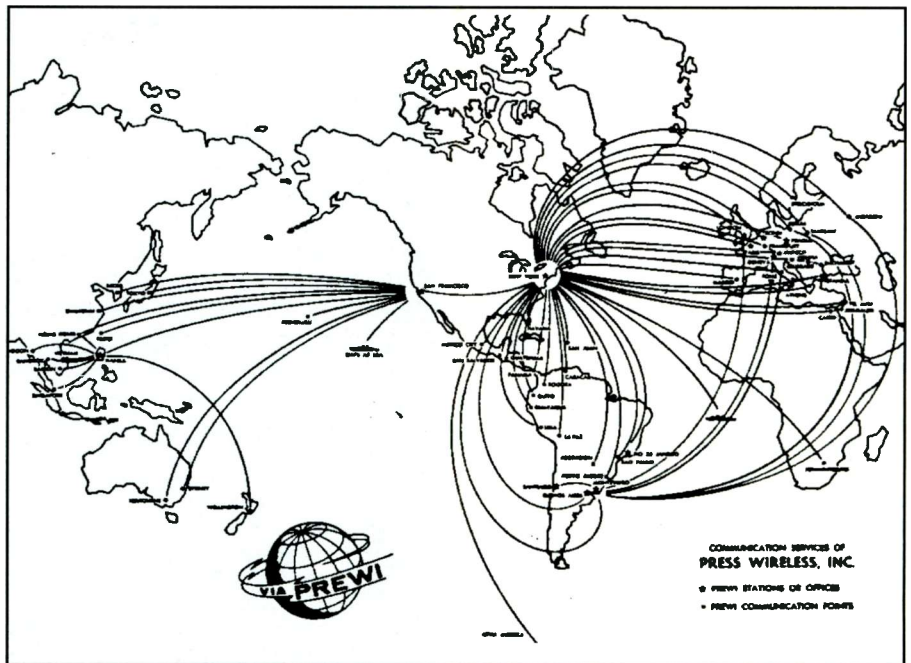
By 1964, changes began taking place in communications technology that would impact negatively upon business-as-usual at PW. This included wide-band underseas coaxial cables and geostationary satellites. Each year, literally hundreds of additional high-quality voice-grade channels began to be available to meet the needs of the worldwide information explosion, fed by computers and data processing. HF facilities began getting replaced by newer technologies and equipment.

The communications cost to users requiring full-time leased channels from the common carriers between virtually any two points on the globe had started to drop sharply. In 1965, PW was acquired by ITT World Communications. The facilities of PW soon began to be combined to be with and integrated into those of ITTWC.

This was the birth, life, and passing of Press Wireless, Inc. The fate of PW meant more than the loss of a company, it symbolized the end of an important, vital, and exciting era in HF communications. The POP'COMM offices are located a stone's throw from the former PW Hicksville site.

Tripping the Lights Fantastic

The propagation headaches caused by the Aurora Borealis weren't a PW discovery, they had been experienced by others. One notable example on record concerns the scientific expedition of Commander Donald MacMillan to Baffin Island, in northern Canada. MacMillan was a well-known and intrepid Arctic explorer. He had gone to the North Pole with Peary in 1908.



Map of Press Wireless, Inc. communication services. "VIA PREWI" was the company's often-seen traffic routing code.

His expedition to Baffin Island, in the summer of 1931, was his fifteenth to the Arctic.

The 1931 Baffin expedition took place aboard the American schooner *Bowdoin*. The vessel's call letters were WDDE (ex-WNP). The *Bowdoin's* first Arctic excursion with a ham operator aboard was in 1923, when Donald Mix, W9AT, was the sparks. For its 1931 expedition, the *Bowdoin* was outfitted with a ten tube superhet receiver. The transmitter, built by Radio Officer Ralph Brooks, was of the push-pull tuned-plate, tuned-grid type, using 204A type

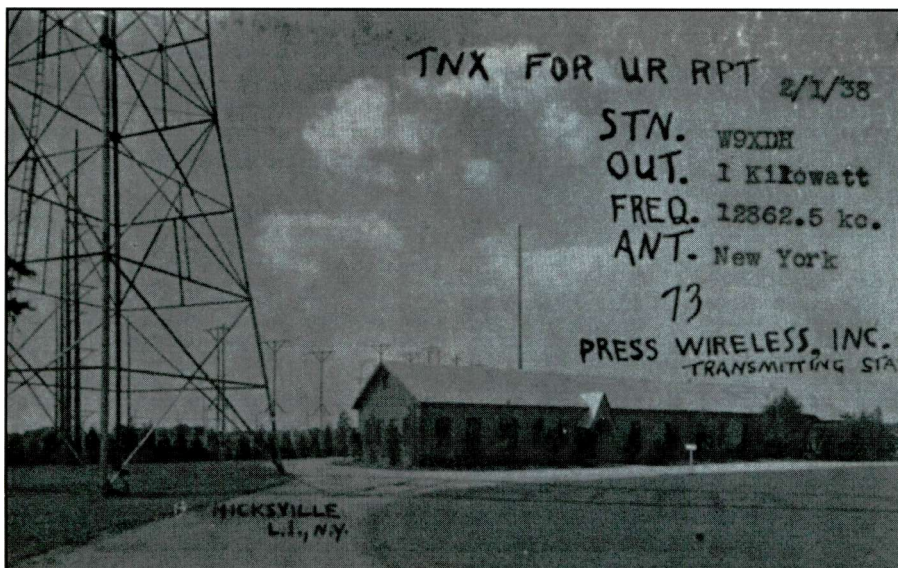
tubes. There were two Delco lighting plants aboard. It was Ralph Brooks' intention to maintain expedition communications on 13240 kHz, near the 20-meter ham band. This was in order to contact North American 20-meter band ham operators.

Regarding communications from the Arctic, Brooks later observed that contacts with American stations were often drowned out by the Northern Lights display. Meanwhile, he noted that mediumwave broadcast band signals were "remarkably increased in intensity, making reception stronger than usual. At other times, exactly the reverse would be true, so that getting a signal through regularly was often an elusive effort in keeping it at its original strength was truly little less than magic."

When propagation was good, shipboard reception brought in transatlantic telephones, hams in North and South America, and in Europe. There were good signals from AM broadcasters KOA, KDKA, WFAF, WJZ, WEEI, WGY, and WTAM, among others. CW signals were logged from Russia, England, Germany, Spain, and Italy.

The expedition started out in Wiscasset, Me., then sailed northward. Cruising north from Nova Scotia, and entering the territory affected by the Aurora Borealis and other magnetic disturbances (such as iron ore deposits in the ground), Brooks reported "all signals were materially affected, making it more difficult to maintain two-way communication."

Sailing north from Nain to Port Burwell, conditions improved and were clear for about a week. Running along the coast of



A view of some of PW's Hicksville, N.Y., facilities is seen on this 1938 QSL for one of their experimental transmitters. (Courtesy Ed Bailey, Conn.)

Weather Stations/Scanners/CB

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Weather Stations

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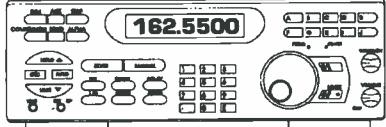
The Weather Monitor II (7440-K) comes complete with anemometer with 40 feet of cable, external temperature sensor with 25 feet of cable, junction box with 8 feet of cable, AC-power adapter, detailed instruction booklet and one year limited factory warranty.



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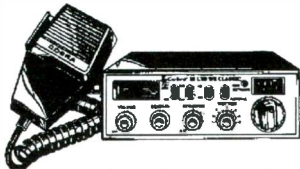


Bearcat® 890XLT-K Radio Scanner
Mfg. suggested list price \$399.95/CE price \$228.95
200 Channels · 10 banks · Weather Alert Feature
Turbo Scan · VFO Control · Priority channels
Auto Store · Auto Recording · Reception counter
Frequency step resolution 5, 12.5 & 25 KHz.
Size: 10-1/2" Wide x 7-1/2" Deep x 3-3/8" High

Frequency Coverage:
29,000 - 54,000 MHz (NFM), 108,000 - 136,995 MHz (AM)
137,000 - 173,995 MHz (NFM), 216,000 - 224,995 MHz (NFM),
225,000 - 399,995 MHz (AM) 400,000 - 512,000 MHz (NFM),
806,000 - 823,9875 MHz (NFM), 849.0125 - 868.9875 MHz (NFM)
894.0125 - 956,000 MHz (NFM).

The new Bearcat 890XLT gives you pure scanning satisfaction with amazing features like Turbo Scan to scan and search up to 100 channels per second. This base and mobile scanner is ideal for weather watchers because it has a built-in tone activated **Weather Alert Feature**. Other features include **Auto Store** - Automatically stores all active frequencies within the specified bank(s). **Auto Recording** - This feature lets you record channel activity from the scanner onto a tape recorder. You can even get an optional **CTCSS Tone Board** (Continuous Tone Control Squelch System) which allows the squelch to be broken during scanning only when a correct CTCSS tone is received. For maximum scanning enjoyment, order the following optional accessories: PS001 Cigarette lighter power cord for temporary operation from your vehicle's cigarette lighter \$14.95; PS002 DC power cord - enables permanent operation from your vehicle's fuse box \$14.95; MB001 Mobile mounting bracket \$14.95; BC002 CTCSS Tone Board \$54.95; EX711 External speaker with mounting bracket & 10 feet of cable with plug attached \$19.95. The BC890XLT comes with AC adapter, telescopic antenna, owner's manual and one year limited warranty from Uniden.

CB/GMRS Radios



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A National Weather Service (NWS) receiver with automatic emergency broadcast activation has been added to the legendary Cobra 29 CB radio. The integrated NWS receiver in the Cobra 29LTDXW will automatically activate to receive emergency announcements about severe weather and travel conditions. A special tone-alert signal broadcast by the NWS activates the weather receiver and overrides any CB radio reception for monitoring the warning message.
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Now your weather station can talk to callers. Call 313-994-9000 for a demonstration. The Talking Weather Station (TWS) from Innovative Tech Works, lets anyone phone your Davis Weather Monitor II and hear the weather. Here's how it works. You setup the TWS with most IBM PC 80286 or faster compatible computers with a 40 MB hard disk. Requires MS-DOS version 5.0 or later with 1 MB of RAM. Add phone lines and your own personal messages or promotional advertising. Callers are automatically greeted with your voice giving them the weather and your messages. Several times a minute, the TWS software will poll the Weatherlink and will update the voice library files to make your spoken report. A single line card, order # IT1-K is only \$489.95. A two line card is order #IT2-K for \$939.95. A complete turnkey system for commercial use is available, order #ITPRO2-K starting at \$3,999.95.

VHF Transceiver

RELM® WHS150-K Transceiver
Mfg. suggested list price \$481.67/CE price \$339.95
Severe weather spotters depend on the RELM WHS150 transceiver for direct two-way communications with their police or fire department, civil defense agency or ham radio repeater. The WHS150 is our most popular programmable five watt, 16 channel handheld transceiver that has built-in CTCSS, which may be programmed for any 39 standard EIA tones. Frequency range 148.000 to 174.000 MHz. Will also work 144.000-148.000 MHz with slightly reduced performance. The full function, DTMF compatible keypad also allows for DTMF Encode/Decode and programmable ANI. Weighing only 15.5 oz., it features dealer programmable synthesized frequencies either simplex or half duplex in both 5.0 and 6.25 KHz increments. Other features include scan list, priority channel, selectable scan delay, selectable 5 watt power levels, liquid crystal display, time-out timer and much more. When you order the WHS150 from the Weather Bureau, you'll get a complete package deal including antenna, battery, belt clip and user operating instructions. Other accessories are available. A leather carrying case with swivel belt loop part #LCWHS is \$49.95; rapid charge battery charger, part #BCWHS is \$69.95; speaker/microphone, part #SMWHS is \$54.95; extra nicad battery pack, part #BP007 is \$59.95. The radio technician maintaining your radio system must order programming instructions part #PI150 for \$18.00 to activate this radio. FCC license required for United States operation.

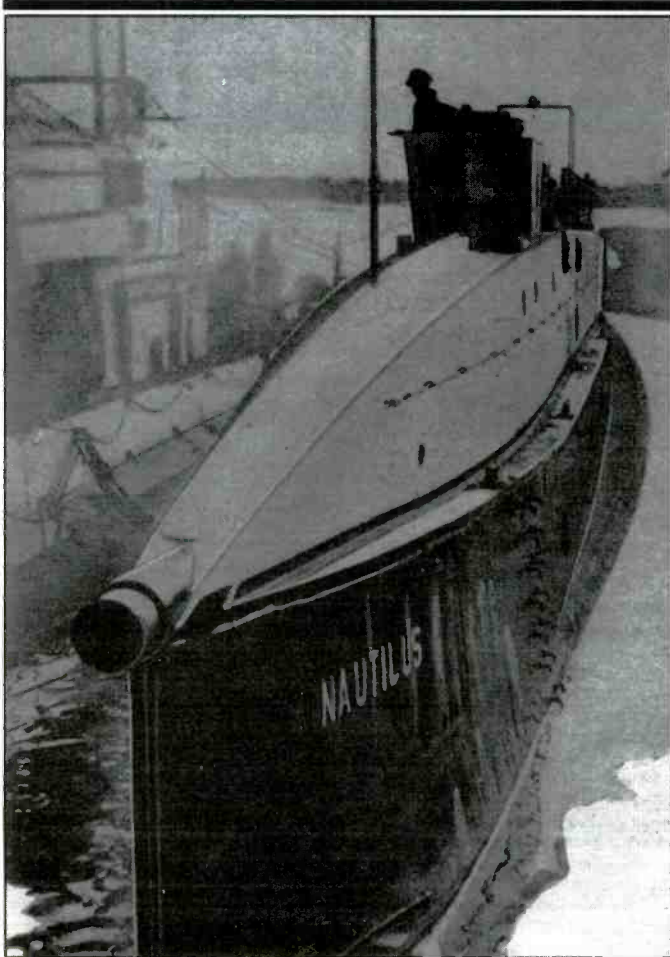
Other neat stuff

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The research submarine *Nautilus* prepares for its 1931 polar expedition.



The 200-watt G.E. transmitter aboard the research submarine, *Nautilus*.

Labrador, reception weakened, but improved upon reaching open water to the north. Good reception was observed crossing Hudson Strait and in the Savage Islands. From there, the course went to Frobisher Bay, where conditions became poor due to the iron content in the hills to the south and west.

Notwithstanding propagation difficulties, WDDE made daily observations of the NAA time signals from Arlington, Va., in order to calibrate the ship chronometer, and to use with other scientific instruments for exact location and precision survey work. WDDE also managed to make nightly contacts with ham operators in Cincinnati and Chicago.

Another bold 1931 Arctic foray also made extensive use of communications. This was the 1931 Wilkins-Ellsworth Trans-Arctic Submarine Expedition, under the guidance of British explorer Sir Hubert Wilkins (1888-1958). The plan was to travel from Spitzbergen to Point Barrow, but that was the easy part. The American research submarine *Nautilus*, Wilkins' privately owned and modified former U.S. Navy craft, was to boldly make the trip *entirely beneath the ice sheet of the Arctic Ocean!*

Wilkins never bothered to detail the her-

itage of his submarine, but my research indicates it must have been the former *USS H-2, ex-USS Nautilus, SS-29*. Commissioned by the U.S. Navy in 1913, in 1919 this was the first vessel ever to transmit a signal from under water. The Navy decommissioned the *H-2* in October, 1922, and struck it from the Navy List in December, 1930. Official Navy records show the *USS H-2* was sold for scrap. Looks like it took a detour before heading to the scrap yard.

During the polar portions of its 1931 underwater Arctic expedition, most communications would be possible only by boring a hole in the ice pack (as much as 15-foot thick) in order to project the antenna from the submerged vessel. A special drilling apparatus was required. Methods of sending messages while the boat was submerged were considered military secrets, however were being given to the expedition for emergency use.

Nautilus was assigned the call letters WSEA, and a 200-watt transmitter was installed. The working frequencies 5555, 6620, 8290, 8450, 11110, 13240, and 16660 kHz were authorized. Frequency 13240 kHz was also used by WDDE.

The Wilkins Submarine expedition was described in Sir Hubert's book, *Under The North Pole* (1931).



Nautilus sparks Ray Meyers, ex-W3AJZ, at the vessel's instrument board.

Ah, the romance of radio! Seems right out of *Indiana Jones*, except that it all really happened!

That's our report for April. Thank you for being with us. Always seeking items for use in future columns. We look for old time radio and wireless photos, picture postcards, QSL letters and cards (good copies will do), station rosters, news clippings, plus any personal memories or anecdotes.

We Review: Radio Shack's New PRO-2035 Scanner

Successor to the PRO-2004/5/6 Lineage

Radio Shack's new desk-top scanner, the PRO-2035, is a sophisticated unit that appears to be the logical heir to the company's proud PRO-2004/5/6 lineage. This unit has 1,000 memory channels arranged in ten banks of 100 channels each, plus an additional 100 monitor memories for temporarily saving frequencies located during searches. There is instant access to ten pre-programmed weather channels.

Frequency coverage is copious, being 25 through 520 MHz, plus 760 through 1240 MHz. As per the new FCC requirements, the cellular bands are firmly factory-blocked. That means it's not likely they can be restored by a simple modification, as with scanners of the past. Receiving modes are AM, NFM, and WFM, and are user selectable.

The PRO-2035 operates in scan and search modes at 50 channel/second. Searches can be conducted at 5, 12.5, or 50 kHz steps, as selected by the operator. Scanning through the memory channels can be done from the lowest numbered channel to the highest, or downwards from the highest to the lowest. It can even search upwards or downwards in frequency. The PRO-2035's ten search banks may be run individually, or sequentially in combinations of two.

Frequency access is accomplished via the programmable keyboard, but there's also a rotary tuning knob. You can enter any frequency of interest, then use the rotary tuner to manually examine that area of the spectrum in increments as close as 5 kHz. The tuner can be activated during

the searches, as well as on all frequencies stored in the scanner's memory banks.

There are innovative provisions for manually and automatically storing and moving around frequencies from one place to another in the PRO-2035. Move a frequency from a monitor to a desired channel, to any open memory in a particular bank, within the banks themselves, or from banks to the monitor memory.

The Radio Shack PRO-2035 doesn't need an internal memory battery. During a power loss, it will retain its stored memories for as long as 90 days. The scanner's display is a backlit green with black lettering—which is quite easy to read (we thought it offered better visibility than the earlier PRO-2006).

The IF frequencies are 609.005-613.5 MHz and 48.5 MHz. NFM selectivity is -6 dB at ±10 kHz, -50 dB at ±20 kHz. NFM sensitivity (20 dB S/N at 3 kHz deviation) is 0.5 µV below 1000 MHz. AM sensitivity (20 dB S/N with 60% modulation) is 2.0 µV below 1000 MHz.

The PRO-2035 is able to operate from its AC power cord, or from a vehicle using the optional DC cigarette lighter power cord. Operation is relatively simple, considering the unit's many features and functions. Owners will get full advantage of all of the set's terrific operating features if they follow the excellent Owner's Manual, at least until they become familiar with the unit. It's worth the trouble, as the PRO-2035 can do a lot of tricks.

Reviewed by POP'COMM Staff



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CIRCLE 52 ON READER SERVICE CARD

Who Else is Listening?

A U.S. Army Officer Frankly Discusses Scanner Owners & SWL's Monitoring Military Communications

BY LT. COL. CONSTANTINE T. PAPAS, U.S. ARMY

Editor's Note: LTC Papas is an Infantry officer assigned as a Staff Leader at the Combined Armed and Services Staff School, U.S. Army Command and General Staff College, Fort Leavenworth, KS. He is a licensed amateur (AL7LZ) and has been an SWL for over 25 years. His perspective on hobbyists who monitor military comms, written for a military reading audience, is one that hobbyists seldom get a chance to share. Therefore, you'll find this most informative. LTC Papas' comments are reproduced from the Army Communicator, official publication of the U.S. Army Signal Center. The views expressed are those of LTC Papas, not the Department of Defense, nor Popular Communications.

In 1929 Henry L. Stimson, Secretary of State, said, "...gentlemen do not read each other's mail," as he abolished (albeit temporarily) the country's fledging communications intelligence effort. However, gentlemen do read each other's mail; the question is who are these other gentlemen? Radio hobbyists are among them and they

know more about you than you think! We'll look at these radio hobbyists—who they are, what they do, how they do it, and why they do it. My intent is to emphasize our continuous need for security by providing a glance at a world you may not be familiar with; radio hobby sleuths!

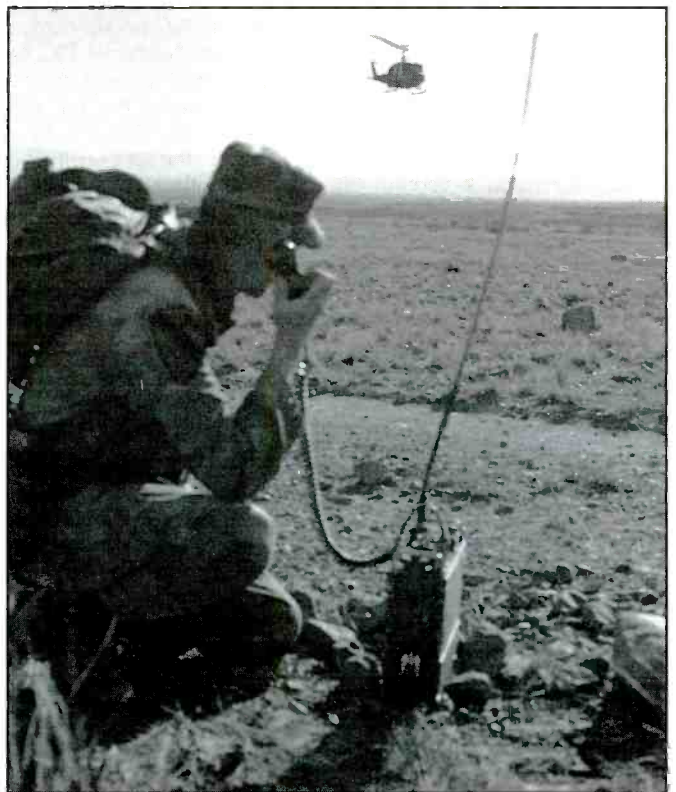
We'll begin by discovering who these ra-

dio hobbyists are. As military professionals, we often disregard or are ignorant of, the electromagnetic spectrum for our communications is not only the realm of military communicators and electronic warfare (EW)/radio electronic combat operators. There are also many international, governmental, diplomatic, scientific, and civilian services that compete for and occupy the very low frequency (VLF), high frequency (HF), very high frequency (VHF), ultra high frequency (UHF), and super high frequency (SHF) radio airwaves. Most radio hobbyists are shortwave listeners (SWL's), scanner buffs, or amateur radio operators "hams." They often pursue these three disciplines. Probably the largest and most technical group are the more than one million radio amateurs worldwide. Amateur radio is a hobby of personal accomplish-



← A mountain-top U.S. Army radio facility in California. (Army photo)

Army ground/air field communications help a helo to land during maneuvers. (Army photo)



AR 8000

The New Concept - AR8000 shocks the market. AOR made every effort to incorporate the latest technology in to this new scanner.

SPECIFICATIONS

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- Modes: AM/NFM/WFM/USB/LSB/CW
- Stepsize: 50Mz to 999.995kHz
- Sensitivity(μ V): 30 to 1000MHz
SSB .2 AM 1.0 NFM .35 WFM 1.0
- Filters: (kHz) SSB 4 AM/NFM 12 WFM 180
- Memories: 50 ch. x 20 banks=1000 total
- Size/Wt.: 6.1 x 2.8 x 1.6 inch.
20 oz. batt. incl.
- * Cell blocked for all, but Approved agencies.



- Covers .5-1900MHz*
 - Ferrite Rod antenna below 2MHz
 - Only portable scanner on U.S. market to have true SSB, both LSB & USB. Others attempt SSB using a BFO, but are difficult to tune and produce poor SSB audio.
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 - Clone your memory banks with a friend, load 1000 memory channels in seconds
- .1 - 1900MHz*



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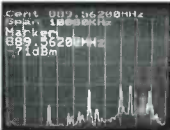
NEW

SDU 5000

The Spectral Display Unit adds a new dimension to the signal interception hobby. Imagine seeing stations above and below your



receiving frequency. Usually the transmissions are short, perhaps 1 or 2 seconds. What are the chances of you being tuned to the exact frequency at the instant of transmission? Very slim. With an SDU you can watch for stations to pop up over a 10MHz window, then zero in. The SDU 5000 offers features unheard of only a year ago.



Frequency coverage up to 10MHz Δ Display - 3.1" HQM Simple matrix color LCD Δ Resolution: 5 or 30kHz selectable Δ Input: 10.7MHz Δ 50dB Dynamic range Δ Screen refresh 2/s Δ Composite video out Δ Full computer control Δ Video output NTSC or Pal display, on TV or record on VCR Δ RS232 9600bps Δ Instant receiver set from cursor via RS232 Δ Store image on disc or your video recorder Δ Menu driven system makes SDU5000 simple to operate Δ SDU5000 is designed to work with the AR3000A (modified with a 10.7MHz output) using RS232 link with or without a computer. Other receivers with 10.7MHz IF output but digital linking may not be straight forward.

AR8000 Interface

Computer Interface for the AR8000

- Δ Low Power, powered by your serial port
- Δ No Drain on the batteries in the radio
- Δ Light weight, perfect for Laptop use
- Δ As small as a DB-25 Connector
- Δ Hi-Tech Surface mount design for reliability
- Δ 100% Shielded cable to receiver for reduced interference
- Δ PC Software included for Windows and DOS
- Δ Manual included
- Δ Detailed Programers documentation available
- Δ Designed and Manufactured in the USA
- Δ Optional 100% shield computer cable from AR8000INF to computer for reduced interference

Unlike some of the European devices sold today, this unit is smaller, lighter, and makes no power demands on your receiver. With the extra shielding and smaller size there is less chance of additional interference leaking into your radio. The AR8000INF is also the only interface that is upgradeable for use with the optional Tape recorder controller due first quarter '95.



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Green Beret (Special Forces) "A Team 743" 7th SFG (Airborne) operators can communicate by CW when on recon missions behind enemy lines. (Army photo)

ment and enjoyment. Licensed hams communicate via two-way radio stations from their homes, from their cars, and from outdoors. They talk with other hams as close as across town and as far away as around the globe. Ham radio operators have been around since the days of Marconi's spark gap radio system; many of the important breakthroughs in communications theory and practice have been made by hams. SWL's normally concentrate on listening to international broadcasts such as the Voice of America, Radio Moscow, or signals not necessarily meant for general consumption "utilities." Scanner buffs spend much of their time monitoring VHF/UHF public safety (police, fire, ambulance, etc.) and aeronautical communications.

What are they listening to? They listen to everything! Military communications, diplomatic shortwave communications, public safety traffic, the mysterious "numbers stations," and many lucky hams have

even monitored our president's voice communications from Air Force One. Understandably, those transmissions have been scrambled since this disclosure was made public. Unfortunately, the question that we must ask is who else had been listening to those communications and for how long?

Readily available state-of-the-art receiving equipment allows hobbyists to monitor radio signals from low frequencies through the microwaves. Examples of signals include:

- Voice traffic—AM/FM/single sideband (all services).
- Morse code—ship-to-shore and some military communications.
- Radioteletype (RTTY)—both single channel and frequency division multiplexed (FDM) RTTY and military, press agency, and weather traffic.
- Facsimile (FAX)—mostly weather maps, both HF and weather satellites.
- Space communications—commercial and military satellites and manned

space craft. Hams have their own satellites acting as retransmission stations. Many Americans shuttle astronauts are hams who are allowed to communicate with hams on the ground from the spacecraft. Not to be outdone, the Russian space station Mir "Peace" routinely carries hams aboard who talk with hams on earth as they circle the globe.

Hobbyists also find out what is going on in space by listening in on satellites. This is done using basic radio equipment, orbital prediction information available from the National Aeronautics and Space Administration (NASA), and simple graphic aids and computer programs that produce projected satellite ground tracks.

All this technological equipment is readily available and remarkably affordable. This spread of technology can be both our friend and foe. Any unreasonable restriction on such capabilities is unthinkable in our open democratic society; however, the price we pay for that privilege is an increased risk to our security interests. Hobbyists use the latest in radio, computer, and data communications equipment. They can also do HF and VHF/UHF direction finding with great accuracy. Listeners also "descramble" some radio signals with hidden meanings including scrambled police communications using audio frequency inversion techniques, and encrypted cable and satellite television signals used by the pay-TV services.

Personal telephone communications are well within reach of prying ears. Cordless telephones transmit and receive in the 46 MHz band and are easily monitored on the simplest VHF scanner radios. The Electronic Communications Privacy Act (ECPA) of 1986 prohibits the monitoring of cellular phone transmissions in the 850-900 MHz range, but does not make owning radio equipment that can receive this spectrum illegal. Cellular monitoring and "cell-tracking" to maintain continuous reception of cellular conversations is within the capability of advanced radio hobbyists.

There is an abundance of information and resource material available to the radio hobbyist. Magazines such as *Popular Communications* and *Monitoring Times* are nationally distributed and include technical and operational details that would make any military intelligence professional take a second or third look. Frequency guides such as the *World Radio/TV Handbook*, *Guide to RTTY Frequencies*, *Shortwave Directory*, *The 'Top Secret Registry' of the U.S. Government Frequencies*, and *Communications Satellites—A Monitor's Guide*, describe in great detail the frequencies and times that many government agencies use for communications.

Speculations on satellite up link/down link frequencies and modulation techniques are widely distributed. Books speculating on our intelligence architecture and

capabilities are available in most book stores; *The Puzzle Palace* claims to detail the inner workings of the National Security Agency, and in *Deep Black*, the author describes what he believes the U.S. space reconnaissance and surveillance program to consist of.

Radio hobbyists listen to their radios for many reasons. Chief among them is a strong curiosity and an opportunity to challenge their technical skills. Besides, it's a lot of fun and can be extremely relaxing. The radio listener's "desire to know" loosely equates to the motivation that drives the "computer hacker" of today; a motivation that can sometimes lead to serious consequences. Furthermore, hobbyists who are familiar with intelligence matters because of their occupation must be extremely careful in how they handle that knowledge; there is ample opportunity for them to inadvertently disclose classified information to their fellow hobbyists.

Probably one of the more enjoyable and frustrating aspects of these hobbies is speculating as to the rhyme and/or reason behind some of the signals that you can hear, but whose content you cannot decipher. For example, SWL's have been listening to, and speculating on, the purpose of the famous "numbers stations" for more than 20 years. These transmissions are normally heard outside the international broadcast

or ham bands and usually consist of a stilted, mechanical female voice transmitting groups of numbers for several minutes. The transmissions end abruptly with no station identification.

Numbers stations transmit in various languages and message formats, with English, Spanish, and German being the most common. But what is the purpose of these stations? Over the years hobbyists have proposed many different theories including that they are spy messages, lottery numbers, bank account information, and military messages. One author has even suggested that, "They could have no purpose at all." Amateur cryptologists have given these code groups their best shot with no results to date. Dedicated "numbers" monitors have even "tracked down" one station they believe to be sending numbers traffic; they describe the station's location as being a U.S. government installation.

Radio sleuths have also speculated about communist attempts to control the weather with extremely low frequency (ELF) radio signals, the use of the microwaves for "mind control," and what kinds of sophisticated electronic equipment the Apollo astronauts may have felt in place on the moon pointed toward earthbound targets.

Talking with hams around the world and monitoring radio communications are enjoyable and rewarding hobbies. But radio

hobbyists are only amateur sleuths; we must always remember that our potential opponents are extremely capable and dangerous professionals. ■

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Attention Shortwave Listeners

Introducing Wide Band Audio - DSP Noise Reduction

JPS Communications introduces the NTR-1, a wideband (7kHz) DSP noise and tone remover that can be used for AM broadcasts as well as SSB and other narrow band modes. Two front panel push buttons allow you to select the spectral NOTCH and/or NOISE REDUCER independently, while a third button lets you select WIDE or NARROW bandwidth. The spectral NOTCH removes ALL tones or whistles in 3 to 5 milliseconds. The NOISE REMOVER reduces or removes most noise types instantly.

Simple installation: Unit goes between your receiver speaker output and your external speaker.

Power required: 11 to 16 VDC @ 500 ma.

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NIR-10 Noise Reduction Unit	\$349.95
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CIRCLE 64 ON READER SERVICE CARD

AR3030 HF Receiver



IBS***

AOR offers leading edge technology in receiver design with the introduction of the AR3030! Unbelievable design & price tag...nothing has been spared! Compare AR3030 features with other receivers costing over \$1000...The AR3030 is the winner!

SPECIFICATIONS

Frequency: 30-kHz-30MHz plus optional internal VHF converter 108-174MHz • Memories: 100 programmable w/ scan • Modes: AM, LSB, USB, CW, FAX, FMN • Tuning Accuracy: 10Hz • Image & Spurious rejection: >70dB • Dynamic Range: >100dB @ 25kHz spacing
 Antenna inputs: (1) Coax 50Ω unbal. (2) 450Ω bal. (3) Hi-Z for whip
 Audio output: External speaker, FAX, Record • IF Output: 455kHz
 Computer: RS-232C • Power: 12VDC -800mA (max. audio); 8AA Nicad or Alk (not incl.) • Size: 10"W x 3.5"H x 9.5"D; 4.8 lbs.

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CIRCLE 67 ON READER SERVICE CARD

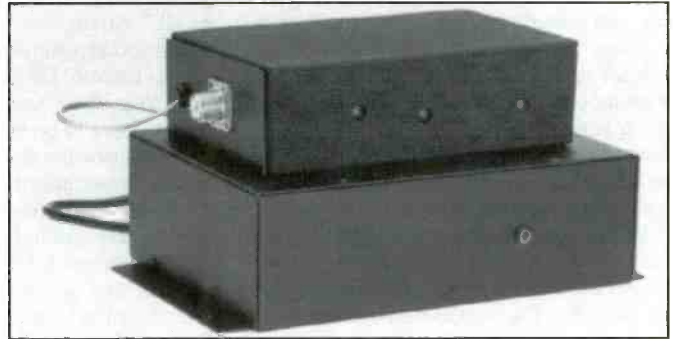
NEW PRODUCTS

REVIEW OF NEW & INTERESTING PRODUCTS

Deterrent 2 Radio Alarm System Helps Police Crime

Telemobile Inc., introduces a radio alarm system for shop owners, gas stations and restaurants to alert the local police during emergency situations.

Deterrent 2 operates on the low power itinerant frequencies for local use in shopping malls, with a higher power system assigned on police frequencies for a greater range of coverage when necessary.



The Deterrent 2 Series operate in both the VHF 150-70 MHz band and the UHF 450-470 MHz band. Other special frequencies in 250 and 350 MHz bands are offered for use in other countries where frequencies are used by local police agencies.

The transmit module operates from a plug-in AC wall outlet with an antenna running outside of the shop. A dry contact closure activated from the sales counter or by a switch in the cash register sends out the identifying number of the shop needing emergency assistance.

The local police (or private protection agency) carry a shirt pocket portable which gives an audible beep and visual readout of the calling number needing emergency assistance. Police support is provided instantly without sending an alarm that would alert the criminal or person causing the disturbance.

Since local shops purchase the Deterrent 2 alarm system including handhelds, there is no investment by the local police. Additional handhelds and Deterrent 2 transmit units can be purchased separately. This system can protect a total of 999 separate shops within a two-mile radius.

For further information, contact Telemobile Inc., Sales Department, 19840 Hamilton Avenue, Torrence, CA; phone (310) 538-5100; FAX (310) 522-8256.

DES Data Encryptor Provides Security for Low- or Medium-Speed Links

Cylink Corporation welcomes its latest data encryptor—the CIDECLSI.

The new unit provides secure access control and data confidentiality for point-to-point, dial up, or multi-drop applications. It supports 19.2 kbps asynchronous and 256 kbps synchronous simplex, half-duplex, or full-duplex data communications.



CIDEC-LSi features include more link-level diagnostics and, for asynchronous operation, a new 8-bit, cipher feed encryption mode. The new encryptor also has support for a key loader to enter access control authentication keys.

Cylink has improved the reliability of this encryptor with completely restructured software and redesigned hardware platform. However, the unit remains completely backward compatible with its predecessor, the CIDEC-LS.

The CIDEC-LSi offers comprehensive key management options, including Cylink's powerful automatic key management system, the Secure Electronic Exchange of Keys (SEEK). This eliminates the need for traditional manual key distribution—usually the most expensive and vulnerable aspect of data security. Manual key management is also fully supported.

Other notable features of the CIDEC-LSi include protocol-transparent operation, front-panel configuration via a keypad and LCD display with menu prompts, and compatibility with Cynet Manager network management system with SNMP support. The CIDEC-LSi is compliant with FIPS 140-1 standards.

For more information, contact Cylink, 910 Hermosa Court, Sunnyvale, CA 94086-4103; phone (408) 735-5800.

VOX Tape Controller

Worldcom Technology introduces a tape-saving voice activated tape controller with a unique twist. Known as the Action Tape Controller, it simply plugs into your scanner (or SW receiver) and tape recorder, activating the recorder only when the scanner picks up a valid transmission (won't trigger on dead carriers), recording whatever the scanner picks up, then shutting off the recorder when the scanner is silently searching frequencies.

Housed in a compact, attractive case, the Action Tape Controller is completely self-powered. Requiring neither batteries nor external power, all energy is generated from the scanner's audio without draining the unit's battery.

The Action Tape Controller can also be used with a shortwave receiver for unattended automatic recording of a selected program (provided the receiver contains a clock/timer). The Action Tape Controller works with any tape recorder equipped with a remote control jack, found on almost all portable cassette recorders. It features selectable hang time (delay between signal drop out and recorder stop) of one or two seconds, and even fuse-protected output. The set comes fully assembled, tested, and ready for action.

Use two scanners with the Action Tape Controller to catch rare action that you may have been missing out on while your scanner remains tied up on busier channels. Program your second scanner with frequencies used by agencies and individuals such as the FEMA, SWAT teams, Coast Guard, and detectives (all of which contain exciting but spare action), connect it to the Action Tape Controller and your tape recorder and leave this setup running 24 hours a day. The result will be a tape packed with condensed communications of a caliber that you may not have known to exist in your area.

Polarity is internally switchable to ensure universal compatibility. Output cable #3 is four inches long, with 1/8-inch in-line phone jack on end, provides reduced level audio to any external speaker equipped with a 1/8-inch phone plug. Output #2 fuse is internal, one amp, 5 x 20 mm miniature type. The warranty period is 180 days.

For more information, contact Worldcom Technology, P.O. Box 3364, Ft. Pierce, FL 34982; (407) 466-4640.



KITS FOR SHORTWAVE LISTENING

from America's foremost ham manufacturer

9-BAND SHORTWAVE RECEIVER

Modernized "first radio kit" classic! 5 transistor, 3 IC design, one-button electronic bandswitch, complete with quality cabinet. Easy step-by-step instructions. Tune both AM broadcast and SSB/CW from 1.8-24 MHz. Has both Main and Fine tuning, Regen, RF gain, Volume. Powerful audio to built-in speaker or your own speaker or stereo phones. Uses 8 C cells or ext. 12 VDC.

1253.....\$49.00*

ONLY \$17 FOR 4-BAND RECEIVER

This little Regen beats the pants off those favorite 3-tube radios of the 1950s. Covers 49 and 31 meter SW bands, 40 and 20 meter ham bands plus 12-15 MHz. Includes punched and labeled front panel. Dress it up later with your own case and knobs. Has push button bandswitch, Main Tuning, Regen control, volume and on-off switch. You provide DC, stereo phones or speaker. (fits 1000B)

1054.....\$17.00*

Popular group project! buy 5 for \$79

"ANY BAND" SSB/CW RECEIVER

Industry's best buy using direct conversion. Designed to introduce you to world of ham radio. Better audio and filtering than competition and we supply everything to build it, or change it, to ANY ham band 160-10 meters. You provide DC, speaker or phones. (fits 1000C)

1056.....\$27.00*

BUDGET-PRICED PC BOARD PROJECTS FOR SWLS

ACTIVE ANTENNA

Bring any HF receiver to life with this active antenna and a short wire or simple whip. Includes gain control. 1552.....\$12.00*

6 TO 10 METER RX CONVERTER

Enjoy monitoring the "forgotten" 6 meter band and fascinating E skip propagation. Tune 28-30 MHz, any mode on your HF receiver to hear 50-52 MHz. 1061.....\$17.00*

BROADBAND RF PREAMP

Try a low noise, broadband, untuned preamp in front of your receiver, scanner or instrument. 15 dB gain, 1 -1000 MHz. 1001.....\$9.00*

SMART SQUELCH

Known as DXers integrating squelch, liberates you from unwanted hiss while monitoring. Responds only to cumulative effect of several seconds of weak signal, not isolated noise. Connect between receiver and external speaker. 1064.....\$15.00*

TUNING BRIDGE

Sure-fire way to maximize reception when using an antenna tuner. No "R-X" controls to fool with like conventional Noise Bridge. Simply tune until modulated pulses drop to a null. 1051.....\$17.00*

FOXHUNT TRANSMITTER

Great for clubs, scouting or family fun. Tune it to a quiet part of 88-108 FM band and notice distinctive "beep-beep". Use portable FM radio to find the hidden transmitter! 1059.....\$10.00*

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Reliable, inexpensive audio amp for homebrewing. A low distortion 1.5 watts without motorboating or unwanted oscillation. Includes 10 db preamp. 1550.....\$8.00*

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Add SSB/CW reception to your AM-only SW radio. This varactor tuned 455 KHz oscillator provides for receiver alignment variation and fine tuning of SSB/CW signal. 1050.....\$9.00*

ENCLOSURE-PLUS HARDWARE PAKS

3 sizes to fit your projects. Includes aluminum box, assorted hardware, switches, knobs, wire, etc.

2.25 x 5.5 x 4.25" box, DPDT & SPDT, 3 knobs, wire/coax pak, hardware. 1000B.....\$16.50*

2 x 4.75 x 4" box, DPDT toggle, knob, wire/coax pak, hardware. 1000A.....\$13.50*
NOTE: Fits all 8 budget priced projects.

2.75 x 6.5 x 5.5" box, DPDT, 5 knobs, 3" speaker, wire/coax pak, hardware. 1000C.....\$19.50*

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COMMUNICATIONS FOR SURVIVAL

Boat Radio Licenses

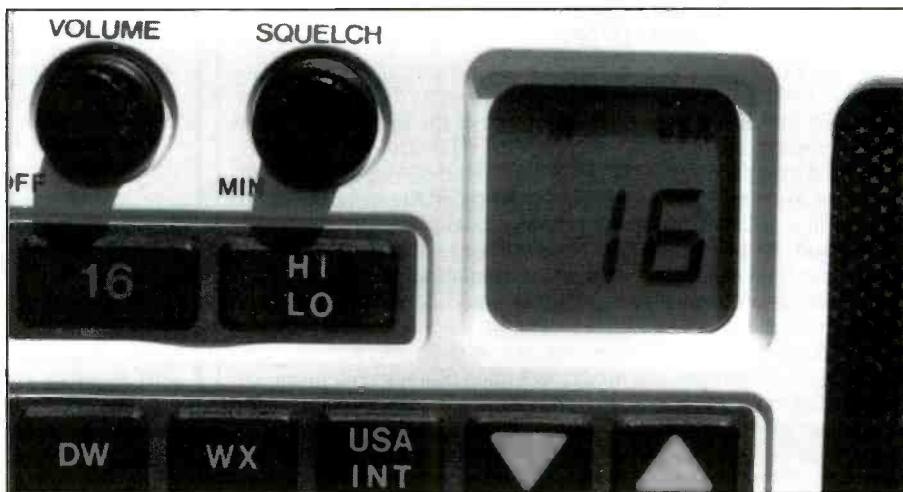
Marine rescue squads or emergency responders to lakes, rivers, and ocean areas should have marine VHF handheld equipment to communicate directly with Coast Guard or other on-water authorities. (Refer to Table A for frequencies common for water emergencies.)

Ships with a permanently installed VHF require a ship radio station license. FCC



New ICOM handheld which carries dual-type acceptance for land and marine use

Table A	
156.800 MHz simplex	Marine VHF Channel 16 International distress & calling.
156.450 MHz	Marine Channel 9, secondary calling & ship-to-ship/ship-to-shore.
156.300 MHz	Marine Channel 6, intership safety.
157.100 MHz	Channel 22A, liaison frequency with U.S. Coast Guard.
157.175 MHz	Channel 83A, U.S. Coast Guard auxiliary.
162.550, 162.400, 162.475 MHz	Weather receive frequencies.



Channel 16 is the distress channel to monitor when not on other channels.

Form 506 dated August 1993 or July 1994, is the proper license application. The FCC fee is \$115 for the ten-year license, and as soon as you send the license to the FCC, you can go on the air immediately using your rescue boat state or federal documentation numbers.

Your rescue unit may own marine VHF handheld transceivers that might be used

on any vessel. The same FCC Form 506. Item 10, allows for a portable VHF set to receive its own call signs independent of any boat assignment. A Part 80 marine VHF handheld would be operated aboard any vessel with its own call sign.

Rescue squads might also purchase a combination Part 80 and Part 90 handheld, such as the new ICOM VHF commer-



Well equipped rescue boat relies on VHF channel 16 to hear distress calls.



Combination VHF radio and automatic direction finder.

Approved by OMB
#86-0056
Expires 7/31/95
See instructions for
public burden estimate.

UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION

FOR
FCC
USE
ONLY

APPLICATION FOR SHIP RADIO STATION LICENSE

FOR RECREATIONAL OR VOLUNTARILY RADIO EQUIPPED SHIPS - COMPLETE ITEMS 1 THROUGH 21 AND ITEM 27 AND SIGN THE APPLICATION. You will be authorized for VHF (156-158 MHz) & Class C EPIRB (156.75-156.8 MHz). Other radio equipment must be requested in item 22.

FOR COMPULSORILY RADIO EQUIPPED SHIPS (REQUIRED TO BE RADIO EQUIPPED) - COMPLETE ALL ITEMS AND SIGN THE APPLICATION. You will be authorized only for the equipment you have checked in item 22.

1. APPLICANT NAME Last First Middle
CALIFORNIA RESCUE, Inc.

2. MAILING ADDRESS
12345 STREET NAME AVE.

3. CITY **ANYWHERE** 4. STATE **CA** 5. ZIP CODE **12345** 6. FCC CALL SIGN _____

7. PAYMENT TYPE CODE **PASR** 8. QUANTITY **1** 9. FEE DUE **\$115.-** 10. TYPE OF LICENSE
 Regular Portable Fleet (Give no. in fleet)

11. TYPE OF APPLICANT Individual Corporation Partnership Association Governmental Entity

12. RELATIONSHIP OF APPLICANT TO SHIP Owner and/or Operator Other (Specify)

13. ADDITIONAL PARTNERS _____

14. PURPOSE OF APPLICATION New Modification Renewal

15. OFFICIAL NUMBER OF SHIP (Coast Guard Documentation No. or State Registration No.) **PORTABLE**

16. CLASS OF SHIP General **PORTABLE**

17. NAME OF SHIP **PORTABLE**

18. WILL SHIP MAKE INTERNATIONAL VOYAGES? YES NO

19. WILL SHIP COMMUNICATE WITH FOREIGN COAST STATIONS OTHER THAN THOSE LOCATED IN CANADA OR MEXICO? YES NO

20. DO YOU REQUEST A NEW OR MODIFIED MARITIME MOBILE SERVICE IDENTITY NUMBER (9 DIGITS)? See instructions. YES NO

21. IF APPLICABLE, PROVIDE YOUR CURRENT MARITIME MOBILE SERVICE IDENTITY NUMBER _____

22. CATEGORY OF TRANSMITTERS:

<input checked="" type="checkbox"/> V	VHF/FM Radiotelephone (156-158 MHz & EPIRB (156.75-156.8 MHz))	<input type="checkbox"/> L	Survival Craft (500 kHz) (8364 kHz)
<input type="checkbox"/> A	EPIRB (121.5 and/or 243 MHz) Class A, B, or S	<input type="checkbox"/> P	RTTY-Radioprimer (Under 1600 Gross Tonn)
<input type="checkbox"/> T	SSB Radiotelephone (1710-4000 kHz)	<input type="checkbox"/> I	AMTS (216-220 MHz)
<input type="checkbox"/> U	SSB Radiotelephone (4000-27500 kHz)	<input type="checkbox"/> F	Facsimile
<input type="checkbox"/> R	Radar (2900-3100 MHz) and/or (9300-9500 MHz)	<input type="checkbox"/> S	Satellite (1638.5-1644 MHz)
<input type="checkbox"/> W	Radar (14.0-14.05 GHz)	<input type="checkbox"/> B	EPIRB (1645.5-1646.5 MHz)
<input type="checkbox"/> M	Radiotelegraph (2000-27500 kHz) except Direct Printing	<input type="checkbox"/> C	EPIRB (406-408.1 MHz)
<input type="checkbox"/> N	Radiotelegraph (2000-27500 kHz) Direct Printing (DPOI/SITOR)	<input type="checkbox"/> D	On-Board (457.525-467.825 MHz)
<input type="checkbox"/> X	Radiotelegraph (405-535 kHz)	<input type="checkbox"/> O	Other (See Instructions)

23. SHIP RADIO REQUIREMENT CATEGORIES:
 (A) Radiotelegraph Station Required by Title III, Part II of the Communications Act
 (B) Radiotelegraph Station Required by Title III, Part II of the Communications Act or Safety of Life at Sea Convention
 (C) Radiotelephone Station Required by Title II, Part III of the Communications Act
 (D) Radiotelephone Station Required by the Great Lakes Radio Agreement
 (E) Radiotelephone Station Required by the Great Lakes Bridge-to-Bridge Radiotelephone Act

24. GROSS TONNAGE AND/OR LENGTH OF SHIP GROSS TONS _____ FEET _____

25. RADIOTELEGRAPH MORSE WORKING CHANNEL (1500-27500 kHz) . W _____ W _____

26. IF APPLICABLE, PROVIDE SELECTIVE CALL NUMBER (5 DIGITS) _____ INMARSAT-A NUMBER (7 DIGITS) _____

CERTIFICATION

Applicant waives any claim to the use of any particular frequency regardless of prior use by license or otherwise. Applicant will have unlimited access to the radio equipment and will control access to exclude unauthorized persons. Neither applicant nor any member thereof is a foreign government or representative thereof. Applicant certifies that all statements made in this application and attachments are true, complete, correct and made in good faith. Applicant certifies that the signature is that of the individual, partner, or officer or duly authorized employee of a corporation, or officer who is a member of an unincorporated association, or appropriate elected or appointed official on behalf of a governmental entity.

27. By checking Yes, the applicant certifies that, in the case of an individual applicant, he or she is not subject to a denial of federal benefits, that includes FCC benefits, pursuant to section 5301 of the Anti-Drug Abuse Act of 1988, 21 USC, Section 882, or, in the case of a non-individual applicant (e.g., corporation, partnership or other unincorporated association), no party to the application is subject to a denial of federal benefits, that includes FCC benefits pursuant to that section. For the definition of a "party" for these purposes, see 47 CFR Section 1.2002(b).
 YES NO

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001) AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(A)(3)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

SIGNATURE *[Signature]* DATE **1/4/95**

FCC 506
July 1994

An example of the FCC's ship license application.

marine transceiver, which could have both marine channels for boat use as well as land channels for shore use. You would be using two different call signs depending on whether you were on land or at sea.

For rescue squads who patrol waterways, a private coast station license is available on FCC Form 503. This would allow you to talk from your shore base station to any and all ships on specific marine VHF channels assigned by a local frequency coordinator or specific channels that you might choose for your type of emergency operation. The cost for a private coast sta-

tion license is \$120 for five years, and there is also the provision to operate with this license mobile as a land station in the marine service at an unspecified location.

To obtain FCC Form 506, FCC Form 503, and personal radio operator permit Form 753, plus the Private Radio Bureau Fee Filing Guide effective July 1994, write Federal Communications Commission, Forms Distribution Center, 2803 52nd Avenue, Hyattsville, Maryland 20781, or phone (202) 632-FORM. Direct questions about eligibility to the FCC Consumer Assistance staff at (717) 337-1212. ■

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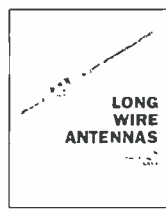


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CIRCLE 89 ON READER SERVICE CARD

HOW TO FIND MISSING PERSONS

A Handbook For Investigators
Expanded Second Edition



Ronald Eriksen

piled data. Traces can also be done by phone and FAX. People being sought who, in past years, took weeks of ringing doorbells to locate can now often be found in minutes, and from your desk. The trick is knowing where and how to obtain the vital information needed. That's the aim of Ron Eriksen's book.

Topics covered include securing, coaxing or (if necessary) even tricking information out of reluctant people, companies, and agencies. The successful tracker can get unpublished phone numbers and phone records, defeat "Caller ID," and obtain virtually any address. This useful book explains how to extract vital information from cable TV companies, public utilities, friends and relatives, neighbors, property records, Social Security data, hunting/fishing/occupational license records, banking and credit records, medical and insurance files, DMV and police records, military and school records, employers and landlords, courts, adoption agencies, online data sources, and many others.

Eriksen is a no-bull professional investigator who knows just where to go to dig up the right information. He shows all the angles needed to gain the data to locate someone, fast. He shows his readers how they can use the very skills shown in his book to aid them in becoming licensed private investigators. Full time or part time private investigators trace missing persons, and can earn substantial fees for their efforts.

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How To Find Missing Persons, 2nd Edition, is \$17.95, plus \$5 s/h (\$6 to Canada). Residents of NY State please add \$1.95 tax. Order from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725-0056. VISA/MC welcomed. Phone orders: 1-800-656-0056; Canada/ AK/HI orders: (516) 543-9169.

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The BBS Construction Kit is more than a book. It comes complete with a 3.5" PC compatible disc containing GAP BBS soft-

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- ✓ Other important stuff

David Wolfe

ware to install a 20-active-user BBS, Global Wars (a game), Online (a complete e-mail package), TheDraw (an ANSI drawing and animation utility), and a quick door converter for running games and other software on the BBS.

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MONITORING THE 30 TO 900 MHz "ACTION" BANDS

Was the winter harsh on your radio shack? The weather is about to start turning warm, making it a good time to get an eyeball on the antenna farm and see whether you've got some antenna work to deal with over the next few weeks.

Check if ice has broken elements off antennas (you'll usually find them on the ground within air distance of the tower). Has ice and water gotten into coaxial cable connectors? Do you have coax that looks like it could stand to be replaced? Have winter winds worked antennas loose on the tower or mast?

A little extra effort now will offer better scanning for the spring and summer months ahead. When the scanning gets hot, you won't want to miss any action because the antennas suffered the wrath of the seasons.

Online

J.J. Johnston, WB3IEZ, checks in to say he just read the December issue and was surprised to see an e-mail address. He enjoys this section of the magazine.

He also asks whether any other POP'COMM writers are on line. To my knowledge, none of the other regular columnists are, however, if you want to send e-mail to them, send it to my e-mail address (at the end of this column) and I will forward it to

them via our offices.

New Scanners

Jan Weiss e-mails us to say he saw an ad from one of the big scanner dealers advertising a new Uniden scanner called the BC3000XLT. He said he hadn't heard anything about it and was wondering what it offered. I was thinking maybe it's a new brother of the BC2500XLT. As far as we've heard, the BC3000XLT will replace the BC2500XLT handheld. Keep an eye on POP'COMM's advertisers to learn more about it.

Jan also says that he's planning on buying a Uniden Bearcat BC8500XLT with a CTCSS tone decoder because Kansas City police plans to move to 800 MHz. Jan says he's heard the scanner's pretty nice but since he hasn't seen anything good or bad about the decoder, he wondered if we had.

The CTCSS decoder works fine in all the Bearcat scanners. I've been using it in a couple of Bearcat 600XLTs for several years now. While earlier versions of the tone board did not allow scanning carrier squelch channels with CTCSS channels, the newer versions of the tone board do allow programming in 0.0 for no CTCSS. The advantage to having a CTCSS board is that you can eliminate monitoring other stations on frequencies that are of no inter-

est to you. For instance, if there are a half-dozen other police departments on the same frequency used by your local police department, you could effectively screen them out so that you heard only your local law people. It's a good tool.

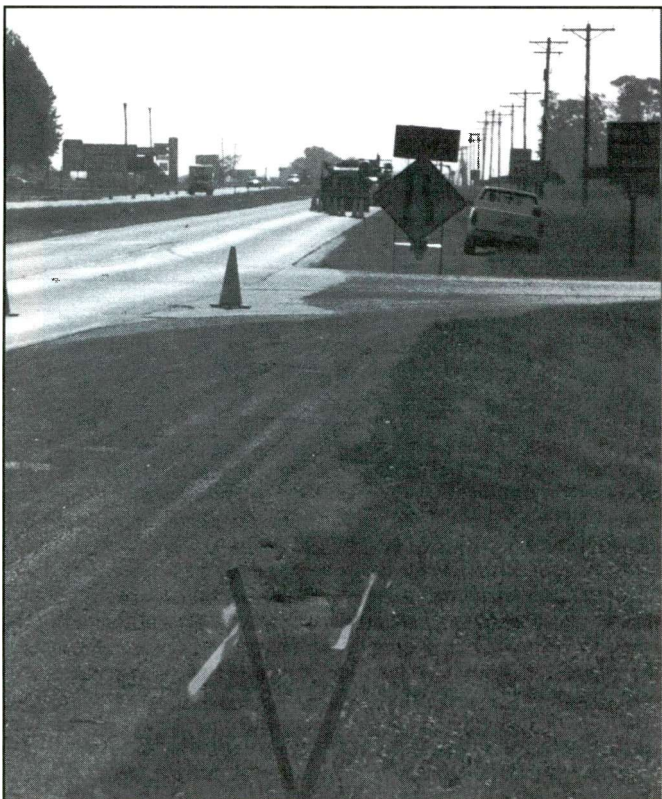
Jan also liked the stuff in the 1995 *Popular Communications Communications Guide* and stayed up until 1 a.m. reading it. To find out more about the POP'COMM guide, check the ad in this issue.

Corroded

Adam, "RCURE" from America Online, says he always reads this column in POP'COMM every month. He asks how he can remove the corrosion buildup on his antenna terminals. The connectors are 300-ohm lead. He also asks how to get rid of the corrosion in some of the antenna rods.

First of all, antennas aren't designed to last a lifetime. After a while, there just comes a time to replace antennas, connectors and cable. Weather is a harsh element for antennas no matter where you live. And when the system isn't in good order, it won't help you snag signals off the air.

One of the best ways to avoid corrosion is to use preventative methods. Commercially available coaxial sealant is available from most amateur radio supply shops. It is a pliable material that you wrap around



▲ Brian Wroblewski of Buffalo, New York, likes to monitor ships, trains, and planes with his Uniden Bearcat 100XLT handheld scanner. He snapped this photo of the Tug Iowa bringing the grain boat Kinsman Independent into Buffalo Harbor using marine Channel 18, 156.900 MHz.

◀ Springtime means the start of road construction season, especially highway projects. Check the 33, 45, 47, 151, 156, 159 and 453 MHz bands for most municipal, county, and state transportation departments. (Photo by Chuck Gysi, N2DUP)

the connector and the base of the antenna where the connector attaches. It helps prevent moisture and other elements from causing their damage. Even if you don't use the sealant, at least wrap connections in a good electrical tape. It won't be fail-safe, but it's better than leaving the connectors exposed to the elements.

For the connectors themselves, it would prove worthwhile to simply install new connectors on cable when the old connectors look very weathered. Typically, PL-259 connectors sell in the neighborhood of \$1, so it's a minor cost. If the connector at the base of the antenna is corroded, you could try to clean it up I suppose. I don't have the absolute answer, but perhaps something like naval jelly might help. Just be sure you don't get any inside the connector where it could short out the antenna when the coax is plugged back in.

On some antennas, you might even be able to remove the female receptacle for the cable and replace it. However, you'll need to solder on the new connector to the antenna. Again, replacing that part of the antenna shouldn't be too costly either. The decision whether to repair the antenna should be based on whether the rest of the antenna is in good condition.

On the 300-ohm connectors that Adam mentioned, again, make sure they aren't exposed to the elements, i.e., make sure they are sealed from water, sun, etc. While coaxial sealer works good, even electrical

tape is better than leaving the components exposed. As to cleaning the antenna rods, the same applies as to cleaning the connectors. Try something like naval jelly or you may even consider replacing weathered or worn parts. If you get ten years out of a scanner antenna, you made out okay. It may be time to retire the old friend!

Manual Request

Phil Mikula, N8ITY, sends e-mail from Comstock Park, Michigan, saying he looks forward to reading this column in *POP'COMM* each month. Phil says he came across an old Regency Hi-Lo Monitoradio Executive 16-channel scanner. He was wondering whether anyone knew where he could get a manual and wiring diagram for the old scanner. He notes that it's in real good shape for a old crystal unit. Regency sold its scanner line to Uniden a few years ago. If anyone has ideas about how to obtain old user manuals and service manuals for scanners, please write to us here at *POP'COMM*. Perhaps someone has a good archive of these somewhere. We'll be sure to pass the word along to Phil.

Quick Fix

Mike Hopkins, K1VLB, writes from CompuServe that he had an ongoing problem with his new BC2500XLT that drove him nuts. Apparently, he was receiving shortwave broadcast stations such as the Voice of America and Radio Deutsche

Welle all across the VHF band. He said he returned the unit to Uniden twice for repair. He said there was no improvement the first time and that the scanner was replaced the second time. The newer unit apparently had considerable improvement in sensitivity, Mike said, but still had lots of shortwave signals coming through.

The problem, Mike said, is a lack of adequate high-pass filtering at the input stage. He solved the problem with a Grove Enterprises FTR-6 costing about \$20. He suggests that if any readers using the BC-2500XLT with a decent outside antenna having the same problem may want to try this fix. He adds that he did not have the problem when just using the handheld with the rubber duck antenna.

Mike highly recommend the Grove high pass filter. He adds that not only was it inexpensive, but it worked and only took two days to arrive.

Write In

What are your favorite frequencies? Do you have any scanner-related questions? Do you have any listening tips worth passing along to your fellow readers? How about sending in a photo of your listening post or antenna farm? Write to: Chuck Gysi, N2DUP, Scanning VHF/UHF, Popular Communications, 76 N. Broadway, Hicksville, N.Y. 11801-2909, fax to (516) 681-2926, or e-mail to scan911@aol.com via the Internet

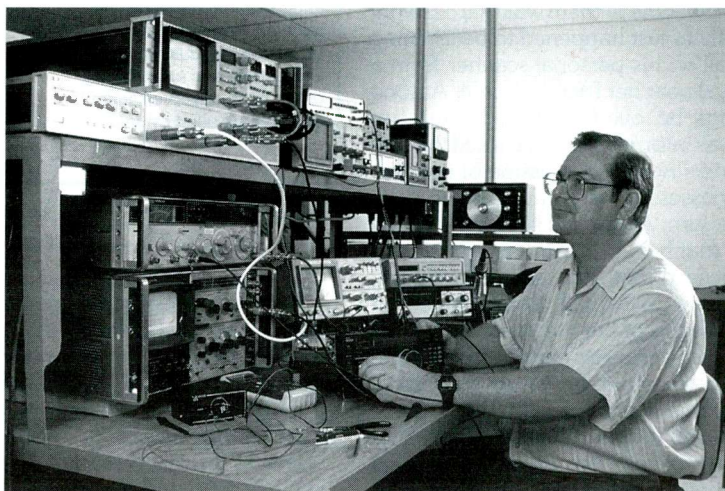
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WHAT'S HAPPENING WITH CELLULAR, MARINE & MOBILE PHONES

And you thought that a company-leased *Beemer* would be the nation's favorite job perk. Not so, according to a newly released survey of 254 nationwide companies. The survey, made by the Human Resource Advisory Group of Coopers & Lybrand L.L.P., reports that company cellphones top the list of the fastest-growing executive prerequisites.

More than half the respondents (62 percent) supplied top executives with cost-free cellphone use in 1993, compared to just over a third (35 percent) in 1992.

Compare this with the next largest perk increase, company-paid club memberships. That jumped to 61 percent in 1993, up from 56 percent in 1992. It ran a poor second to yacking on the company tab.

So, if you have got a pay telephone on your desk, it's time to complain. Demand your perk. I did, and they handed me a roll of quarters.

Cordless Chat Causes Arrest

Angie, a woman in Delphi, Ind., spent more than three hours on the horn chatting with a friend. She was using a standard phone, but didn't realize her friend at the other end of the conversation had a cordless telephone. In addition, she didn't know that because the other party was on a cordless phone, the call was being broadcast.

There were other important things she didn't know. One of them was that a Delphi police officer just happened to be listening to the call on his personal scanner from a car parked near her friend's home. Among the things he overheard Angie tell her friend, was information that caused the officer to arrest her for possession of marijuana and possession of paraphernalia.

To be sure, Angie said she was shocked to learn that her conversation over a standard house phone had been monitored, and that the police had eavesdropped on intimate details of her life. Angie, who has never had any previous encounters with the law, is 18 years old, has three children of her own, and two stepchildren.

According to reports in *The Evansville Press*, the focus of this case has centered upon whether interceptions of cordless phone calls are illegal. The attorney for the defense contends the monitoring violates state and federal wiretap laws, and his client's Fourth Amendment protection against warrantless search and seizure.


The police chief claimed that he doesn't restrict his officers from doing anything that any citizens can do. However, after this incident, his departmental policy has been modified to require that officers clear similar tactics with the chief for approval.

Volume 4.9

Countermeasures

"BUG" EXTERMINATION

The "Terminex"™ Method for Nosy "Bugs"



The audience of Countermeasures is intended to be the small to medium sized business person or individual who is susceptible to surreptitious monitoring. The techniques explained herein will allow these readers to detect, identify, locate, and eliminate (or provide misinformation to the users of) over 90 % of the bugs used today in industry and private lives. This can be accomplished with minimal investment of equipment provided proper steps are used and a proper understanding of the equipment and surveillance transmitters is attained.

Our audience is not the individual subject to electronic surveillance by government agencies with 3 letter initialed acronyms for names. Although the techniques discussed herein will identify and locate many of the bugs or surveillance transmitters used by said

agencies, these techniques probably will not locate the world's most sophisticated transmitters; those using spread spectrum technology, frequency hopping transmitters and/or high powered transmitters operating well above the 1 GHz range. However please note that in the 8 year history of James Engineering, publishers of Countermeasures, we have never even seen these exotic devices, though every attempt to attain information regarding acquisition or inspection, or accurate literature of these devices has proven futile. One may grow to wonder if such items exist in the miniaturization form of surveillance transmitters (or if they are actually even deployed outside the laboratory).

Further, there has been discussion in recent months of an X-10 type transmitter which operates in the 10 GHz range. A schematic for adapting such a device to transmit voice instead of a

carrier signal has indicated that such transmitters are capable of in fact transmitting voice. However, stability of transmitted signals in these ranges, when operated under low power (a necessary requirement of miniaturization and covert monitoring) are sporadic at best; not to mention the problems in demodulating such a signal at the receiving end!

This issue of Countermeasures addresses the detection, identification, and elimination (or misinformation to the users) of transmitters operating in the frequency ranges of 10 MHz to 2 GHz.

The largest majority of surveillance transmitters operates in the frequency range of 25 MHz - 500 MHz. Equipment and procedures described herein will find these transmitters in a snap.

On The Inside

Page 2	The Right Stuff
Equipment Descriptions & Reviews	
Page 5	Room Bug
Elimination Procedures	
Page 7	Suppliers

"Countermeasures" is an astute newsletter about bugs, scramblers, decoders, and other offbeat areas of communications.

The chief thought that people shouldn't become overly concerned that police are tuned in on their cordless conversations. The main consideration, he wisely reminded cordless owners, is that anybody can listen in on their calls.

Thanks to readers Stan Schmidt, and Troy Sanders, of Evansville, and Bradford Wicks, of Rensselaer, Ind., for keeping us up to date on this interesting story.

Phone-to-Go Service

GTE Corp. introduced its new Tele-Go service in Tampa, Fla. This is one of those PCS services we have all been awaiting. According to a story by Frank Ruiz in the *Tampa Tribune*, it works like a regular cordless home telephone when resting on

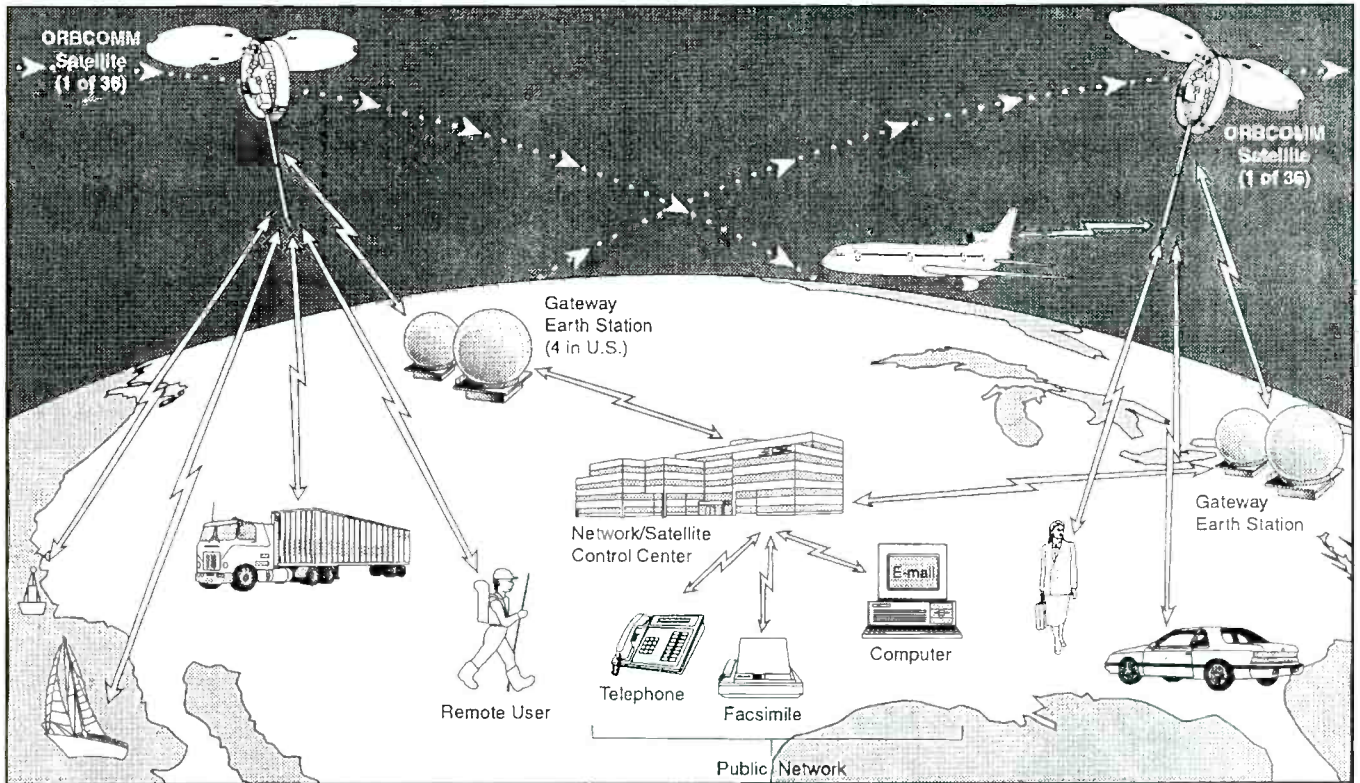
its cradle in your house, apartment or office.

But once it leaves the 200-foot range of its home base, it turns into something like a cellphone. It has its own phone number and accept incoming calls while you're wandering around with it.

Used at home, regular phone rates apply, but when you're roaming around the local Tampa area, the charge is 25 cents per minute for incoming/outgoing calls. There's a \$24.95 monthly service charge to have Tele-Go, in addition to regular home phone service. GTE says that this fee is about \$16 per month cheaper than their lowest priced cellular service.

In many ways, it behaves like a standard home phone. For instance, there's a dial tone, and you don't get that on a cellphone.

The Tampa market is first, with Port-



The ORBCOMM global low-Earth orbit satellite system will provide remote subscribers with inexpensive two-way messaging and position determination services.

FINALLY - NOW AVAILABLE IN THE USA
The Decoder that is the **STANDARD** of the European Continent.

HOKA CODE-3 USA Version

Many radio amateurs and SWLs are puzzled! Just what are all those strange signals you can hear but not identify on the Short Wave Bands? A few of them such as CW, RTTY, Packet and AmTOR you'll know - but what about the many other signals?

There are some well known CW/RTTY Decoders but then there is CODE-3. It's up to you to make the choice, but it will be easy once you see CODE-3. CODE-3 has an exclusive auto-classification module that tells YOU what you're listening to AND automatically sets you up to start decoding. No other decoder can do this on ALL the modes listed below - and most more expensive decoders have no means of identifying ANY received signals! Why spend more money for other decoders with FEWER features? CODE-3 works on any IBM compatible computer with MS-DOS with at least 640k of RAM, and a CGA monitor. CODE-3 includes software, a complete audio to digital FSK converter with built-in 115V ac power supply, and a RS-232 cable, ready to use.

CODE-3 is the most sophisticated decoder available for ANY amount of money, and the best news of all, is that it is available from a United States dealer.

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- ARQ-E/ARQ1000 Duplex
- ARQ-N-ARQ1000 Duplex Variant
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land, Ore., next up. Other markets will be announced later. If you're in the Tampa area (only), and within the local service range of GTE Tele-Go, you can order service or obtain more information by calling 1-800-995-5995.

We appreciate this information passed along by our friend Jim Lehmann, Pinellas Park, Fla.

Newsletter

We have been receiving a most interesting monthly "insiders" newsletter called *Countermeasures*, edited by James T. Brown. Deals with telephone security,

phone scramblers, spectrum displays, digital data interpreters, bugs and detection devices, and related information. It's \$65 per year from James Engineering, P.O. Box 1422, Carmel, CA 93921. Phone or FAX: (408) 624-3609. Alternately, contact them via e-mail at debugger@ix.netcom.com if you prefer to communicate in cyberspace.

First Global Two-Way Low-Earth Orbit Mobile Satellite

Orbital Sciences Corp. announced that its subsidiary, Orbital Communications

Corp. (ORBCOMM), has been granted FCC authority to operate up to 36 low-Earth orbit (LEO) satellites. There will be four ORBCOMM Gateway Earth Stations in the USA. These facilities will provide a wide range of low cost mobile satellite services.

Pocket sized ORBCOMM communicators and other devices will provide two-way messaging and data comms at costs equal to (or better than) today's nationwide paging services. Initial (partial area) service with two satellites should be starting sometime around the time you read this. Once the ORBCOMM system becomes fully operational, near-instantaneous economical two-way messaging and data communications capabilities will be available to subscribers everywhere on Earth.

Some potential applications include emergency rescue locator features; vehicular and maritime comms; remote industrial asset monitoring; cargo tracking; remote area telemetry; and stolen vehicle recovery.

Orbital Sciences Corp., is located at 21700 Atlantic Blvd., Dulles, VA 20166. Phone (703) 406-5000.

ORBCOMM seems to be a different operation than the previous announced low-orbit LEO-1 satellite system. LEO-1 will provide services comms via 48 satellites, downlinked on frequencies between 400.15 and 401.00 MHz. It will also have frequencies in the 22 and 24 GHz band.

Motorola Satellite Communications, Inc., Loral Qualcomm Satellite Services, Inc., and Mobile Communications Holdings, Inc., were also granted FCC approval to start construction of their proposed *Globalstar Big Leo* system. This will operate in the Above 1 GHz Mobile Satellite Service (Big Leo MSS).

New Portable

Mitsubishi International introduced their new Acces AH-2000 portable cellphone. This small pocket unit offers 1.5 hours of talk time, which is nearly 50 percent more than many other units. Other Acces AH-2000 convenience features are: large, easy-to-read 20 digit LCD display; large keypad; last number recall; continuously displayed signal strength and battery level indicators; 20 memory locations, and any key answer. The MSRP is \$249.

This unit comes from the Communication Equipment Sales Division, Mitsubishi International Corp., 1500 Michael Dr., Suite B, Wood Dale, IL 60191. Phone: (708) 860-4200.

Multi-Purpose Antenna

An automatic AM/FM/Cellular mobile disguise antenna is now offered by Richard Hirschmann of America, Inc. The Model MCA-4591 antenna is ideal for owners of convertibles and other vehicles with installation space restrictions, also for those who don't want to advertise that there's a cellphone in their vehicle.



When seconds count, REACT® needs you...

...to summon help for an injured motorists, an elderly woman trapped in a fire, a trucker stranded in a blizzard, a drowning child!

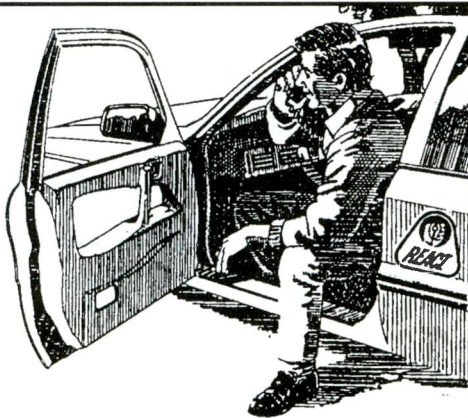
As a REACT volunteer CB radio monitor you may be the only communications life-line for someone in serious trouble. You relay messages from those desperate for help to police or other emergency services.

Your REACT Team will also use CB and other radio services to provide safety communications for events like parades, marathons and even balloon races. The fellowship with other REACT members at Team meetings and annual conventions is an added bonus.

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Mitsubishi announced this new portable cellphone, the Acces AH-2000.

Optimum operation is provided by an exchangeable 605 mm. long, three-section telescope-whip that projects the cellular radiator, encapsulated top section. The unit also provides user convenience, as it may be activated by switching on either the cellphone or car radio. A special connection allows activation directly through the car phone, even when the engine is not in use.

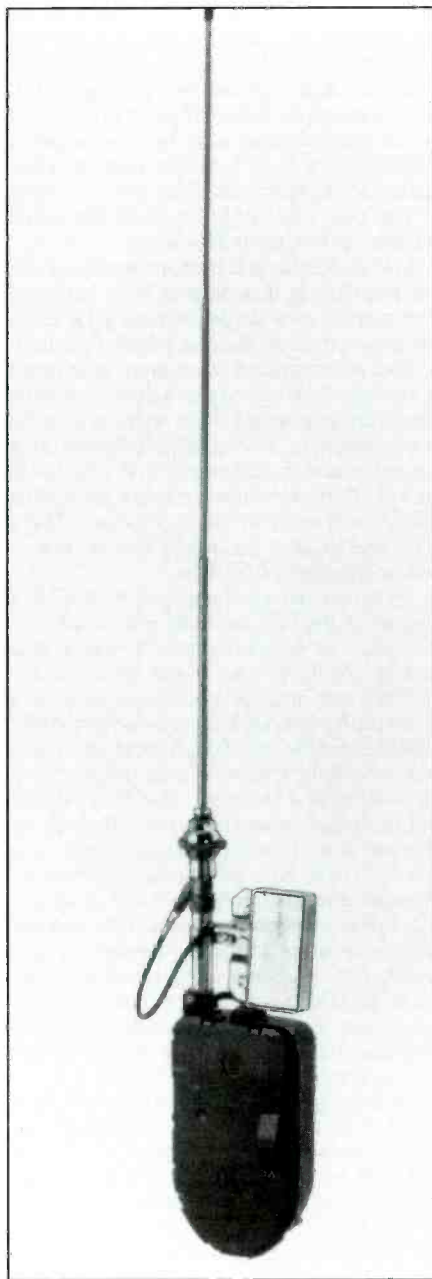
In its retracted position, the MCA-4591 telescoping whip is protected from vandalism, theft, or damage from automatic car washing machines and other obstructions. Telescoping action is smooth, quick, and noise-free. The telescoping whip antenna may be replaced, if necessary, by the vehicle's owner without removing the MCA-4591 base from the vehicle.

I don't know for certain, but my guess is that this antenna may also perform on

other 800 MHz band frequencies. If so, this would make it suitable for SMR, business radio, and public safety agency uses. The manufacturer might be able to advise further on this.

For more information on the MCA-4591 antenna, contact Todd Anderson, Richard Hirschmann of America, Inc., Industrial Row, P.O. Box 229, Riverdale, NJ 07454. Phone: (201) 835-5002. Please let them know you read about the MCA-4591 in *Popular Communications*.

Please pass along any news clippings concerning cordless phones, cellulators, pagers, or other personal communications. This column also welcomes press releases about equipment and services related to personal communications.



The Hirschmann Model MCA 4591 AM/FM/Cellular mobile disguise antenna hides your cellphone ownership.

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INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

Checking Out GMRS

Everyone has heard about Citizen's Band radio. If you are into communications to the degree that you are reading this magazine, then certainly you have talked on or listened to the old 27 MHz CB band. Most everyone assumes that CB means listening to truckers give smokey reports. Most of us have owned a CB radio, talked on one, or listened to one while traveling with a friend. Well, there is another CB band. In the beginning, this was part of the overall Citizen's Band. It is now called GMRS.

Initially when the FCC established the better known 27 MHz Citizen's Band, it also established what was known as the Class "A" Citizen's Band. The Class "A" band is in the UHF frequency range that we all know so well on our scanners or business radios. When the Citizen's Band radio first came out, users were required to have a license. Today, users of the 27 MHz CB band do not have to get an FCC license before transmitting. The Commission has at times been up to its neck in problems because of this decision, but somehow they feel the problems are not as much trouble as processing all of the license paperwork. The result is an unlicensed 27 MHz CB band that we all know today. Although the term Citizen's Band is no longer officially the correct title for what has become the GMRS or General Mobile Radio Service, the band is still very much an individual user service, and carries many intents of the old licensed 27 MHz CB service.

The General Mobile Radio Service is in the UHF band. This service offers both simplex, unit to unit direct communications and repeater frequency pairs. The repeater frequencies are 467.550 MHz, 462.575 MHz, 462.600 MHz, 462.625 MHz, 462.650 MHz, 462.675 MHz, 462.700 MHz, and 462.725 MHz. The repeater "output" frequencies are normally strong signals, and can be easily programmed into your scanner. The mobile or handheld units transmit 5 MHz higher to get into the repeater. The simplex or direct communications channels are 462.5625 MHz, 462.5875 MHz, 462.6125 MHz, 462.6375 MHz, 462.6625 MHz, 462.6875 MHz, and 462.7125. These channels are referred to by the FCC as "interstitial channels." More on these frequencies later.

Under FCC rules, any individual can apply for a GMRS license. Although businesses were once allowed to make application for GMRS frequencies, they can no longer do so. This is a band for people to use for fun, club, hobby, and common interest communications. The General Mobile Radio Service is covered under FCC rules 95.29. The Commission has made some rule changes, and the service is undergoing a transition. You will find some business licenses that are still valid and some business communications can be heard on GMRS, but these are being

moved to other bands as renewals are due.

With more public safety agencies and businesses moving to other bands, UHF equipment is easily found these days. We are starting to see more widespread use of GMRS. In fact, this is one of the fastest growing services today. If you aren't interested in getting a user license, the band is fun and interesting to listen to on your scanner. Keep in mind that every GMRS license must go to an individual now, not to a group or a business. As you monitor the GMRS band, you will find there are groups of individuals who go together and secure a repeater for a common interest. For example, if John Doe is the President of the local scanner club he can secure a GMRS license for a "repeater pair" or a frequency as an individual. Then, each member of the club can apply for their individual licenses on that same frequency.

In Philadelphia and Boston there are scanner monitoring groups that have centered their activity on a single frequency. By using a common interest, the group leader can notify all of the members when any major event or emergency is taking place in the coverage area. Just monitoring these repeaters can be as interesting and informative as monitoring the police and fire channels. In the St. Louis area, a GMRS repeater is a major part of the SKYWARN weather alerting system. There is no end to what you might find on the repeater channels of GMRS.

When an individual applies for his GMRS frequency, the FCC normally grants only one frequency or frequency pair in the license process. At the request of the applicant, the FCC will also grant one additional frequency under the license authority. Keep in mind that GMRS is not like the old CB band where you can just change channels to any frequency in the service and transmit. The Commission will normally assign only two channels or channel pairs to each individual under one license. There is no effort made by the FCC to insure that the frequency is not already in use. The Commission expects users on duplicate channels in the same coverage areas to work out the problems of interference. There are some GMRS user groups that attempt to coordinate the frequency assignments on a volunteer basis, but this is a limited service both in scope and results.

One channel in the GMRS band has been selected as the "traveler's assistance" frequency, somewhat like Channel 9 in the 27 MHz CB band. In GMRS this repeater pair is 462.675 MHz for the repeater output, and 467.675 MHz for the repeater input. If a GMRS user is not licensed for this frequency on his license, he can transmit on this repeater pair though it is not one of his FCC licensed frequencies.

There are restrictions. The 462.675 MHz repeaters are normally monitored by "assistance groups" under the license of an indi-

vidual. You will find REACT volunteers willing and able to assist on this channel in many areas. If you are not licensed for the "traveler's assistance" frequency, you can use it if you meet these conditions: You must be licensed for at least one other GMRS frequency; you can only send messages that are soliciting aid for or rendering assistance to a traveler. Communications pertaining to the immediate safety of life or the immediate protection of property are also permissible. Also, the frequency 467.675 MHz (repeater input channel for the traveler's aid system repeaters) can only be used for the propose of accessing a repeater on the traveler's aid frequency.

The "interstitial" GMRS channels mentioned earlier have some additional restrictions. These are the simplex, unit to unit frequencies that do not access repeaters. These restrictions are (1) only voice transmissions may be made, (2) the GMRS transmission may not be a one-way page notification, and (3) the station or unit can use no more than five watts ERP.

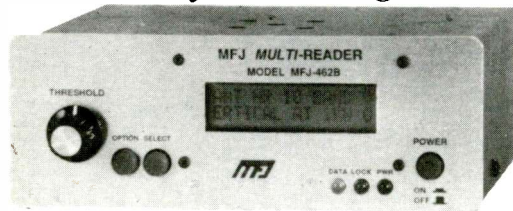
GMRS user groups are upset about another possible change to the service. A major retail communications company has asked the FCC to allow unlicensed use of selected GMRS channels for a new "family radio service." Initially, the Commission was not too interested in another unlicensed CB band, but with both monetary and political pressure, the Commission is once again considering the idea. The retailer wants the Commission to allow them to sell low power walkie-talkies that would allow short range, direct communications between family members, clubs, groups, or just anyone who wanted to talk with another person who might be close by. No license would be required if this new service is approved by the FCC.

GMRS users feel that once this unlicensed door is opened that unlicensed users would spill out and be on the licensed repeaters and other regulated channels. There is enough concern to bring the users groups together to resist this possible change. Reportedly the retailer has already invested a considerable amount of money in these low power handhelds, and is ready to move on this vast market if the Commission gives approval.

The General Mobile Radio Service is of great concern to FCC enforcement officials. It is growing fast and the number of users is increasing daily. It is also a useful service as one can get assistance or render aid by using the "traveler's" frequency. GMRS users are concerned about their channels, and you can expect to see a fight to protect them from the unlicensed outsiders. The service can be an exciting band to monitor and use. It will be interesting to watch in the months ahead. I hope that this article will give you some insight into the service that is available, and the possible rule fight that may be just ahead.

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3x2x4 in. 12 VDC or 110 VAC with MFJ-1024 MFJ-1312, \$12.95.

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Also improves scanner radio reception on VHF high and low bands.

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Copy RTTY weather stations from Antarctica, Mali, Congo and many others. Listen to military RTTY passing traffic from Panama, Cyprus, Peru, Capetown, London and others. Listen to hams, diplomatic, research, commercial and maritime RTTY.

Listen to maritime users, diplomats and amateurs send and receive error free messages using various forms of TOR (Telex-Over-Radio).

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You can save several pages of text in 8K of memory for re-reading or later review.

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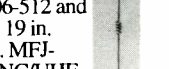
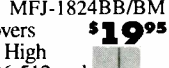
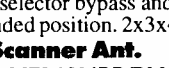
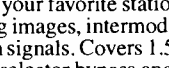
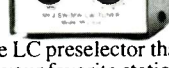
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MFJ-1702B

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MFJ-108B

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MFJ-105B

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MFJ-1704

\$59⁹⁵



MFJ-1702B

\$21⁹⁵



MFJ-1704

\$59⁹⁵



MFJ-1702B

\$21⁹⁵



MFJ-1704

\$59⁹⁵



MFJ-1702B

\$21⁹⁵



MFJ-1704

\$59⁹⁵



MFJ-1702B

\$21⁹⁵



MFJ-8100K

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MFJ-8100W

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MFJ-8100W

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POP'COMM'S World Band Tuning Tips

April—1995

Freq. (kHz)	Station/Country	UTC	Notes	Freq. (kHz)	Station/Country	UTC	Notes
2460	R. Alvorada, Brazil	0900	PP	6120	R. Canada Int'l	0200	
2485	VL8K, Australia	1100		6140	VOA Morocco	0700	
3200	TWR, Swaziland	0430		6150	AWR, Costa Rica	0600	
3220	HCJB, Ecuador	0430		6155	R. Austria Int'l	0700	
3230	R. Orion, S. Africa	2300		6155	R. Sweden	0230	
3240	TWR, Swaziland	0300		6165	R. Netherlands, Bonaire relay	0100	
3255	BBC Lesotho relay	0300		6165	Swiss Radio Int'l	0530	
3289	R. Centro, Ecuador	1000	SS	6185	R. Educacion, Mexico	0600	SS
3290	Namibia Broadcasting Co.	0300		6190	R. Oriente, Peru	0300	SS
3300	R. Cultural, Guatemala	0300		6200	R. Sweden	2300	unid
3305	R. Western, Papua New Guinea	1200		6205	HCJB, Ecuador	0200	RR
3310	Channel Africa, S. Africa	0357		6235	R. Quisqueya, Dominican Rep.	2300	SS
3325	R. Maya, Guatemala	1100	SS	6245	Vatican Radio	0640	
3360	La Voz de Nahuala, Guatemala	0300	SS	6280	King of Hope, Lebanon	0400	AA
3366	GBC, Ghana	0600		6299	Sani Radio, Honduras	0200	SS
3375	R. Clube Dourados, Brazil	0100	PP	6560	Rep. of Iraq Radio	0157	s/on, AA
3380	R. Chortis, Guatemala	0130	SS	7125	RS Atlantika, Russia	0130	RR
3912	V of the People, Korean cland.	1400	KK	7125	RTV Guineenne, Guinea	0530	FF
3925	R. Tanpa, Japan	1200	JJ	7150	R. Vilnius, Lithuania	0000	Sat/Su
3955	Channel Africa, S. Africa	0324	s/on	7180	BBC relay, Hong Kong	1300	s/on
4409	R. Eco, Bolivia	0000	SS	7185	Channel Africa, S. Africa	0430	FF
4747.5	R. Huanta 2000, Peru	0000	SS	7190	R. Moldova Int'l, Moldova	0200	
4753	RRI Ujung Pandang, Indonesia	1200	II	7200	Rep. of Sudan Radio	0300	AA
4760	ELWA, Liberia	0600		7255	V of Nigeria	0500	
4765	R. Rural, Brazil	0230	PP	7270	R. Oranje, S. Africa	0500	
4770	Centinela del Sur, Ecuador	0200	SS	7300	Voice of Russia (R. Moscow)	2300	
4779v	R. Cultural Coatan, Guatemala	0030	vern	7305	Vatican Radio	0250	
4780	Pyongyang, N. Korea	1200	KK	7345	R. Prague, Czech Rep.	0700	
4780	R. Ukraine	0530		7365	KNLS, Alaska	1300	
4785	Super Radio, Colombia	1030	SS	7370	Croatian Radio	0230	Cr.
4805	Rdf. do Amazonas, Brazil	0100	PP	7375	AWR, Costa Rica	0300	SS
4810	R. 2000, S. Africa	0230	EE/Afk	7465	Kol Israel	0500	
4820	LV Evangelica, Honduras	0200	SS	7475	RTT, Tunisia	0500	AA
4830	R. Botswana	0300		7535	Monitor Radio, USA	0800	
4832	R. Reloj, Costa Rica	0100	SS	9022	VOIRI, Iran	1930	
4840	R. Valera, Venezuela	0300	SS	9200	R. Omdurman, Sudan	1800	
4845	ORTM, Mauritania	0630	FF	9370	KSDA, Guam	1400	
4865	La Voz del Cinaruco, Colombia	0600	SS	9400	RFPI, Costa Rica	0300	
4870	R. Centinela del Sur, Ecuador	0100	SS	9420	Voice of Greece	0130	GG/EE
4875	Rdf. Roraima, Brazil	0300	PP	9445	Voice of Turkey	2330	TT
4885	Ondas del Meta, Colombia	1000	SS	9475	R. Cairo, Egypt	0200	
4890	R. France Int'l, via Gabon	0400	FF	9480	R. Intercontinental, Armenia	2200	GG
4910	Zambia Ntl Bc Corp.	0400		9485	R. Prague, Czech Republic	2100	
4915	R. Cora, Peru	1030	SS	9515	R. Romania Int'l	0400	
4930	R. Internacional, Honduras	0130	SS	9530	R. Singapore Int'l	1300	
4955	R. Marajoara, Brazil	0900	PP	9535	R. Japan	1400	
4960	R. HRET, Honduras	0230	SS	9535	Swiss R. Int'l	1000	
4970	R. Rumbos, Venezuela	0300	SS	9540	R. Nacional Espana, Spain	0100	
4980	Ecos del Torbes, Venezuela	0300	SS	9560	R. Ethiopia	1300	Afar
4990	R. Nigeria	0500		9560	R. Jordan	1600	
5004	R. Nacional, Eq. Guinea	0500	SS	9570	R. Portugal	0230	
5030	AWR, Costa Rica	0330	SS	9570	R. Romania Int'l	0230	
5035	R. Aparecida, Brazil	0100	PP	9575	Radio Medi Un, Morocco	0730	FF
5047	R. Togolaise, Togo	0500	FF	9580	R. Tirana, Albania	0330	
5055	TIFC, Costa Rica	0400		9580	Africa No. One, Gabon	2200	FF
5056	RFO, Fr. Guiana	0400	FF	9580	R. Yugoslavia	0000	
5060	R. Nac. Progreso, Ecuador	0300	SS	9600	HCJB, Ecuador	0730	
5075	Caracol, Colombia	0300	SS	9605	V of UAE	2200	
5860	V of Jinling, China	1130	CC	9605	Vatican Radio	0330	SS
5940	V of Russia (R. Moscow)	0200		9615	R. Cultural, Brazil	0900	PP
5960	R. Japan via Canada	0100		9620	R. Dnestr Intl, Moldova	2130	
5975	BBC via Antigua	0100		9645v	Faro del Caribe, Costa Rica	0300	
5980	AWR, Guatemala	0000	SS	9650	R. Korea, S. Korea, via Canada	1130	
6005	CFCX, Canada, relay CKOI	1100	FF	9650	AWR, Guam	1330	JJ
6010	R. Havana Cuba	0030		9655	R. New Zealand Int'l	1300	
6010	R. Mil, Mexico	0700	SS	9665	R. Nacional, Colombia	160	SS
6015	R. Austria Int'l, via Canada	0530		9680	Radio Republik Indonesia	1400	II
6020	R. Netherlands	0100	DD	9690	China Radio Int'l, via Spain	0300	
6030	R. Marti, USA	0600	SS	9695	R. Rio Mar, Brazil	1100	PP
6035	R. Vlanderen Int'l, Belgium	0030		9700	R. Bulgaria	0000	
6070	CFRX/CFRB, Canda	1200		9700	R. New Zealand Int'l	0800	
6085	Deutsche Welle, Germany, via Canada	0300		9710	China Radio Int'l, via Mali	0300	
6090	R. Bandeirantes, Brazil	0800		9720	SLBC, Sri Lanka	1530	
6095	Vatican Radio	0250		9725	R. Japan, via Canada	0500	
6100	R. Union, Peru	0830	SS	9735	R. Nacional, Paraguay	0100	SS

Freq. (kHz)	Station/Country	UTC	Notes	Freq. (kHz)	Station/Country	UTC	Notes
9745	HCJB, Ecuador	0730		13770	Monitor Radio	2000	
9755	Radio Canada Int'l	0000		13860	INBS, Iceland	1215,	Iceland
9770	R. Australia	1400		15020	All India Radio	1400	
9770	V of UAE, Abu Dhabi	2300		15030	RFPI, Costa Rica	2300	
9780	Kazakh Radio, Kazakhstan	1300	RR	15084	VOIRI, Iran	2200	Farsi
9810	FEBA, Seychelles	1530		15095	R. Damascus, Syria	2030	
9820	Radio Havana Cuba	0200	USB	15105	R. Moscow, Russia	1500	
9830	R. Jordan	2100	AA	15120	AIR, India	1300	
9835	R. Budapest, Hungary	0100		15139	R. Nacional, Chile	2200	SS
9840	R. Kuwait	2100	AA	15140	R. Veritas, Philippines	1530	
9860	Swiss R. Int'l, via Fr. Guiana	0400		15160	VOA, Philippines	1400	
9870	Monitor Radio, USA	0600		15168	R. Tahiti	0300	FF/TT
9870	BSKSA, Saudi Arabia	2200	AA	15175	FEBA, Seychelles	1100	AA
9895	R. Netherlands via Madagascar	1330		15180	R. Ukraine	0130	
9900	R. Cairo, Egypt	2230		15200	R. Nacional Amazonas, Brazil	2300	PP
9910	All India Radio	1530		15200	Uzbek Radio	1200	
9955	WRMI, Miami	0100		15235	V of Great Homeland, Libya	2000	AA
9977	R. Pyongyang, N. Korea	1100		15240	Channel Africa, S. Africa	1600	
10058	V of Vietnam	0000	VV	15240	R. Sweden	1330	
10621	Australian Defense Forces Radio	1530	USB	15265	Radiobras, Brazil	1800	
11402	INBS, Iceland	1900	Ice	15270	HCJB, Ecuador	1930	
11550	RTV Tunisienne, Tunisia	1600	AA	15290	R. Dniester Int'l, Pridnestrovye	2030	
11570	R. Pakistan	1700		15325	R. Canada Int'l	2100	
11603	Kol Israel	0400		15340	R. Rwanda	1400	FF
11615	R. France Int'l	1600		15345	RTV Marocaine, Morocco	1800	AA
11620	All India Radio	1100		15345	RAE, Argentina	0200	SS
11625	Vatican Radio	2000		15390	RAI, Italy, via Ascension Is.	0200	
11650	Swiss Radio Int'l, via Fr. Guiana	2230		15395	UAE Radio, Dubai	1330	
11665	R. Cairo, Egypt	1800	AA	15400	R. Finland Int'l	1330	
11670	R. France Int'l, via Fr. Guiana	0130	SS	15415	Libyan Jamahiriya Broadcasting	1430	AA
11690	FEBC, Philippines	1200	VV	15430	Radio Japan	2300	
11700	R. France Int'l	1600		15445	Radiobras, Brazil	1200	
11705	R. Japan, via Canada	1400		15445	R. Vlanderen Int'l	1300	
11710	RAE, Argentina	0200		15475	R. Atlantika, Russia	1300	RR, Tu-Fr
11715	China R. Int'l, via Mali	0300		15475	Africa Number One, Gabon	2100	FF
11715	R. Korea, S. Korea, via Canada	1030		15490	HCJB, Ecuador	1700	
11720	R. Bulgaria	2100		15510	R. Australia	0500	
11750	BBC relay, Singapore	1600		15530	R. Australia	2200	II
11755	R. Finland Int'l	0130		15555	R. Pakistan	1600	
11765	RAI, Italy, via Ascension Is.	0200	II	15565	R. Australia	1200	
11775	R. Espana Exterior, Spain	1900		15570	Vatican Radio	2030	
11780	BSKSA, Saudi Arabia	1730	AA	15575	R. Korea, S. Korea	0030	
11790	VOIRI, Iran	0030		15610	KTWR, Guam	1500	
11790	R. Intercontinental, Armenia	2100		15615	Reshet Bet, Israel	2300	HH
11800	R. Australia	1300		15630	V of Greece	1430	GG/EE
11805	VOA relay, Thailand	1230		15640	Kol Israel	1415	
11810	R. Romania Int'l	1400		15675	R. Pakistan	1430	Urdu
11815	Spanish Ntl Radio, via Costa Rica	0100	SS	15675	R. Copan Int'l, Honduras	2300	SS
11825	R. Tirana, Albania	2200		15770	ISBS, Iceland	1230	Iceland
11830	Vatican Radio	2250		17490	HCJB, Ecuador	1000	
11830	R. Romania Int'l	0400		17500	RTT, Tunisia	1330	AA
11835	R. Thailand	2000		17510	KWHR, Hawaii	2300	
11845	R. Canada Int'l	2200		17520	V of Greece	1430	GG/EE
11850	R. Norway Int'l	1200	Sun	17590	R. Finland	1430	
11870	FEBA, Seychelles	1500		17595	RTM, Morocco	1430	AA
11870	Bosnian-Serb Radio, via R. Yugoslavia	0100		17620	R. France Int'l	1600	
11880	R. Japan via Fr. Guiana	0300		17625	R. Bulgaria	1230	
11885	UAE Radio, Abu Dhabi	2300		17630	Africa No. One, Gabon	1430	FF
11890	R. Oman	1430	AA	17655	R. Netherlands via Bonaire	1830	
11905	R. Thailand	0030		17670	Swiss Radio Int'l	1500	
11905	R. Universo, Brazil	2330	PP	17725	R. Ukraine Int'l	2030	
11925	R. Mediterranean, Malta	1400		17740	R. Finland Int'l	1430	
11925	HCJB, Ecuador	0600		17745	R. Algiers, Algeria	1930	
11965	VOIRI, Iran	1930		17745	R. Tashkent, Uzbekistan	1200	
11990	R. Kuwait	1800		17750	R. Nacional, Brazil	1800	PP
11995	FEBC, Philippines	1400		17775	R. Romania Int'l	1300	
12050	R. Cairo, Egypt	2100	AA	17790	HCJB, Ecuador	2130	
12085	R. Damascus, Syria	2030		17805	R. Romania Int'l	1730	
12095	BBC, England	1300		17810	R. Japan	2300	
12095	BBC, England	1200		17820	R. Canada Int'l	1300	
13590	R. Pakistan	1600		17845	Spanish National Radio	1500	SS
13605	R. Australia	1100		17860	Deutsche Welle via Rwanda	1800	FF
13605	Golos Rossii, Russia	2100		17870	R. Sweden	1500	
13615	R. Bangladesh	1230		17870	RAI, Italy	1730	II
13635	Swiss R. Int'l, via Fr. Guiana	0030		17895	Qatar Broadcasting Service	1400	AA
13660	R. Havana Cuba	0200	USB	17900	R. Portugal	2000	PP
13670v	R. Iraq Int'l	2130	AA	17905	RFPI, Costa Rica	1900	USB
13675	UAE Radio, Dubai	1630		18870	R. Rossii, Russia	1330	RR
13690	R. Sweden	1830		21455	HCJB, Ecuador	1330	
13715	R. Havana Cuba	2200	SS, USB	21515	R. Portugal	1500	PP
13730	R. Austria Int'l	1230		21520	R. France Int'l, via Gabon	1100	FF
13750	AWR, Costa Rica	1200	s/on	21770(?)	RAI, Italy	1530	II
13760	R. Pyongyang, N. Korea	0000	s/on				

HOW I GOT STARTED

Popular Communications invites readers to submit, in approximately 150 words (more or less), how they got started in the communications hobby. They should preferably be typewritten, or otherwise easily readable. If possible, a photo of the submitter should be included.

Each month we will select one entry and run it here. You need submit your entry only once, we'll keep it on file. All submissions become the property of Popular Communications, and none can be acknowledged or returned. Entries will be selected for use taking into consideration if the story they relate is especially interesting, unusual, or even humorous. We reserve the right to edit all material for length and grammar, and to improve style.

The person whose entry is selected will receive a one-year gift subscription (or one-year subscription extension) to Popular Communications.

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

Our April Winner

Timothy M. Polley, Moline, IL, has many fond memories and experiences with shortwave listening:

"Being a long-time scanner lover, I have had a scanner since High School. However, I really got the bug from my partner at work, Ham radio operator Dave Gill, K9HFX.

"One day Dave brought a shortwave radio into work and I knew that I had to have one. I've been listening ever since. Dave has taught me many things in the past. For one, I remember once when we both crawled up into an attic to install a longwire antenna. I feel like this hobby has opened up a new world for me.



Timothy M. Polley smiles among the equipment set up in his private shack.

"Once I received my Radio Shack charge card, I knew this hobby really had me hooked. I am constantly buying equipment (on my card of course), and feel like I never stop!

"The fun times are when my wife Lynne and I listen together. My wife took German in college and when listening to Radio Deutsche Welle, she tries to interpret for me.

"What do I think is the greatest thing about this hobby? You never really stop learning about all of its different aspects."



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The NCDXF Worldwide 14 MHz Beacon Network—Part 1

Jack Troster, W6ISQ, and Bob Fabry, N6EK, describe the 14.1-MHz worldwide beacon network, one of those achievements that comes about when the vision, technology, and cooperative energy of many people combine to create something unique and useful.

Nine frequency sharing CW beacons have been operating continuously for 15 years, and are on the air for every listener to use as a do-it-yourself propagation tool. Each beacon transmits a one-minute message every ten minutes, 24 hours a day. Over the next year or so, the network will be modernized and made more useful. New beacons will be added to the nine now active, and all will operate on up to five bands. The transmissions will be shortened to ten seconds so that listeners can monitor 18 beacons in three minutes. If you don't copy code at 22 wpm, you can figure out which beacons you're listening to according to the time you hear each one.

Phase I: The First Beacon

The 14.1 MHz beacon network was the creation of the Northern California DX Foundation (NCDXF).¹ The first beacon was designed and built from scratch by Jim Ouimet, K6OJO, in 1979, based on a suggestion by O. G. "Mike" Villard Jr., W6QYT. (Mike introduced SSB on the amateur bands in the late 1940s.) This "Phase I" beacon was licensed by the FCC for operation on 14.1 MHz with the call sign WB6ZNL/B (the /B indicating a beacon transmitter). It transmitted for 75 seconds every 15 minutes for more than a year. It featured Mike's idea of decreasing the power in 10-dB steps by transmitting a long dash at each of four power levels: 100, 10, 1 and 0.1 watts.

The power stepping was a new idea for Amateur Radio beacon technology. It's more useful to know what power level can be heard than to merely know the signal strength of the received signal. Knowing that a certain power level can be heard compares the signal to the background noise. Sometimes an S3 signal is perfectly usable; sometimes it's useless. The power levels give you a better feeling for the quality of the propagation. If you heard only one power level yesterday but hear all four today, the band is in better condition today.

And it's more fun to tell a friend you heard the South African beacon at 0.1 watt than to report that a 100-watt signal was S5.

Phase II: Worldwide Expansion

The prospect of reproducing eight or more of these beacon behemoths for a worldwide network stirred the creative juices of Dave Leeson, W6QHS. Dave designed a controller to work with a Kenwood TS-120S HF transceiver. The controller used the Intel 8748 computer-on-a-chip to adjust the power output of the transceiver. This chip combines an eight-bit microprocessor with a 1024-byte EPROM. Jack Curtis, K6KU, wrote the assembly language program for the microprocessor firmware. Jack had used a similar chip for his popular Curtis Keyers.

The late Cam Pierce, K6RU, engineered this prototype beacon into production with the help of Merle Parten, K6DC, and between 1982 and 1985, nine beacons were built and distributed worldwide. During this expansion period, the call sign WB6ZNL/B was changed to W6WX/B.

International Amateur Radio Union

In 1984, Alberto Shaio, HK3DEU, then Secretary of Region 2 of the International Amateur Radio Union (IARU), proposed that the IARU beacon program follow the general NCDXF frequency sharing plan used by the 14.1 MHz network. That proposal became the basis for NCDXF and IARU cooperation, and the two groups began planning together to expand the network and develop a prototype multiband beacon. NCDXF provided the engineering and the IARU offered the international associations to help obtain locations for an expanded network, and to disseminate beacon information worldwide to all 140 IARU member societies. Much of the funding will be provided through the IARU.

After years of operation, it's apparent that the Phase II beacon network should be expanded to cover more of the world. The transmission format should be changed to reduce the time it takes to listen for all beacons, and the beacon network should be expanded to cover more bands.

Expansion

The Phase II beacon network doesn't provide adequate worldwide coverage. With IARU assistance, five national societies agreed to accept beacons and join the network: Radio Club Peruano, Radio Club Venezolano, New Zealand Association of Radio Transmitters and Radio Society of Sri Lanka. The Wireless Institute of Australia and the Radio Society of Kenya have been invited, but hadn't replied at press time. We hope to find locations in Central Asia and to add other beacons later.

Many people find the ten-minute cycle of the beacons too slow. As more beacons are added, the cycle would get even longer if we maintain the one-minute format for each beacon transmission, so we experimented with shortening the transmissions. We assumed that each beacon would send its call sign followed by four equal-length long dashes, one at each power level. We played recorded simulations of a network of beacons with 15, 10 and 7.5 seconds per beacon for the NCDXF Board and it recommended the ten-second format. The same recording format was played for the delegates of IARU Region 2 at a meeting in Curacao in September 1992, who concurred that ten seconds sounded about right. This timing allows 18 beacons to transmit in sequence around the world in three minutes.

Expanding the beacon network to cover more bands will provide valuable additional propagation information. The Phase III network will transmit on 14, 18, 21, 24, and 28 MHz. (The 10 MHz band isn't included because it's still shared with other services, but it could be added later.) In addition to being able to detect band openings on an individual band, you'll be able to quickly check all five bands to see which has the best propagation to a particular part of the world.

To select frequencies for five-band operation, New Zealand's Bob Knowles, ZL1BAD, International Coordinator of the IARU Monitoring Service, studied the bands from 14 to 28 MHz. His report, based on the work of the IARU worldwide volunteer monitoring system (VOLMON), was instrumental in developing the tentative primary frequencies: 14.100, 18.110, 21.150, 24.930 and 28.200 MHz.

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Shortwave broadcasting worldwide continues in its good news/bad news mode.

Here's some good news. A government committee has recommended that the funding for Radio Canada International be restored, saying Canada should make full use of RCI to better project Canada's image abroad. The government's budget for 1995 actually includes a cut for the CBC (which includes RCI), so who knows which side of this coin will come down up.

Ironically, 1995 marks RCI's 50th anniversary. The station began in February, 1945 as the International Service of the Canadian Broadcasting Corporation. It originally broadcasted to Canadian troops overseas. Both The Listening Post and our readers salute RCI at its half century mark and wish these good people another half a hundred years to come.

Croatian Radio has added a 100 kW transmitter (financed by the World Congress of Croats) to improve the station's coverage. Check 13640 from 1230 to 1600, 11630 from 1600-2000 and 7370 from 2000-1230. The schedule is likely not all in English.

Zimbabwe is back on shortwave. The Zimbabwe Broadcasting Corporation is reported to be active on 3306 and 3396, carrying local services Radio One and Radio Two. Frequency 7175 is active carrying Radio Three. Broadcasts run until 2200 and resume again at 0300. The station seems to be using three new 50 kW transmitters which were provided by China.

New DX Program

Adventist World Radio has inaugurated "Worldscan," which replaces several different DX programs previously produced and aired over various AWR outlets.

The new show will be compiled and written by Dr. Adrian Peterson, well-known DXer and AWR's Coordinator of International Relations. The show will feature DX info from several top European DXers. North American listeners will find the show most easily heard over AWR's Costa Rica facility. It's scheduled for Sundays, presently no time specified. It'll also be carried over WRMI (Radio Miami International). Check at 0100, Saturdays on 9955.

Radio Kuwait wants reports on its English language programs airing from 1800 to 2100 on 11990. Reports go to: Engineering Affairs, Kuwait Ministry of Information, Box 397, Safat 13004, Kuwait.

Watch for a new station coming on the air soon from Ecuador. Good Shepherd Radio is scheduled to operate with one kilowatt on 4815, issued by the Asociacion Critiano de Indinegous Saragueros, with programming in Spanish and Saraguro.

Государственное Предприятие
Радиосвязи и Радиовещания № 2 (ГПР-2) No. 402
подтверждает сообщение о приеме, поступившее
от Mr. Ed Rausch

Дата	13th August 1994
Время	11.00 - 12.00 UTC
Частота	12070 kHz

Thank you very much
for your report !

Государственное
предприятие радиовещания
№ радиосвязи № 2
(ГПР-2)
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Служба подтверждений ГПР-2

Ed Rausch got this special QSL for reception of a joint broadcast from St. Petersburg, Russia.

Armed Forces Antarctic Network (AFAN) is on the air again from McMurdo Base, Antarctica. It is supposed to be using more power this time—3.2 kW instead of just one, and operating on 6160. We're uncertain of the schedule, but it may be 24 hours a day. Try it around 0900.

Radio New Zealand International is on the Internet. The address is rec.radio.shortwave—and rec.radio.info bulletin boards. You can also reach them via e-mail at adrian@actrix.gen.nz.

Swiss Radio International says it has discontinued use of Gabon relay operated by Africa Number One. Don't know why.

The Voice of Vietnam plans to refurbish and expand its shortwave facilities with hopes of better reaching Vietnamese living overseas. In addition to expanding its own facility VOV may hire airtime over transmitters in Russia to improve reception in the United States. We've no idea when to expect all this to take effect.

Loggings (etc.) are always wanted for this column. Logs should be by country, with your last name and state abbreviation after each—and leave some cutting room between items, please. We cannot use logs that don't follow this format. Shack and shortwave station photos, and spare QSL cards you don't need returned are needed as illustrations. Station brochures and schedules, etc. are also welcome. Thanks for your continued help!

Here are this month's logs. All times are UTC, which is five hours ahead of EST (0000=7pm EST, 6pm CST, etc.). Language reported is assumed to be English unless specified otherwise (SS=Spanish, FF=French, GG=German, etc.)

ALASKA—KNLS, 7355 at 1708 with pops. In RR. (Flemmer, WA)

ALBANIA—Radio Tirana, 9580 at 0231 and 11840 at 0233. (Harris, TN) 9760 at 0340. (Williams, TX)

ANTIGUA—BBC relay, 5975 at 2300; 0309. (Jeffery, NY; Harris, TN)

Deutsche Welle relay, 6040 at 0103, 6075 at 0305 in GG, 17810 in GG at 2126. (Harris, TN) 11965 at 0718 in GG. (Adams, ND) 17715 at 1640 in GG. (Williams, TX)

ARGENTINA—RAE, 15345 at 0000 with tangos. ID in SS. (Williams, TX)

ASCENSION ISLAND—RAI relay, 11765 at 0130 with sign on in II. (Adams, ND)

BBC relay, 11750 at 2242. (Harris, TN) 15260 at 1525 and 21660 at 1706 to S. Africa. (Williams, TX) 15390 at 2115 and 17880 at 1905. (Adams, ND) 15400 at 1913. (Vaage, CA)

AUSTRALIA—Radio Australia, 5995 at 1212. (Jeffery, NY) 6060//6080 at 1303. (Williams, TX) 9510 at 1136. (Dybka, TN) 9605 at 1937. (Vaage, CA) 9710 at 1250 with EE/CC lessons. (Northrup, MO) 11660//11665 at 1428 with IS, sign on. (Adams, ND) 17860 at 0438. (Low, TX)

AUSTRIA—Radio Austria Int'l, 6015 via Canada, in GG at 0601. (Harris, TN) 9655 at 0140. (Flemmer, WA)

BANGLADESH—Radio Bangladesh, 13615 at 1230, very weak. (Rocker, NY)

BELGIUM—Radio Vlanderen Int'l, at 1408 on 13675. (Rocker, NY)

BENIN—Radiodifusion du Benin, 4870 in FF at 2145. (Rocker, NY)

BOLIVIA—Radio Fides, 4845 at 0120 with Catholic mass. (Williams, TX)

BOTSWANA—Radio Botswana, 4830, presumed, at 0350 in EE, FF and local language with African news and pops. (Johnston, FL) UN Radio program at 0445. (Urbelis, NY)

VOA Relay, 7285 at 0347. (Adams, ND) 13710 at 1605; 1911 (Flemmer, WA; Vaage, CA) 15600 at 0602. (Foss, AK)

BRAZIL—Radio Super, Roraima, 4875 at 0000 in PP with Brazil pops, IDs, time checks, commercials. (Urbelis, NY)

Radio Timbera, Sao Luis, 4975 at 0625 in PP with pops, commercials, time checks, announcements. (Urbelis, NY)

Radio Nacional Amazonia, 6180 in PP at 0800

Abbreviations Used in Listening Post

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

in RR, 15325 at 2109 and 17820 at 2131. (Harris, TN) 9650 at 1255 in FF. (Northrup, MO) 11725 at 0125 and 11940 at 2346. (Adams, ND) 15325 at 2111. (Wilden, IN) 17820 at 1653 in RR. (Williams, TX)

CHAD—Radiodiffusion Nationale, 4904.5 at 0430 in FF. (Rocker, NY)

CHILE—Radio Santa Maria, at 0205 in SS at 0205 with news. IDs, commercials, jingles, flutes. (Paszkiwicz, WI)

CHINA—China Radio Int'l, 11650 at 1507 in RR. (Williams, TX)

CPBS, Beijing, 5880 at 0606 in CC. (Foss, AK)

Yunnan PBS, Kunming, in CC at 2300. (Roberts, NC)

COLOMBIA—Ecos del Atrato, 5020 at 0300 in SS with Caracol network. (Urbelis, NY) 5022 at 1130 with old US pops, announcer in SS. (Williams, TX)

Radiodifusora Nacional, 9655 at 0413 with old time ballads, ID in SS. (Paszkiwicz, WI)

Ondas del Meta, 4884.4 at 0532 in SS with time

check, commercial, mention of Villavicencio, phone number, jingles, choral vocals. (Paszkiwicz, WI) 4885, presumed, at 0140 in SS & several mentions of "Super." (Johnston, FL)

La Voz del Yopal, 5040 in SS at 0045. (Urbelis, NY)

Caracol, 5075 at 0549 in SS with vocals. (Foss, AK)

COSTA RICA—Radio Exterior Espana relay, 11815 at 1520 in SS. Also 17870 at 1659 in SS. (Williams, TX) 17870 at 1918 in SS. (Adams, ND)

Radio Reloj, 6007 at 1200 with music, IDs and announcements in SS. (Williams, TX)

Adventist World Radio, 5981 at 1248 with religious music, talks in SS. 9725 at 0334 with "Swan Lake," announcements in SS. (Williams, TX) 1250. (Adams, ND)

RFPI, 7385 at 0254. (Williams, TX)

CUBA—Radio Rebelde, 5025 at 0132 with talks in SS. (Williams, TX)

sign on. (McKee, OR) 11780 at 2220 in PP. (Johnston, FL)

Swiss Radio Int'l relay on 5585 at 0140 in SS. (Williams, TX)

Deutsche Welle relay, 11810 at 2344 in SS. (Williams, TX)

BULGARIA—Radio Bulgaria, 9700 at 1903. (Harris, TN) 0330 ending English broadcast and into GG. (Williams, TX) 11720 at 2330. (Low, TX)

CAMEROON—Radio Garoua, 5010 at 0455 with hi-life music, vernacular music, announcements, ID. News in EE at 0505. (Urbelis, NY)

CANADA—CFVP relay CKMX, Calgary, 6030 at 1637 with pop and new age, news, sports. (Flemmer, WA)

CBC Northern Quebec Service, 9625 at 1210; 1800. (Northrup, MO; Jeffery, NY)

Radio Japan relay via Sackville, 6120 at 1100 and 11705 at 1421. (Jeffery, NY)

CFRX relay CRFB, 6070 at 0700; 1442; 2303. (Foss, AK; Low, IN; Harris, TN)

BBC via Sackville on 6175 at 2310, 9515 at 1530, 15260 at 1530. (Harris, TN) 9515 at 1300 and 1700. (Jeffery, NY)

Radio Canada Int'l on 5960 at 2230, 11945 at 1900



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58% More Gain Than The
K40 Antenna (on channel 40).**

In tests conducted by Lockheed Corporation, one of the world's largest Aerospace Companies, at their Rye Canyon Laboratory and Antenna Test Range, the Wilson 1000 was found to have 58% more power gain than the K40 Electronics Company, K40 CB Antenna. This means that the Wilson 1000 gives you 58% more gain on both transmit and receive. Now you can instantly increase your operating range by using a Wilson 1000.

**Guaranteed To Transmit and Receive
Farther Than Any Other Mobile
CB Antenna or Your Money Back****
New Design

The Wilson 1000 higher gain performance is a result of new design developments that bring you the most powerful CB base loaded antenna available.

Why Wilson 1000 Performs Better

Many CB antennas lose more than 50% of the power put into them. The power is wasted as heat loss in the plastic inside the coil form and not radiated as radio waves.

We have designed a new coil form which suspends the coil in air and still retains the rigidity needed for support. This new design eliminates 95% of the dielectric losses. We feel that this new design is so unique that we have filed a patent application on it.

In addition, we use 10 Ga. silver plated wire to reduce resistive losses to a minimum.

In order to handle higher power for amateur use, we used the more efficient direct coupling method of matching, rather than the lossy capacitor coupling. With this method the Wilson 1000 will handle 3000 watts of power.

The Best You Can Buy

So far you have read about why the Wilson 1000 performs better, but it is also one of the most rugged antennas you can buy. It is made from high impact thermoplastics with ultraviolet protection. The threaded body mount and coil threads are stainless steel; the whip is tapered 177 ph. stainless steel. All of these reasons are why it is the best CB antenna on the market today, and we guarantee to you that it will outperform any CB antenna (K40, Formula 1, you name it) or your money back!

*Inductively base loaded antennas
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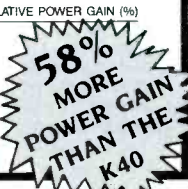
Aug. 21, 1987

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

Subject: Comparative Gain Testing of Citizen's Band Antennas
Ref: Rye Canyon Antenna Lab File #670529

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 separation 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



Individual test results may vary upon actual use.

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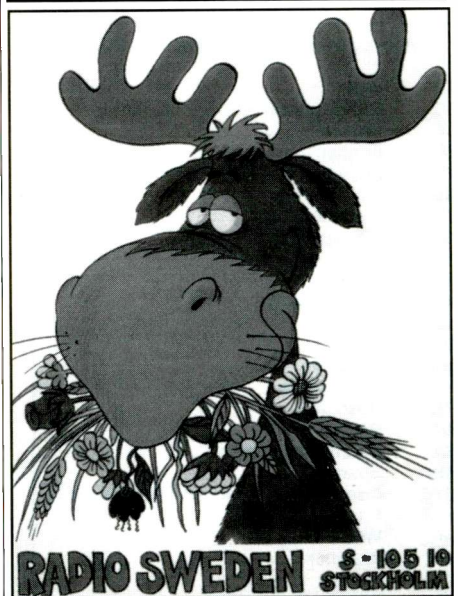
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Another sticker from J.W. Roberts—this one from Radio Sweden.

Radio Havana Cuba, 6010 at 0130 and 17760 at 2128. (Jeffery, NY) 6060 at 1155 in SS. 9820 at 0352. 9505 at 1216. (Williams, TX) 13700 at 0019. (Harris, TN)

CYPRUS—BBC relay, 15575 at 0557. (Foss, AK)
CZECH REPUBLIC—Radio Prague, 5930//7345 at 2215. (Rocker, NY)

ECUADOR—Radio Popular, 4800 in SS at 0105 with chorus, religious music. (Williams, TX)

La Voz del Upano, 5040 at 0135 with music and two women talking in SS. (Williams, TX)

Radio Jesus del Gran Poder, 5050 at 0139 with ballads, hymns. SS. (Williams, TX)

EGYPT—Radio Cairo, 9900 at 2140. (Rocker, NY) 12050 at 0434 and 1531. (Williams, TX)

ENGLAND—BBC, 7210 at 0440. (Low, TX) 9590 at 2336 at 9615 at 2345. (Wilden, IN) 12095 at 1850, 15070 at 1744, 15105 at 1858 in FF. (Vaage, CA) 13660 at 2129 with "Calling the Falklands" and 15400 at 2040. (Adams, ND) 15390 at 1624 in Slavic-type language. (Williams, TX)

EQUATORIAL GUINEA—Radio Nacional, Bata, 5004 in SS at 0500, local info and hi-life music. (Urbelis, NY)

FRANCE—Radic France Int'l, 5945 at 0150, 11670 in FF at 2328, 11695 at 0419, 15300 at 1600, 15365 at 1536, 17620//17630 in FF at 1630. (Williams, TX) 7335 at 1728 in AA, 15195 in FF at 0722. (Foss, AK) 15300 at 1625. (Flemmer, WA)

FRENCH GUIANA—Swiss Radio Int'l, 9885 at 0918. (Jeffery, NY) 9895 at 0930 in FF and 9905 in EE at 0400. (McKee, OR) 11650 in II at 2325. (Williams, TX)

Radio France Int'l, 9800 at 0350; 13625 at 1203, 15190 in FF at 2353, 21685 in FF at 1705. (Williams, TX) 11670 at 1215 in FF and 13625 in EE at 1210. (Northrup, MO)

FINLAND—Radio Finland Int'l, 11735 at 1225. (Northrup, MO)

GABON—Africa Number One, 15475 with African music, FF at 1629; 1745. (Flemmer, WA; Johnston, FL)

Radio Japan relay, 15355 at 1533 in EE/JJ. (Williams, TX)

GERMANY—Deutsche Welle, 6045 at 0244 and 6145 at 0114. (Harris, TN) 9545 in GG at 1315. (Northrup, MO) 11795 at 2340 in GG. (Williams, TX) 0117 in GG. (Foss, AK)

Radio Free Europe/Radio Liberty, 15370 at 1540 in unidentified language. (Williams, TX)

GHANA—Ghana Broadcasting Corp., 3366 at 2258 with hymn and woman with EE news. (Roberts, NC)

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GREECE—Voice of Greece, 9425 at 2241. (Harris, TN) 0548 with singer, in Greek. Also 11645 at 0746 with news in EE. (Foss, AK)

VOA relay, 15265 at 1559 ending RR, EE ID and into Serbian. (Williams, TX)

GUAM—KSDA on 13720 at 1250 with religious program in Tagalog, mention of "World Adventist Radio" and frequency announcements at 2300. (Johnston, FL)

Trans World Radio—KTWR, 11580 at 1545 with religious programming. (Flemmer, WA)

GUATEMALA—Radio Chortis, 3380 at 0314 with music and man announcer in SS. (Dybka, TN)

La Voz de Nahuala, 3360 at 0300 in SS with local info, IDs, announcements, marimbas. (Urbelis, NY)

Radio Tezulutlan, 4835, presumed, in SS at 0135 with Catholic Mass. (Johnston, FL) 0113 with children's story, also at 1213 in SS and Mayan. (Williams, TX) 1134 in non-SS language, mentioning many names. (Pappas, SD)

Radio Cultural Coatan, 4779.8 at 0043 with talk about family, IDs, kids singing. (Paszkievicz, WI)

HAWAII—KWHR, 9930 at 0405 with religion. (Williams, TX)

HCJB—9745 at 0048. (Harris, TN) 11845 at 1140 in JJ and 11910 at 1210 in SS. (Northrup, MO) 15140 in SS at 1515. 15250 in SS at 1524. 15295 at 1526 in PP and 17490 at 1622 in JJ. (Williams, TX) 17490 USB in SS at 1930. (Vaage, CA)

HONDURAS—Radio Copan Int'l, 15675 at 1940 in SS. (Adams, ND) 2205. (Rocker, NY) 0010 with news, current events. (Williams, TX)

La Voz de Mosquitia, 4910 with gospel music, SS, at 0345. (Roberts, NC)

La Voz Evangelica-HRVC, 4820 at 0010 with ID, IS. In SS. (Williams, TX) 0140 in SS. (Dybka, TN) 0329 with Chicago-based religious program. (Harris, TN)

Radio Internacional, San Pedro Sula, 4930 at 0122 in SS. (Williams, TX) 0203 with music, ID. (Dybka, TN)

Radio HRET, Octopeque, 4960 at 0030 with religion in SS and Latin music. Best heard in LSB mode. (Urbelis, NY) 0130 with music, chorus, time check. (Williams, TX) 0209. (Dybka, TN)

ICELAND—INBS/Rikisutvarpid, 13860 at 1435 in Icelandic. (Rocker, NY) 15770 at 1930 with news in Icelandic. (Adams, ND)

INDIA—All India Radio, 9950//11620 at 2231. (Rocker, NY) 11620 at 1412 in Hindi. (Adams, ND)

INDONESIA—Radio Republik Indonesia, Jambi, Sumatra, 4925 at 1258 in II, then Song of the Coconut Islands and news. (Paszkievicz, WI)

RRI Yogyakarta, Java, 7098.6 at 1250 in II with talk, flute, announcement, vocals, (no SCI theme) news. (Paszkievicz, WI)

RRI Merauke, Irian Jaya, 3905 at 1255 with vocals, announcement in II, SCI, vocals and news. (Paszkievicz, WI)

IRAN—VOIRI, 7100 at 0035; 0052 (Rocker, NY; Harris, TN)

9670 at 0223 with old Harry James numbers. In SS. (Williams, TX)

11790 at 0105 with letters, news, comments about Holy Koran, frequency info, address, IS, end of EE segment, into SS. (Adams, ND)

ISRAEL—Reshet Bet, 11588 at 0411 in Hebrew and 15545 at 1625 in presumed Hebrew and Yiddish. (Williams, TX)

ITALY—RAI, 9725 at 0231 with music, announcements in II and SS. (Williams, TX)

JAPAN—Radio Japan, 5960 via Canada at 0102. (Harris, TN)

6190 in JJ at 1146, also 11885 at 0424 in JJ. (Williams, TX) 9535 at 1435 with Media Roundup (Flemmer, WA) 1705 and 1935. (Vaage, CA) 1500 with ID, news. (Low, TX) 9535//11705 at 1404. (Pappas, SD) 15195 at 0127 with concert. (Foss, AK)

Radio Tampa, 0832 in JJ. (Foss, AK)

JORDAN—Radio Jordan, 11940 at 0433. in AA with Arabic-type music. (Williams, TX)

KAZAKHSTAN—Goloss Rossii, 13605, via Kazakh at 0437 in RR. (Williams, TX)

KUWAIT—Radio Kuwait, 11990 in EE at 1831; 2039. (Harris, TN; Jeffery, NY)

LESOTHO—BBC relay, 3255 at 0300 with news, sports. (Urbelis, NY)

LIBYA—Radio Jamahiriya, 15415 at 1550 in AA.

(Williams, TX) 2348 with Elvis Presley, host in AA. (Foss, AK)

MADAGASCAR—Radio Netherlands relay, 9860 at 0307 to South Asia. (Harris, TN) 9895 at 1330. (Flemmer, WA)

MALAWI—Radio Malawi, 3380 at 0345 with hi-life music, news. (Urbelis, NY)

MEXICO—Radio Educacion, 6185 at 1041 in EE/SS. (Jeffery, NY) 0625 with music and dramatic selections. (Adams, ND)

Radio Universidad Hermosillo, 6115 at 0610 in SS with Latin pops. (Adams, ND)

Radio XEQQ, Mexico City, 9680 in SS at 0108 with ID, music. (Adams, ND)

Radio Mil, 6010, 0728 with music and IDs, SS. (Pappas, SD) 1256 with music and announcements in SS. (Williams, TX)

MOLDOVA—Voice of Russia relay, 7105 at 0040; 0232. (Rocker, NY; Williams, TX)

MOROCCO—RTV Marocaine, 15345 at 1531 and 1611 in AA. (Williams, TX) 17595 at 1405 in EE with music, news, women's program. (Jeffery, NY)

VOA relay, 15410 at 1741; 1910; 2105 (Harris, TN, Vaage, CA; Adams, ND)

NAMIBIA—Namibian Broadcasting Corp., 3270//3290 at 0210, music, unidentified language. (Rocker, NY)

NEW ZEALAND—Radio New Zealand Int'l, 9700 at 0803. (Pappas, SD) 11735 at 1907. (Vaage, CA) 15115 at 0227 with pop. (Foss, AK)

NIGERIA—Voice of Nigeria, 7255 at 0500 sign on. (Rocker, NY)

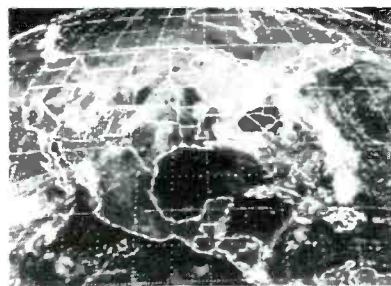
NETHERLANDS—Radio Netherlands, 6020 at 0111 and 9840 at 0119. (Harris, TN) 11715 at 2332 in SS. (Williams, TN)

NETHERLANDS ANTILLES—Radio Netherlands relay, 6165 at 0118. (Harris, TN) 9715 at 1217 in SS. (Williams, TX) 9720 at 0735 with news. (Adams, ND) 17605 at 1924. (Vaage, CA)

NORTH KOREA—Korean Central Broadcasting Station, on 6100 at 0827 in KK. (Foss, AK)

Radio Pyongyang, 9977 at 1510 with SE Asian music, news in EE. (Flemmer, WA) 11335 at 0036.

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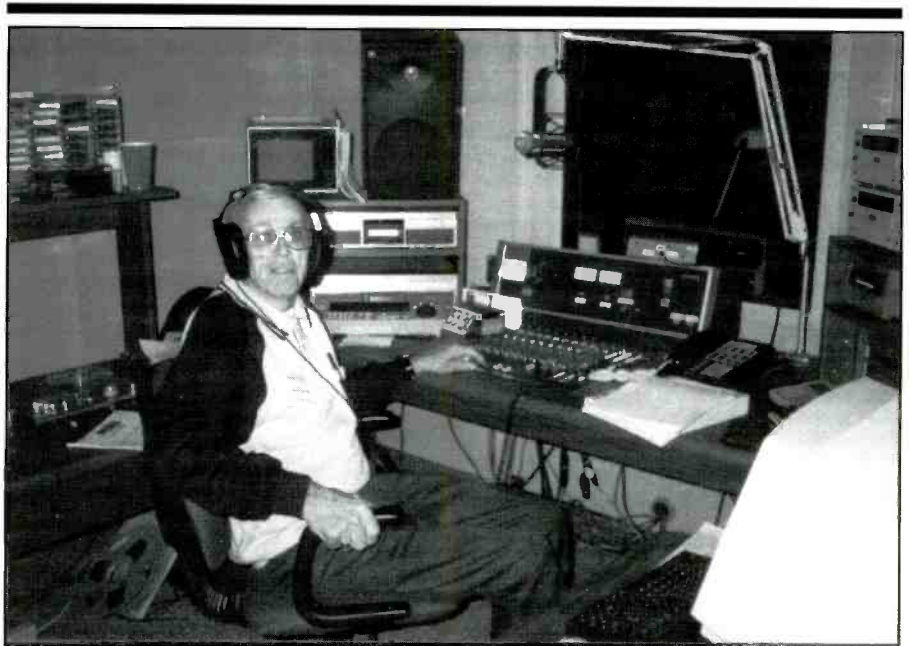
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CIRCLE 80 ON READER SERVICE CARD



Edouard Provencher, a long time DXer from Biddeford, Maine, is pictured at one of the many operating consoles of shortwave station WEWN in Birmingham, Alabama.

(Harris, TN) 2345 in SS. 2359 with EE s/on. (Adams, ND)

NORTHERN MARIANAS—KFBS/Far East Broadcasting Co., 9465 at 1520 with religious service in RR. (Flemmer, WA)

PARAGUAY—Radio Nacional, 9735 at 0018 with Latin music, SS announcer. (Dybka, TN) 0046 in SS with ID, talks, concertina selections. (Adams, ND)

PERU—Radio Ancash, Huarez. 4991 at 0630 in SS with Andes music. (Urbelis, NY)

Radio Cora, Lima, 4915 in SS at 0300 with talks, music, IDs. (Urbelis, NY)

Radio Tacna, 9505 at 1035 in SS with short announcements, mentions of "los Andes" and Tacna, time check, flute, talk, ID. (Paszkievicz, WI)

Radio Luz y Sonido, 6472.1 at 0117 to 0133 sign off, SS vocals, ID, brass band music. (Paszkievicz, WI)

Radio Satellite, 6726.5, 0304 in SS with dance music, ID, mention of Santa Cruz and gone. (Paszkievicz, WI)

Radio Ilucan, 5620.9 at 0234 to 0256 sign off, SS with time check, flutes, announcements, ID. (Paszkievicz, WI)

PHILIPPINES—VOA relay, 6110 at 1308 and

17820 at 0021. (Williams, TX) 9760 at 1255 with movie reviews. (Adams, ND)

Radio Veritas Asia, 6020 at 1431 with ID, into Mandarin. (Flemmer, WA)

Far East Broadcasting Co., 9400 at 1515 with news in CC. (Flemmer, WA)

PORTUGAL—Radio Portugal, 9570 at 0240. (Harris, TN) 0230 with IS, ID, news, DX program. (Jeffery, NY) 15200 at 1551 in PP. 15515 at 1636 in PP and 21655 in PP at 1704. (Williams, TX) 15515 at 2005 in EE to 2030, then in FF. (Adams, ND)

Deutsche Welle relay, 9670 at 0150 with ID and close and 9690 at 0309. (Williams, TX)

ROMANIA—Radio Romania Int'l, 9510 at 0229. (Harris, TN) 11940 at 1315. (Rocker, NY)

RUSSIA—Primorsk Radio, Vladivostok, 5015 at 0804 in RR with instrumental music. (Foss, AK)

RS Belarus, 7150 at 0030 with IS, ID, news, opera, interview. //13640. (Paszkievicz, WI)

Radio Nadezhda, 11670 at 1511 with news. (Williams, TX)

Voice of Russia (ex Radio Moscow) 5940 at 0311. (Harris, TN)

7270 at 0500. (Adams, ND) 7295 at 1500.



A production studio at Radio Nacional Espana.

(Flemmer, WA) 15425 at 0518. (Low, TX) 15520 at 0003 in SS. (Williams, TX)

SAUDI ARABIA—BSKSA, 15060 at 1427 in AA. (Rocker, NY)

SEYCHELLES—BBC relay, 15420 at 1746. (Vaage, CA)

FEBC, presumed, 11870 at 1545 with Ravi Zechariah ministries from Madras, India. (Flemmer, WA)

SINGAPORE—BBC relay, 9740 at 1712. (Vaage, CA) 1340. (Adams, ND) 11955 at 0015. (Foss, AK)

Singapore Broadcasting Corp., 6155 at 1500 carrying Radio One—90.5 FM. News and easy pops. (Flemmer, WA)

SLOVAKIA—Adventist World Radio, 6055 at 2117 to 2200 sign off with religious programming. (Paszkiwicz, WI)

SOUTH AFRICA—Radio 2000, 4810 at 0205 with easy listening pop. (Dybka, TN)

Channel Africa, 15240 at 1607. (Rocker, NY)

SOUTH KOREA—Radio Korea, 6135 at 1310 in CC. (Williams, TX) 13670 at 0246 in unidentified language. (Foss, AK)

SPAIN—Radio Exterior de Espana, 6055 at 0228, 11945 at 2348, 12035 at 1528, 15110 at 1546, 15380 at 1623, 17845 at 1653 all in SS. (Williams, TX) 6055 at 0255 and 9540 at 0104 in EE. (Harris, TN) 9630 in SS at 1300. (Northrup, MO) 11775 at 1908. (Jeffery, NY)

China Radio Int'l relay, 9690 at 0355. (Harris, TN)

SRI LANKA—Deutsche Welle relay, 9620 at 1500 with ID, "Around the World in 80 Days" in GG. (Flemmer, WA)

SWAZILAND—Trans World Radio, 3200//3240//4760 at 0300 to 0332 off with chimes. (Roberts, NC)

Trans World Radio, 3200 at 0434 with Bible programs in African language. (Urbelis, NY)

SWEDEN—Radio Sweden, 15240 at 1520 with talk show in Swedish. (Williams, TX)

SWITZERLAND—Swiss Radio Int'l, 6135 at 0402. (Harris, TN)

9885//9905 at 0345 in FF, 0400 in EE. (Adams, ND)

TAIWAN—Voice of Free China via WYFR, 5950 at 0235, 11855 at 2233 in CC. (Harris, TN) 9730 in CC at 0318. (Williams, TX) 15345 at 0205. (Foss, AK)

TANZANIA—Radio Tanzania, 5050 at 0328 sign on with IS, ID, frequencies, schedule, pops and hi-life. News at 0400. (Urbelis, NY)

THAILAND—Radio Thailand, 11835 at 2045. frequency announcements, including 9700 which was not heard. (Rocker, NY)

TUNISIA—RTV Tunisienne, 7475//12005 at 2116 in AA. (Rocker, NY)

TURKEY—Voice of Turkey, 7185 at 2305 in EE, poor modulation. (Rocker, NY)

UGANDA—Radio Uganda, 4976 at 0330 with talk, some hi-life music. QRM from Venezuela. (Urbelis, NY)

UKRAINE—Radio Ukraine, 4780 at 0545, poor in unidentified language with easy listening music, IS. (Paszkiwicz, WI) 17725 at 1642 in unidentified language. (Williams, TX)

UNITED ARAB EMIRATES—UAE Radio, Abu Dhabi, 13605 at 2217 in AA with talks. (Adams, ND)

UAE Radio, Dubai, 13675 at 1608 with Arab history. (Flemmer, WA)

UNITED STATES—WINB, 11950 with program on the Constitution at 0220. (Jeffery, NY)

Voice of the OAS, via VOA, 9675 at 2255 South American news in EE. VOA on at 2300. (Dybka, TN)

UZBEKISTAN—Radio Tashkent, 9540 at 1320. (Northrup, MO)

VATICAN—Vatican Radio, 7305 in FF at 0247. (Williams, TX) 9660 at 1754 to Africa. (Foss, AK)

VENEZUELA—Ecos del Torbes, 4980 at 2318 in SS with Latin music. (Roberts, NC) 0355 at sign off. (Rocker, NY)

Radio Valera, 4840 at 0344 in SS. (Roberts, NC) To 0354 sign off with announcement, anthem. (Urbelis, NY)

Radio Rumbos, 9660 at 0353 in SS with EE announcement and address at 0358 sign off. (Adams, ND)

VIETNAM—Voice of Vietnam, 9840//12020 at 1245 in EE. (Rocker, NY)

YUGOSLAVIA—Radio Yugoslavia, 6190 (ex 6195) at 0200 in EE. (Rocker, NY)

ZAMBIA—ZNBS, Lusaka, 4910 at 0400 with music mix, local info, news at 0400. (Urbelis, NY)

And that's the lot for this time! Raise your glass in salute to the following fine folks who did the work this time:

Steve Williams, Corpus Christi, TX; Daryl Rocker, Herkimer, NY (via Marie Lamb); Marty Foss, Wasilla, AK; Marina Pappas, Huron, SD; Errol Urbelis, Kings Park, NY; Sheryl Paszkiewicz, Manitowoc, WI; Robert L. Johnston, Panama City

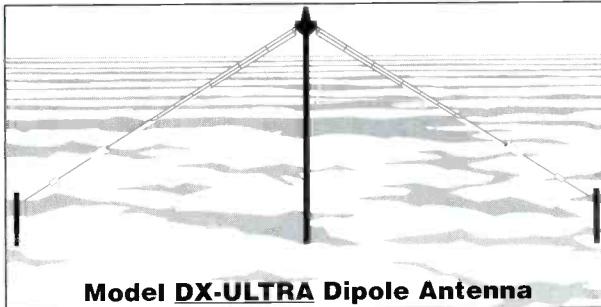
Beach, FL; J.W. Roberts, Brevard, NC; Sue Wilden, Columbus, IN; David M. McKee, Oregon City, OR; Mark Northrup, Gladstone, MO; D.D. Flemmer, Tacoma, WA; Paul Harris, Colombia, TN; Brad Low, Jacksonville, TX; Jill Dybka, Nashville, TN; Bjorn F. Vaage, Granada Hills, CA; Sarah Adams, Thompson, ND and Dave Jeffery, Niagara Falls, NY. Thanks to each of you.

Until next month—good listening!

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27 MHz COMMUNICATIONS ACTIVITIES

Your SWR meter could be telling you the truth, however it may be misleading you.

Here's what I mean: if you're like me, and most of the other CBers that I talk with, you probably use your SWR meter to check on the overall health of your antenna system. Once in a while, you switch on the SWR meter, and check the reading at Ch. 1, Ch. 20, and Ch. 40. If you've got a low reading at the bottom, middle, and top of the band, you figure all is well, right?

You've probably even heard CBers on the air say something like, "When I first put this antenna up, my SWR was 1.3 to 1 on channel 20, and even higher at channel 1 and channel 40. But lately, it's really settled in—I've got a 1.1 to 1 match across all 40 channels!"

Well here's a nasty surprise: if you see your SWR suddenly improving for no particular reason, it could be bad news. That's because when coax cable degrades, it starts to become lossy. The more lossy it becomes, the better your SWR is going to look on the meter, but that doesn't mean that your signal is doing a better job of getting out! In fact, your signal is probably getting worse as the coax degrades. See what I mean about the meter misleading you?

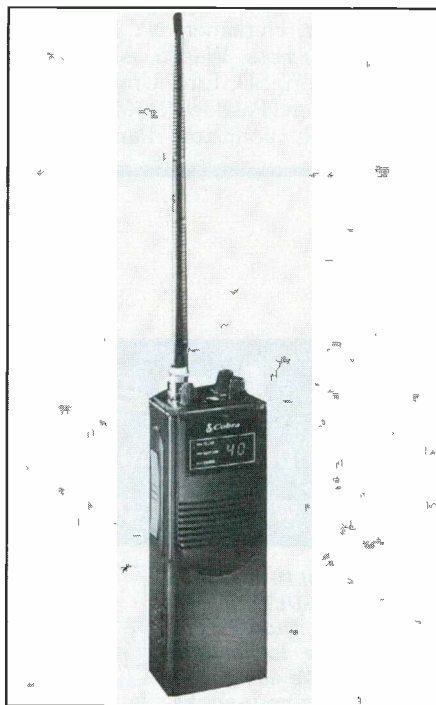
Of course, if your SWR suddenly goes sky high, it's a sure sign that something has changed in your antenna or coax, and you'd better look into it. That's why it is a good idea to maintain a station log. When you put up a new antenna or install a new piece of coax, check your SWR meter at various points along the band, and make a note of it with the date. Then later, if you notice a change in SWR—either up or down—you can doublecheck it against your logbook and decide what to do about it.

Here are some facts about SWR that you can take to the bank.

If your SWR is below 2:1, it's good enough. Let's say you had a long run of 100 feet of RG-8 cable feeding your antenna. If the SWR is 2:1 at the antenna, the total loss on the cable is only 1.4 dB—less than one-fourth of an S-unit—a difference so small you would never notice it. Now, if you spend a lot of your time reducing your SWR down to 1.1:1 on this same cable, you would gain an additional 4/100 of an S-unit. Talk about wasted effort!

High SWR by itself does not cause TV or telephone interference. Running high power or having your CB antenna close to a TV antenna is more likely to cause a problem with TV or phone interference. Besides, a high SWR is *not* going to cause excessive radiation from your coax cable.

If you have reason to suspect that your coax may be getting old and becoming lossy, you can sometimes make a signifi-



This handheld radio packs many goodies into a portable unit.

cant improvement in your station by installing a better grade of coax. The nice folks at Belden Wire and Cable Company tell me that the losses in poor grades of RG-58 (the thin stuff) can run as high as nearly one-half S-unit per 100 feet of coax. Install Belden RG-8 (part no. 8214), and you can cut the loss to less than 1 dB! If you have a coax cable run of more than 100, you'll really notice the difference. Call 1-800-BELDEN-1 for product information, and mention you read about it in *Popular Communications*.

What's New

Ever wish you could have a CB to clip to your belt, or toss in a knapsack or tackle box? Well, I've got just the item you need—the Cobra HH-35. This handheld radio features a full 40 channels AM and 4 watts of transmit power. It takes ten alkaline or Ni-Cd AA batteries and has a jack on the side for an optional AC battery charger. Another DC 12 volt jack lets you run the unit off a cord with a cigarette lighter plug.

On top of this radio is a connector for the rubber ducky antenna, as well as controls for volume, channel selection, squelch and Hi-Lo power selection. On the front of the handy-talkie are an LED channel display, a TX/RX LED, an LED for indicating low battery power, and an LED that

glows when the batteries are being charged. There's a belt clip on the back and a push-to-talk switch on the side.

I particularly liked the HH-35's "sleep" feature. When you squelch out the noise and are not transmitting, the LED that displays the channel number turns off. That saves power and conserves battery life. And how! An acquaintance was using the HH-35 to communicate from his fishing boat to his wife back at the cabin. One night he returned to shore and forgot that he'd left the handheld radio in sleep mode in the bottom of the boat. The next morning—some 12 hours later—the HH-35 still had power to operate, despite being left on all night! Even better, this radio is a real bargain: average selling price is \$69.95. More info by calling 1-800-262-7222.

From the Reader's Mailbag

In response to interest in the Gizmotchy antenna mentioned here a few months ago, Dwight Jones of Kirkland, Washington, sent in a specification sheet for the Gizmotchy. Dwight is pretty sure it was available until seven or eight years ago, but he doesn't know whether it is still being manufactured. In addition, Dwight sent in one of the early QSL cards—pretty clever!

Marty, 7Q0994, writes in from Albuquerque, New Mexico. He reports that during a recent meeting of the Catbox Net—which gathers every Sunday evening on the upper side of Ch. 16—Cliff, the net control, asked which radio or TV polarized the term "10-4?" He thinks it might have been Dagnet or Highway Patrol. I'd go with Highway Patrol.

Len Carpenter, 71 Aquador Drive, Welland, Ontario, Canada, L3C-5S5, is looking for service info, schematics, and manuals for 1970's equipment manufactured by Communications Power, Inc. Len says they made a tunable TVI filter, the Range Plus receive pre-amplifier, the Talk Power speech processor, the WM 1000 Electronic Watt/Power/Modulation meter, the BC 2000 Base Console (with antenna tuner, receive pre-amp, seven-digit frequency counter, and clock), and a CP 2000 base station with speech processor, SWR meter, automatic noise limiter, and noise blanker. Sounds like an interesting bunch of goodies! If you've got information about these products, please contact Len directly.

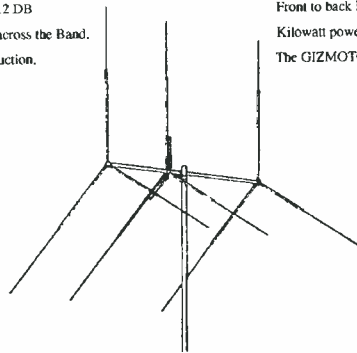
William Lumberry, AIC-560-IL, of Galesburg, Illinois, tells of an interesting set-up that sounds useful for those low on funds, or facing landlord restrictions. Starting with an inexpensive (under \$40) Kraco mobile rig with a stock mike, an SWR meter, 50

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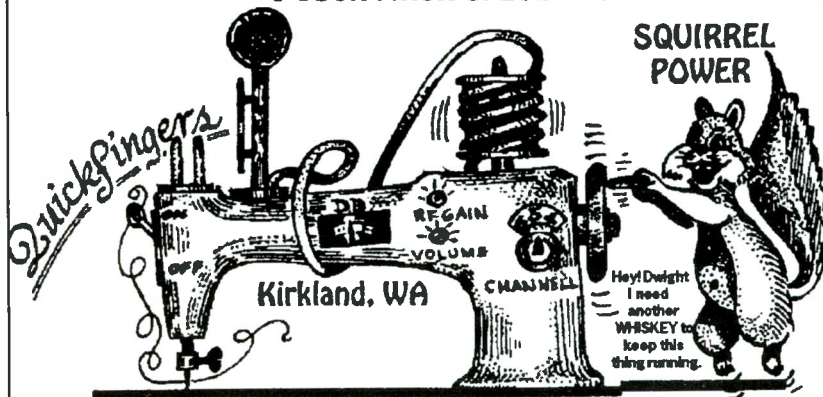
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CCI Design & Graphics

These were the specifications for the Gizmotchy antenna. Does anyone know if it is still manufactured?

Dwight's 1505 Gas Operated Radio

SOUR MASH SPECIAL



SANDBOX CONTROL

1505 One of the really nice guys on Gas Operated Radio
CCI Design & Graphics

Dwight, a graphics designer, sent us this nifty QSL card.

ohm patch cords, the heart of the set-up is a low-priced antenna tuner/ matcher and a Kraco center-loaded magnet mount mobile antenna with an added CRB "Zing-Ring" to improve the ground plane.

The antenna is mounted on a metal "L" bracket with a good ground to a cold water pipe. This is located on an outside wall at least six feet from the transceiver. The entire rig is powered by a sealed wet-cell weed trimmer battery pack that is rechargeable and puts out 13 volts at 3.2 amps. With an overnight charge, Lumberry says he can operate the unit over three days and two nights with a signal that reaches out about five miles. Total cost was less than \$100, he says. It sounds like a handy rig that would be especially useful when there is a power outage.

Gary Richardson, ARO-1, P.O. Box 32, Akin, Illinois, 62805, wrote a nice letter describing his years in CB. Since 1992, he has gotten into sideband in a big way, with a Cobra 2000 GTL base station and a sideband mobile.

That's it for this time. Thanks for those cards and letters—they are really appreciated! I'd also very much like to see photographs of you with your station. Please write to me here at *Popular Communications*.

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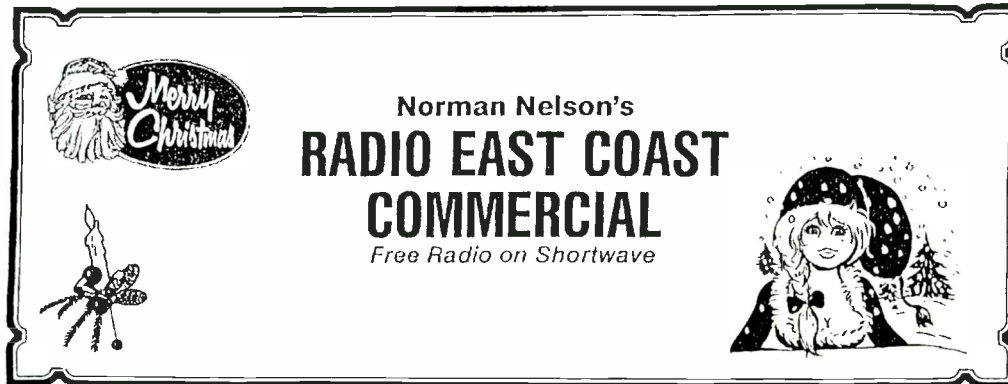
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I'm delighted to welcome a couple of new reporters this month, as well as one or two who only check in rarely. On the flip side, several who once checked in regularly haven't been heard from in some time. You are missed, folks!

Radio Free Detroit was logged by Mick Sanger, of Missouri, on 7385 at 0306, hosted by Pirate Steve. "They call us pirates, illegal broadcasters, just because we play what the people want..." Such statements, Steve indicates, were made to the press, like "the mainstream media is on to us again...would like to say a special hello to listeners at WWJ, the Free Press (WWJ is a major station in Detroit, owned by the Detroit Free Press.—Ed.)—the snooze, Channel 4, especially, the last time the mainstream media covered us they brought the FCC right to our front door. Wasn't that nice of them?"

Mike also reports reception of Black Rider Radio on 7415 upper sideband from 2021, playing mostly rock music and announcing the Wellsville address (P.O. Box 452, Wellsville, NY 14895). They signed off at 2042.

Michael Welsh, in Ontario, heard Radio USA on 7385 lower sideband at about 2119 with alternative rock, some fake commercials. They passed along several frequencies of other pirate stations, including a new 43 meter pirate band—6940 to 6970. The show was hosted by Mr. Blue Sky, who claimed to be broadcasting from a leaky tub. He gave the Wellsville address for reception reports. George Roberts, of Pennsylvania, caught this for just a few minutes one evening prior to sign off at 0147. Same frequency.

Frequency 7415 was home to Radio Malibu at 1829 when it was heard by Welsh, with "the man in black" playing David Bowie and a number of alternative music selections. They claimed to be broadcasting from Germany, and transmitting to Europe and North America. The Wellsville address was announced, as was P.O. Box 293, Merlin, Ontario, N0P 1W0, Canada. The station signed off at 1900.

Sanger had an unidentified station on 7413 upper sideband at 2350 with an announcer urging people not to vote Democratic, playing music by Credence Clearwater Revival, skits about the Jack Stewart Hotel, an Alice Cooper selection, and mentioning the Wellsville mail drop.

Welcome to Jesse Rose, of Virginia, who checks in with a logging of Radio Titanic International, which was airing its 19th anniversary broadcast with guest host Duncan James. This was on 7413 at 1515. (This was certainly a relay via a North American station—probably the North American Pirate Relay Service.—Ed.) They gave an address in Wuppertal, Germany.

Roberts heard the tenth anniversary broadcast of The Voice of Laryngitis on 7415 upper sideband at 0445 tune in to 0517 sign off. The show included many fake, humorous commercials, a Three Stooges song, the Reverend Billy Bob Huxley and other bits and characters, all presented by hosts Cowboy Stanley and Ghengis Huxley.

Michael Welsh had Solid Rock Radio on 7385 upper sideband at 2056 with a fake commercial and the Wellsville address for reports. They also talked about tuning for

pirates (when and where to listen) and plugged the A*C*E bulletin.

Welsh found WKND on 7415 at 1705 with a mix of country and commercial rock, and mention that this was their annual broadcast. No address info was given. The station signed off with the sound of a burp.

Radio Fornication was another Welsh log, on 7445 at 1910 with hard rock stuff. Michael says there was lots of interference, but he did hear a mention of the Wellsville address and a request for one international reply coupon to be included with the report. Sign off was around 1945.

Harry Betts, of Illinois, logged Up Against the Wall Radio on 7414 upper sideband at 0020. It featured various older rock selections, mailbag program, a comment that "a transmitter is a terrible thing to waste," and they were broadcasting "because we have a transmitter and you don't."

Betts also caught a transmission from the Russian pirate, Radio Magic—relayed by the North American Pirate Relay Service, on 7370 at 0148 tune in. The program included Russian rock, some letters from listeners, and a talk mentioning several clandestine stations in the middle east. Not well heard at all, says Harry. (I understand the address for this one is P.O. Box 1461, 614036 Perm, Russia. Not sure how often its shows are aired over NAPRS.—Ed.)

That brings us to the bottom of the hill for this month. Please keep those cards and letters coming my way. Your pirate loggings, copies of QSLs, and pirate station photos are very important. Can't do it without you!

Until next month, happy pirate chasing!

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BROADCAST DX'ING

BY TIM KRIDEL

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

Wither WOWO?: The drama surrounding the fate of Fort Wayne, Indiana's best-known broadcaster heightened with the November 1994 sale of the 50 kW AM station for \$2.3 million. WOWO-AM has been acquired by Inner City Broadcasting Corp., the owner of New York City's WLIB-AM which also makes its home on 1190 kHz. Since rumors first surfaced last year that Inner City was making overtures to purchase the station, speculation abounded about the possibility that the sale would ultimately result in a decrease in power or at least a change in nighttime antenna pattern.

With the sale complete, it appears that major changes are indeed in store. Though at press time no actual proposals had been submitted to the FCC, "the change will come in the signal," Gray Noe, programming manager for WOWO, told the Fort Wayne *Journal-Gazette*. "We're going to avoid New York City at nighttime." Confirming what many had surmised, Inner City's chief financial officer, Lee Haig, conceded that the purpose of the purchase was to reduce WOWO's signal, but "not meaningfully," which allows the WLIB signal to reach into northern New Jersey area at night. Although they are admittedly "hoping to get a more efficient allocation of the broadcast spectrum," the new owners maintain that they intend "to leave WOWO with as much power as possible."

While Inner City has acquired the station, it apparently has little intention of keeping it in its stable. Already the company has finalized an agreement with Elkhart, Indiana-based Pathfinder Communications to operate WOWO-AM, with an option to buy the station within two years. Pathfinder's other Fort Wayne holdings are WMEE-FM and WQHK-AM/FM.

Even the facilities of WOWO-AM have been affected by the sale. The station, which last month marked 70 years on the air, will move from its office in the Central Building, 203 West Wayne Street, most likely no earlier than mid-1995. Regular listeners will no doubt wonder what will happen to the station's "world-famous fire escape," from which temperature checks are regularly made. It is unclear if any or all of the structure would—or could—be transplanted to the station's new home at 2915 Maples Road.

Thus far, the only discernable changes at WOWO are the absence of Purdue football and basketball coverage—now on WQHK-AM—and a change in the top-of-the-hour ID, from "A Price Communications station" to "50,000 watts, Indiana's most powerful radio station." Our man in Fort Wayne, James R. Weiler, spoke with an unnamed WOWO staffer, who said that any changes in power would not take effect



Big Flats, New York, is home to WGMM. The 1.3-kW station is six-years old this month. (Courtesy Charles Walters, N2YQL / KNY2AEV, Painted Post, New York.)

until 1996 or 1997, and that the current format would remain untouched. James also reports that Pathfinder Communications has assured the staff that WOWO-AM will remain the most powerful radio station in Indiana. But, as assuasive as this guarantee may appear, there are two points to bear in mind. First, at 50 kW, WOWO is the most powerful AM station in Indiana at night; while there are several FM stations in the state that also run 50 kW, current records do not show any station, AM or FM, licensed for more than 50 kW. The second most powerful AM radio station in Indiana is Indianapolis' WIBC, at 50 kW, days, and 10 kW, nights. So, Inner City could reduce WOWO's nighttime power to as little as 11 kW and still retain its present claim to being Indiana's most powerful radio station, at least at night. When Pathfinder does purchase WOWO-AM, the actual figure will be based on the signal—\$1.85 million in the unlikely event that no changes are made, and \$1.6 million if changes do occur. The station last changed hands in 1982, when it was purchased for \$6 million.

"Divide and conquer" would appear to be the operative phrase in this series of events. WOWO-FM will be purchased by fellow Fort Wayne broadcaster WXKE-FM, reportedly for around \$300,000, a sale that will effectively separate the AM and FM sides. At press time, although the deal was still being hammered out, WXKE has already commenced simulcasting on WOWO-FM's frequency of 102.9 MHz.

New FM Call Letters Issued

KAJC	Canyon City, OR
KAJG	Centerville, TX
KBWE	New Boston, TX
KFRB	Bakersfield, CA
KMAT	Seadrift, TX
KMRV	Blair, NE
WAJG	Pioneer, NE
WAJH	Bristol, PA
WAJM	Atlantic City, NJ
WCXO	Carlyle, IL
WRMW	Wausau, WI

According to the Fort Wayne *Journal-Gazette*, the intention was that this arrangement would allow WXKE greater coverage west of Fort Wayne.

Autopilot Radio: The FCC has opened discussion of its proposal to allow unattended transmitter operation at AM, FM, and TV stations. Present rules require that a licensed operator be on duty at either the site of the transmitter itself or the remote control point, or at a facility that monitors the transmitter. But, the Commission reasoned in a November 1994 press release, with technological advances in transmitters and their related monitoring and control equipment, the requirement of a licensed, on-duty operator may no longer be necessary. Opening the discussion of automated broadcasting is not a move towards deregulation. Broadcasters are still expected to



The number one station in the Springfield, Massachusetts market is WAQY, "Rock 102." With its studio in East Longmeadow, the station's antenna sits atop Provin Mountain, in Agawam. (Courtesy Mike Fitzpatrick, Jr.)

Applied for Permits to Construct New

FM Stations

AK	Cordova	100.9 MHz	1.2 kW
AR	Jonesboro	90.5 MHz	1 kW
AR	Maumelle	96.9 MHz	6 kW
AZ	Payson	101.1 MHz	88 kW
GA	Thomasville	88.1 MHz	51.8 kW
GA	Warrenton	93.1 MHz	25 kW
HI	Kaluhui	103.7 MHz	211 watts (KNUQ booster)
ID	Twin Falls	88.9 MHz	3 kW
IL	Neoga	98.9 MHz	6 kW
IN	Evansville	107.5 MHz	2.34 kW
IN	Evansville	107.7 MHz	3 kW
KS	Hutchinson	97.1 MHz	25 kW
KY	Beaver Dam	100.7 MHz	6 kW
ME	Winter Harbor	97.7 MHz	6 kW
MI	Traverse City	104.5 MHz	
MN	Buhl	92.5 MHz	50 kW
MN	Grand Marais	95.3 MHz	100 kW
MN	Nisswa	93.3 MHz	100 kW
MN	Pillager	95.9 MHz	6 kW
MN	Roseau	103.5 MHz	50 kW
MO	Jefferson City	104.1 MHz	6 kW
MO	Neosho	99.7 MHz	4.2 kW
MT	Sydney	95.1 MHz	100 kW
MT	W. Yellowstone	96.5 MHz	6 kW
NC	Spring Lake	89.3 MHz	3 kW
ND	Devils Lake	96.7 MHz	45 kW
NE	Falls City	101.3 MHz	6 kW
NY	Ashland	91.1 MHz	800 watts
OH	Thompson	89.1 MHz	15 kW
OR	Burns	92.7 MHz	750 watts
SC	Kingstree	94.1 MHz	6 kW
SD	Sisseton	99.5 MHz	50 kW
TX	Denver City	97.5 MHz	50 kW
WA	Royal City	96.3 MHz	130 watts
WI	Spooner	106.3 MHz	

Issued Permits to Construct New

FM Stations

CA	Firebaugh	103.1 MHz	3 kW
IA	Sibley	100.3 MHz	6 kW
IL	Streator	106.1 MHz	6 kW
IL	Warsaw	89.5 MHz	10 kW
MP	Saipan	88.1 MHz	1.8 kW
OK	Ada	91.3 MHz	2 kW
OR	Bandon	96.5 MHz	7.5 kW
VT	Royalton	91.7 MHz	150 watts

Pending AM Call Letter Changes

Old	New	
WCLZ	WKOI	Brunswick, ME
WJPJ	WDAP	Huntingdon, TN

Changed AM Call Letters

New	Was	
KDMM	KVIL	Highland Park, TX
KDZZ	KAMX	Albuquerque, NM
KGDC	KSMX	Walla Walla, WA
KQIK	KRIT	Lakeview, OR
KRGS	KKGD	Rifle, CO
KSQR	KSAC	Sacramento, CA
KZEP	KHBL	San Antonio, TX
WAJQ	WULF	Alma, GA
WBVS	WARO	Claremont, CO
WCNB	WIFE	Connersville, IN
WHYM	WAME	Statesville, NC
WLMR	WMOC	Macon, GA
WMMZ	WYYR	Spartanburg, SC
WPWA	WTPX	Chester, PA
WQSC	WOKE	Charleston, SC
WRES	WDJX	Louisville, KY
WZGO	WHYM	Portage, PA
WZHR	WPAS	Zephyrhills, FL

Pending FM Call Letter Changes

Old	New	
KKLL-FM	KXDG	Webb City, MO
KSUR-FM	KLOK-FM	Greenfield, CA
KZOC	KBZB	Osage City, KS
WKOL-FM	WBKK	Amsterdam, NY
KZFR	WUSK	Tomah, WI

Seeking Changed FM Frequencies

KHRN	Hearne, TX	94.3 MHz	Seeks move to 103.1 MHz, 6 kW.
WSMQ	Havelock, NC	104.9 MHz	Seeks to change frequency, 50 kW.

Changed FM Frequencies

KBRD	Ketchikan, AK	105.6 MHz	Moved to 89.7 MHz, 7.8 kW.
KMSM-FM	Butte, MT	91.5 MHz	Moved to 106.9 MHz, 740 watts.
WKCA	Owingsville, KY	107.1 MHz	Moved to 107.7 MHz, 3.5 kW.

comply with the applicable rules, whether or not there is a human being at the controls. Equipment must be in place that, in the event of a malfunction, would either take the station off the air or immediately contact the appropriate persons.

Should the proposal become law, stations—especially those with older, less stable equipment—may still opt to have an operator on duty. With such broadcasters in mind, the Commission is also proposing a relaxation in the licensing of those operators, including waiving the requirement of a restricted permit.

Better Days Ahead?: A \$237,167.80 judgment in late September 1994 against the owner of a Suffolk, Virginia AMer may clear the way for the station to return to the air. WLPM had been dark following an ill-fated attempt by Ohio-based Johnson Media to compete in the region's black gos-

pel market. According to an article in the *Suffolk News Herald*, supplied by G. Stewart Tyler, WA4JUO, Johnson had purchased the station in 1991 from Suffolk Broadcasting Corp. for \$309,000, but defaulted for the amount awarded in the September settlement. In July 1994, SBC foreclosed on the station, which had been off the air since 1993, and subsequently filed suit against Johnson. SBC is currently considering offers from various local churches to purchase the station.

The article further notes that WLPM—"World's Largest Peanut Market"—first took to the air in 1940, making it the second oldest radio station in Virginia. Although the station is licensed for 24-hour operation on 1450 kHz, Johnson's financial difficulties made it impossible to broadcast more than 15 hours a day.

The End of an Era: After 40 years be-

hind the mike at Charleston, South Carolina's WOKE-AM, Harry C. "Tennessee" Weaver retired both himself and the station that he had owned since 1955. On November 4, 1994, the final broadcast day, the 78-year-old Weaver reflected on both his no-profanity rule and an continuing emphasis on "family togetherness" among the station's staffers. According to an Associated Press article in the *Savannah (Georgia) News-Press*, supplied by POP'COMM reader Robert E. Tucker, Jr., the station had maintained a format of news, big-band music, sports, and religion since it became WOKE—"We OK"—in 1958. Earlier in 1994, Weaver sold the station license to a former employee, who has now revamped it with an all-sports format, under the call letters of WQSC.

You Never Get a Second Chance to Make a First Impression: As we reported

Changed FM Call Letters

New	Was	
KABE	KAEV	Lake Arrowhead, CA
KAFW	KOSE-FM	Wilson, AR
KANR	KSMS	Belle Plaine, KS
KAXT	KXDC-FM	Carmel, CA
KBLD	KAIS	Kennewick, IA
KBRS	KBEV	Springdale, AR
KBUD	KFMA	Amarillo, TX
KDDX	KBFS-FM	Belle Fourche, SD
KDMM-FM	KDMM	Herington, KS
KEMP	KBXT	Bixby, OK
KERE-FM	KADF	Horton, KS
KFXS	KGGG-FM	Rapid City, SD
KHTZ	KKJY-FM	Albuquerque, NM
KKCN	KWEZ	Jonesboro, AR
KKHI-FM	KTID-FM	San Rafael, CA
KKIK	KPLE	Temple, TX
KKNN	KKLY	Delta, CO
KLFX	KKFF	Nolanville, TX
KLTX	KLFX	Harker Heights, TX
KNSW	KRSW-FM	Worthington, MN
KOMS	KBSY	Poteau, OK
KQOL	KNCD	Columbia, MO
KOSE-FM	KAFW	Osceola, AR
KPLA	KARO	Columbia, MO
KPTY	KFGI-FM	Luling, TX
KQIX-FM	KCTL	Lakeview, OR
KQOD	KFMR	Stockton, CA
KRBT	KSXY	Fresno, CA
KRQT	KZFX	Lake Jackson, TX
KRRA	KLSC	Socorro, NM
KRSW	KNSW	Worthington, MN
KTEG	KAMX-FM	Albuquerque, NM
KWIM	KHAC-FM	Window Rock, AZ
KXRX	KNSN	Walla Walla, WA
KXXL	KZNY	Crane, TX
KYKF	KMGX	San Fernando, CA
WAIB	WHKX	Lafayette, FL
WAJQ-FM	WKXH-FM	Alma, GA
WAKX	WKEZ	Holland, MI
WARO	WRAO	Naples, FL
WEGQ	WCGY	Lawrence, MA
WAFX	WWWB-FM	High Point, NC
WIFE	WCNB-FM	Connersville, IN
WIII	WYYS	Cortland, NY
WIKN	WXXZ	Port Matilda, PA
WJSE	WSKR	Petersburg, NJ
WJZW	WCXR-FM	Woodbridge, VA
WLOW	WHHR-FM	Bluffton, SC
WOCT	WSSF	Baltimore, MD
WOSC	WWVV	Bethany Beach, DE

WPBZ	WOKC-FM	Indiantown, FL
WRMA	WTPX	Fort Lauderdale, FL
WRVF	WYMJ-FM	Beavercreek, OH
WRVZ	WWZZ	Pocatalico, WV
WRXZ	WKMK	Sylvester, GA
WTCX	WYUR-FM	Ripon, WI
WWBZ	WWSS	McClellanville, SC
WWGR	WHEW	Fort Myers, FL
WWTE	WESZ	Lincoln, IL
WXCR	WWSF-FM	Andalusia, AL
WXOR	WWXX	Ocean Springs, MS
WZEW	WAFN	East Brewton, AL
WZPQ-FM	WCKO	Carrollton, AL

Cancelled

WCEW	Charleston, SC	90.9 MHz	Low power
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Seeking Changed AM Facilities

KBMR	Bismarck, ND	1130 kHz	Seeks daytime drop to 10 kW.
KFNW	W. Fargo, ND	1200 kHz	Seeks night drop to 700 watts.
KMRF	Marshfield, MO	1510 kHz	Seeks increase to 1 kW.
KSTE	Rancho Cordova, CA	650 kHz	Seeks increase to 25/17 kW.
WJMX	Florence, SC	970 kHz	Seeks daytime increase to 10 kW.
WLIB	New York, NY	1190 kHz	Seeks night increase to 30 kW.
WOWO	Fort Wayne, IN	1190 kHz	Seeks night drop to 9.8 kW.

Changed AM Facilities

KCCF	Cave Creek, AZ	1100 kHz	Increased days to 50 kW.
KDUK	Eugene, OR	1280 kHz	Increased nights to 1.5 kW.
KNZR	Bakersfield, CA	1560 kHz	Increased days to 25 kW.
WCHP	Champlain, NY	760 kHz	Added nights with 11 watts.
WNTY	Southington, CT	990 kHz	Added nights with 80 watts.
WRJL	Hanceville, AL	1170 kHz	Increased days to 8.5 kHz.
WSCR	Chicago, IL	820 kHz	Added nights with 1.2 kW.
WSQR	Sycamore, IL	1560 kHz	Added nights with 17.6 kW.

New AM Call Letters Issued

WAJP	Altoona, WI
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in the February column, WPBC-FM finally debuted in the Pittsfield, Maine radio market in August 1994. Thus far, the station has apparently made good on its promise to cover local sporting events, albeit with a few glitches. Faithful reader Don Hallenbeck, of Pittsfield, reports that during an October live remote of a football game, a voice suddenly broke in, asking, "Hello, hello. To whom am I speaking to?" The broadcast was immediately broken off, followed by 20 seconds of dead air, then a long commercial. Finally, after another few moments of dead air and then music, game coverage resumed. No real explanation for the interruption was given, except to note that they had been speaking with someone named "John." The broadcast rolled along smoothly until someone butted in towards the close with a series of dead keys.

Two weeks later, WPBC was again plagued by gremlins during its coverage of a local football game. Five minutes into the game, the station suddenly went to dead air, followed by a long commercial, dead air again, then music for what Don describes as "a long time." The broadcast didn't resume until just before the start of the second half, only for another five minutes before the announcer ended the broadcast, stating they were being ordered off the phone line. Don correctly observes that such glitches will impact their overall bottom line. After all, what advertiser wants to sponsor a game if there's no guarantee that there will even be a full broadcast?

Hello, You're on the Air...Whether You Like It, or Not: The failure of a Chico, California station to notify an individual to whom the station had placed a telephone

call that the conversation was being recorded for broadcast will cost its licensee a forfeiture of \$2,000. KRIJ Partners, licensee of KHSL-FM, has been assessed the fine for a violation that occurred on June 1, 1993, when two disc jockeys from the station placed a call to a woman, recorded their conversation, then broadcast it, without first obtaining her consent. Under Section 73.1206 of the FCC's rules, "before [emphasis mine] recording a telephone conversation for broadcast, ...a licensee shall inform any party to the call of the licensee's intention to broadcast the conversation." The obvious exception to this rule is call-in talk programs, but since the call and subsequent broadcast were not of this nature, KRIJ Partners was sent a letter of inquiry by the FCC following a complaint by the woman involved.

The licensee and station initially denied in a signed statement that the call ever took place, but when confronted with a tape of the broadcast in question, management altered its response "to emphasize that it still does not know if the call was actually aired," but "assume[s] for the purpose of this response" that it was. A transcribed excerpt of the broadcast, cited in the Commission's Notice of Apparent Liability, features the woman asking, "Am I on the radio?" after being questioned about a fax she had sent to the station regarding "a hot country lunch." The announcer's response was, "No. No, but you're soon to be." Based on this exchange, the Commission concluded that "it is apparent that [she] was not informed that the conversation was being recorded for future broadcast until well into the conversation," noting that FCC rules do not permit a broadcaster "to presume that that the other party should have been aware, from the context of the conversation, that the conversation was being recorded."

On the same day that the FCC served the NAL to KRIJ Partners, the Commission took identical action against the licensee of Atlanta, Georgia's WNNX-FM, for a similar infraction. In this case, however, officials of the WNNX License Investment Company had been forthcoming in admitting that a violation of Section 73.1206 had occurred when the former WAPW broadcast a telephone conversation with the Police Chief of Frostproof, Florida.

While at the same time throwing itself at the mercy of the Mass Media Bureau, WNNX attempted to portray the February 24, 1992 incident as an unintended and isolated one, noting that it had as a result of the complaint discontinued programming that lent itself to the broadcast of such material. In its request that the FCC issue no more than a reprimand, the licensee also cited memoranda issued in 1969, 1989, and 1991, advising station personnel of the consequences of violating Section 73.1206. While the Commission dismissed this excuse on the grounds that not until the initial letter of inquiry was sent were such memorandum issued, it did take into account the "singularity of the violation and the lack of egregiousness associated therewith" in its decision to levy a fine of \$2,000.

Following Up: In the September 1994 column, we reported that Nashville, Tennessee's WNQM-AM had recently doubled its daytime power to 10 kW. In response to this news, Joseph Brashier, who spent much of the '80s as assistant to the station's now General Manager, George McClintock, faxed us a note clarifying the fact that F.W. Robert Broadcasting assumed operation of the station on January 27 of 1984, not 1980, as we had reported. Joseph is now with the Shortwave Division of LeSea Broadcasting Corp.

Bits and Snippets: WSKW, 1600 kHz, in Skowhegan, Maine, has adopted an all-



"Rock 104" is WXKE-FM, which recently purchased WOWO-FM, and is now simulcasting its hard and classic rock on 102.9 MHz. (Courtesy James R. Weiler.)

sports format, provided by an unidentified satellite service, reports Don Hallenback...The industry newspaper *Radio World* reports that Liberty Broadcasting has agreed to syndicate a weekly radio show hosted by Wolfman Jack. The program will be broadcast live from the Washington, D.C. Hard Rock Cafe, Friday nights from 7 to 11 p.m. EST... "Big reader" Mike Fitzpatrick, Jr., of Springfield, Massachusetts, informs us that Hartford, Connecticut's WTIC-FM has dropped its format of rap and R&B format to become "The new 96-5 TIC FM, with today's top 40."...As of October 31, 1994, there were 4,914 AM

and 5,090 FM stations, in addition to 1,721 FM Educational and 2,252 FM translators and boosters.

Thanks: A tip of the hat to the James R. Weiler, for keeping us apprised of the WOWO sales, both with articles in the Fort Wayne *Journal-Gazette* and information that he sought out on his own. Without his help, our coverage would not have been nearly as complete.

Please continue passing along any information about AM and FM broadcasting, be it in the form of newspaper and magazine articles, photographs, or personal observation. Until then, 73s. ■

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YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Several readers asked for details of the header codes of GOES pictures. Through a suggestion from August A. Stellwag, NY, I did locate the pertinent information! (See Sample.)

The sector identification group indicated in the header can be a Standard Sector, Floating Sector, or a Rapid Scan Sector. We will limit this explanation to the Standard Sector. The sample header showed a Standard Sector indicator of DB5. Coding elements a, b, and c are assigned and have the following breakout:

a. Major NEDIS hub (SFS or Regional area requirement) for which the sector was generated.

S—San Francisco
 K—Kansas City
 D—Washington D.C.
 M—Miami
 W—Washington complex production only. (Not transmitted over GOES network)
 WB—4 km geographic sector with 2 km resolution.

H—Honolulu
 A—Anchorage
 G—New Orleans
 WC—7 km geographic, or Full Disk, with 4 km resolution.

b. Sector resolution in kilometers, except for equivalent IR products.

A=1 km
 B=2 km
 C=4 km
 IR=7 km

c. Identifier number for the specific standard sector (1 through 9).

Perry Crabill, VA, wrote, "You may be interested in two new pieces of equipment I am now using. One of these is the RSM Model 105-C, Long Wave Loop Antenna, a three-foot square loop. By virtue of high-Q design, no preamplifier is needed; it works very well.

"The other new unit is the Timewave DSP-59+ digital filter, an outstanding device. It is very flexible; most of the time I use it as a bandpass filter centered on 500 Hz with a bandwidth of 25 Hz. It has a noise reduction feature which can make the difference between reading or not reading a marginal signal. By the way, I also have the KIWA BCB Loop, which is a useful item for that band."

Rick Baker, OH, sent in a new CG address which he obtained from Jim Pogue, author of *Coast Guard Radio*: USCGC Valiant, c/o Coast Guard Base, 100 MacArthur Causeway, Miami Beach, FL 33139-5199.

Rick also mentioned that the U.S. Army Transportation Corps at Ft. Eustis, VA,

SAMPLE: 1230(a) 27JUN93(b) 12A-2(cde fg) 01044(h i) 18162(j k) DB5 (Sector ID, see below.)

- a. UTC—indicating time of actual picture start.
- b. Calendar day, month, year.
- c. Line Stretcher/data buffer (LS/DB) Identification.
- d. Satellite Identification:

- 1=SMS-1
- 2=SMS-2
- 3=GOES-1
- 4=GOES-2
- 5=GOES-3
- 6=GOES-4
- 7=GOES-5
- 8=GOES-6
- 9=GOES-7

e. Image Type
 F=Full Disk IR
 E=Equivalent IR Sector

A, B, C, D=Denotes visible sectors as well as the (LS/DB) mode of operation. Details are beyond scope of this document.

f. Resolution of image in nautical miles:

- 1=1 km
- 2=2 km
- 4=4 km
- E*=7 km

*Equivalent IR sector, same geographical area as corresponding visible sector.

g. Enhancement curve identifier for IR data only. Two letters (AA through ZZ) in this position identify the enhancement curve displayed. A single letter, Z, identifies the enhancement curve used on Full-disk IR data. No letter signifies no enhancement.

h. Starting Scan Line number for the image (Y axis). Range 0 to 1821.

i. Vernier correction factor for starting scan line number.

j. The X axis element number of the midpoint of each horizontal line contained in the sector. Range 0 to 3822.

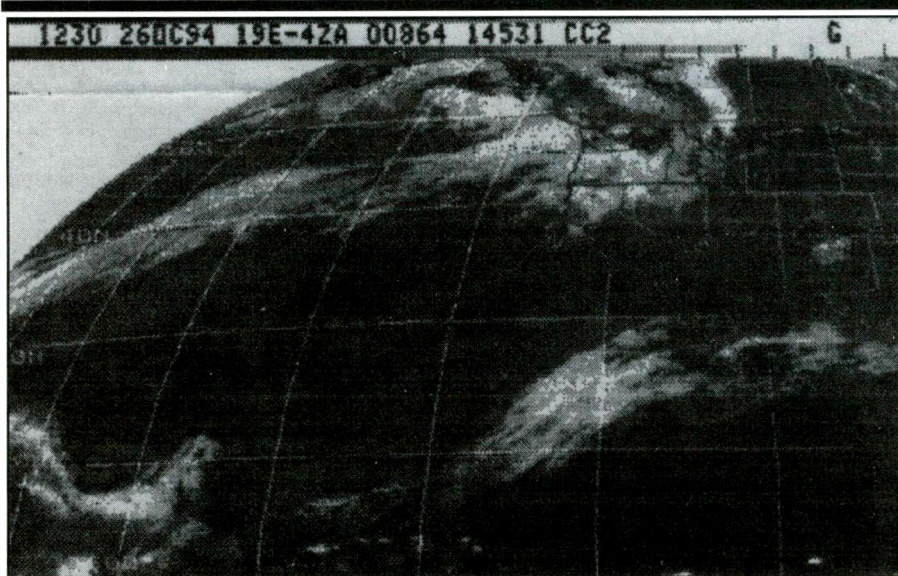
k. Vernier correction factor for sector center location.

now has in service LCU's of the Runny-meade-class, so many unknown callsigns will be showing up. One frequently heard callsign ADMM, has been identified as the USAV Contreras (LCU-2015).

Here is what Rick had to say about the SOS he observed. "I snagged an interesting SOS relay from Portishead Radio on 8817 kHz concerning the BOC yacht race during the Fall of 1994. This was when the

ITU Ch #	Call Sign	Location	Selcal	Shore Xmit	Ship Xmit
401	WNU	Louisiana	1109	4210.5	4172.5
403	KFS	California	1094	4211.5	4173.5
416	VCT	Newfoundland	1094	4217.5	4180.0
603	KFS	California	1094	6315.5	6264.0
627	WNU	Louisiana	1109	6327.0	6281.0
632	VCT	Newfoundland	1094	6329.5	6283.5
803	KFS	California	1094	8417.5	8377.5
812	VCT	Newfoundland	1094	8422.0	8382.0
819	WNU	Louisiana	1109	8425.5	8385.5
1203	KFS	California	1094	12580.5	12478.0
1219	WNU	Louisiana	1109	12588.5	12486.0
1257	WNU	Louisiana	1109	12607.5	12505.0
1263	VCT	Newfoundland	1094	12610.5	12508.0
1643	VCT	Newfoundland	1094	16827.5	16704.5
1647	KFS	California	1094	16829.5	16706.5
1657	WNU	Louisiana	1109	16384.5	16711.5
2203	KFS	California	1094	22377.5	22285.5

ITU channels for WNU/KFS/VCT network.



Clyde M. Sakir, AZ, has a neat method for printing out satellite photographs. Here's how he does it, using this photo from the NOAA NMC broadcast as an example. "The screen image was superlative with very clear lines and little to no noise. The image was converted and saved as a .pcx file which in turn was imported by Word Perfect 5.1 graphics program and produced the photo printed above."

vessel Gartmore Investment Managers struck an unidentified object and started taking on water. The British Sailor, Josh Hall, was rescued by none other than Alan Nebauer on the Newcastle Australia, whom I logged a month or so previously."

Some of you current and ex-USN Radiomen may not be aware there is a USN Radioman Association. For details, write to G. O'Connell, USNRMA, P.O. Box 30862, Alexandria, VA 22310.

The December 1994 *Proceedings*, published by the U.S. Naval Institute, described changes in the Anti-Drug efforts which took place in September. The designators will be showing up in related communications.

Joint Task Force 4 is now JIATF (East) with an area of responsibility which includes portions of the Atlantic Ocean, all of the Caribbean and Gulf of Mexico, and part of the Pacific Ocean.

JIATF (West), based in Alameda, CA, is mainly targeted against heroin trafficking into the U.S., and also is concerned with the drug trafficking movements in the rest of the Pacific Ocean area.

JIATF (South) is based in Panama, and works with Latin American countries that are sources of narcotics. Its aim is to help such countries reduce/restrict drug flow from their shores. This Joint Inter-Agency Task Force is directed by the U.S. Southern Command's Director of operations.

A newcomer to the drug flight is the Domestic Air Interdiction and Coordination Center located at March AFB in Riverside, CA. This activity is under the direction of a senior Customs Official. The Center will conduct domestic and international sorting of air traffic until JIATF (East) has the capability for international monitoring by the Caribbean Regional Operational Center at the Key West NAS.

Heading up JIATF (East) as task force director is Rear Admiral Andrew A. Granuzzo. Policy guidance will be provided by Coast Guard Commandant Admiral Robert F. Kramek, who will also have the additional charge of U.S. Interdiction Coordinator for the entire national interdiction effort. Admiral Granuzzo will have two principal deputies—one a senior Customs Service official, the other a CG flag officer. In addition, there will be a staff including representatives from DEA, DIA, U.S. military services, the Royal Navy, and the Royal Netherlands Navy.

During the JTF-4 operation from 1989 to 1993, the daily seizures of illegal drugs went up from 43.6 kg to 402.7 kg.

This past September, KFS World Communications and Telia Mobitel AB signed an agreement to open two new sub-stations for Maritex service in the U.S.

The new sub-stations will be located at Palo Alto Radio (KFS) near San Francisco, and at Slidell Radio (WNU) near New Orleans. The main coverage areas of the stations will be the Pacific Ocean and the Mex-

QSL **N M C**

**COMMUNICATION AREA
MASTER STATION PACIFIC**

POINT REYES STATION CALIFORNIA 91956-0660 U.S.A.

THIS CONFIRMS YOUR RECEPTION OF COAST GUARD
COMMUNICATION AREA MASTER STATION PACIFIC AT
2040 z, 27 OCTOBER 1990
ON FREQUENCY 16881 KHZ CW KHZ
BROADCAST CONTENT: CALL TAPE
TRANSMITTER MODEL: COLLINS ROCKWELL HF-80
OUTPUT POWER: 10-000 WATTS
ANTENNA TYPE: OMNI-DIRECTIONAL
TRANSMITTER LOCATION: 37-56N 122-44W
THANK YOU FOR YOUR REPORT!

RNCM S. Moore
OPERATIONS OFFICER/RADIOMAN-IN-CHARGE

Hiroshi Saito, Japan, shares his NMC QSL.



United States Coast Guard Group Fort Macon

To: Radio AA4JN
This confirms your reception of HF, USB
radio transmissions as indicated below:

Date: 2 July 1993 Time: 0410Z Frequency: 5320.0 KHz
Callsign: NMN-37 Location: ATLANTIC BEACH, NC
Transmitter Power: 100 W Antenna: 30FT WHIP
Remarks: QSL QRU CUL AR

RMI COLLEEN JOHNSON
Signature/Title

This PFC was prepared by Jim Navary, VA.

ican Gulf/Caribbean Sea area respectively.
Maritex is a global, computerized, fully
automatic network for maritime radiotelex.
Telia Mobitel AB, based in Onsala, Swe-
den, operates the Maritex system and is
responsible for technical operation and

traffic management. KFS World Commu-
nications will market Maritex services in
North America.

The above was followed in October
1994 when KFS began operating the third
station ion the company's super-station



POST AND TELECOMMUNICATION CORPORATION

Papua New Guinea
PORTMORESBY COASTAL RADIO STATION
P O BOX 1378
BOROKO NCD
PAPUA NEW GUINEA.

Telex: 255005/274466
Telephone:
Fax: 259658

16/6/93

Our Reference:

Dear SIR,

Greetings from Portmoresbyradio/P2M staff and
management.

We received your reception report on 16/june/93.

The report and reception is confirmed and it is of great
news and informative to the station because it is the
first time to receive a reception from your country.
Now we know that at times our transmission can be heard
at longer distances than what we expect.

Sorry we could not provide you with a photograph of the
station but for your information the station is situated
near the Jacksons international Airport and is about
15KM from the coastline. It is in a small valley where
there's no shops and very quiet no disturbances and the
Station's transmitters are located at Boroko which is
4KM away from the Station.

I hope the above infromation will be of great news to you
thanks and regards;

Portmoresbyradio staff and management,

Joel B Misirom
Supervisor
Coastal Radio/P2M

This letter QSL was received by Steve McDonald, British Columbia, Canada.

Abbreviations Used For Intercepts

AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identification/led/location
LSB	Lower Sideband mode
OM	Male operator
PP	Portuguese
SS	Spanish
tfc	Traffic
USB	Upper Sideband mode
w/	With
wx	Weather report/forecast
YL	Female operator
4F	4-figure coded groups (i.e. 5739)
5F	5-figure coded groups
5L	5-letter coded groups (i.e. IGRXJ)

network of public coast stations. The new
HF radio facility, located in Tors Cove,
Newfoundland, Canada, offers HF radio
coverage of the North Atlantic Ocean and
the East Coast of the U.S. The company's
two existing stations, KFS and WNU, cover
the U.S. West Coast, the entire Pacific
Ocean, the Panama Canal, the Caribbean
Sea, the Gulf of Mexico, and the mid-
Atlantic Ocean.

Industry Canada recently issued the new
callsign VCT to the company's operating
partner, NewEast Wireless Telecom, Inc.,
(formerly Sea Link Ltd.), of St. John's,
Newfoundland. NewEast will provide the
transmission facilities for the exchange of
messages with the ships. A dedicated data
link to the KFS World Communications
Traffic Delivery Center in Half Moon Bay,
CA, allows the exchange of messages and
supporting communications.

Traffic lists sent by the three stations are
identical and include every message in
hand. Ships can determine if they have traf-
fic waiting by listening to just one such
broadcast.

Figure 1 shows the ITU channels for use
in contracting the network.

I would appreciate it if the person who
sent in a tape of unidentified signals would
write to me. I now have the results of the
signal analysis, but have misplaced the tape
owner's name and address. The tape had
the following entries:

Side A: Cut 1—Strange space-like sig-
nal in 6963 kHz.

Cut 2—Buzzing signal on 7340 kHz AM.

Cut 3—Data transmission on 7483 kHz.

Cut 4—Beeping signal on 7711 kHz.

Side B: Cut 1—Space-like signals along
with two-tone signal on 7921 kHz.

UTE Loggings

SSB/CW/RTTY/SITOR/etc. All Times in UTC.

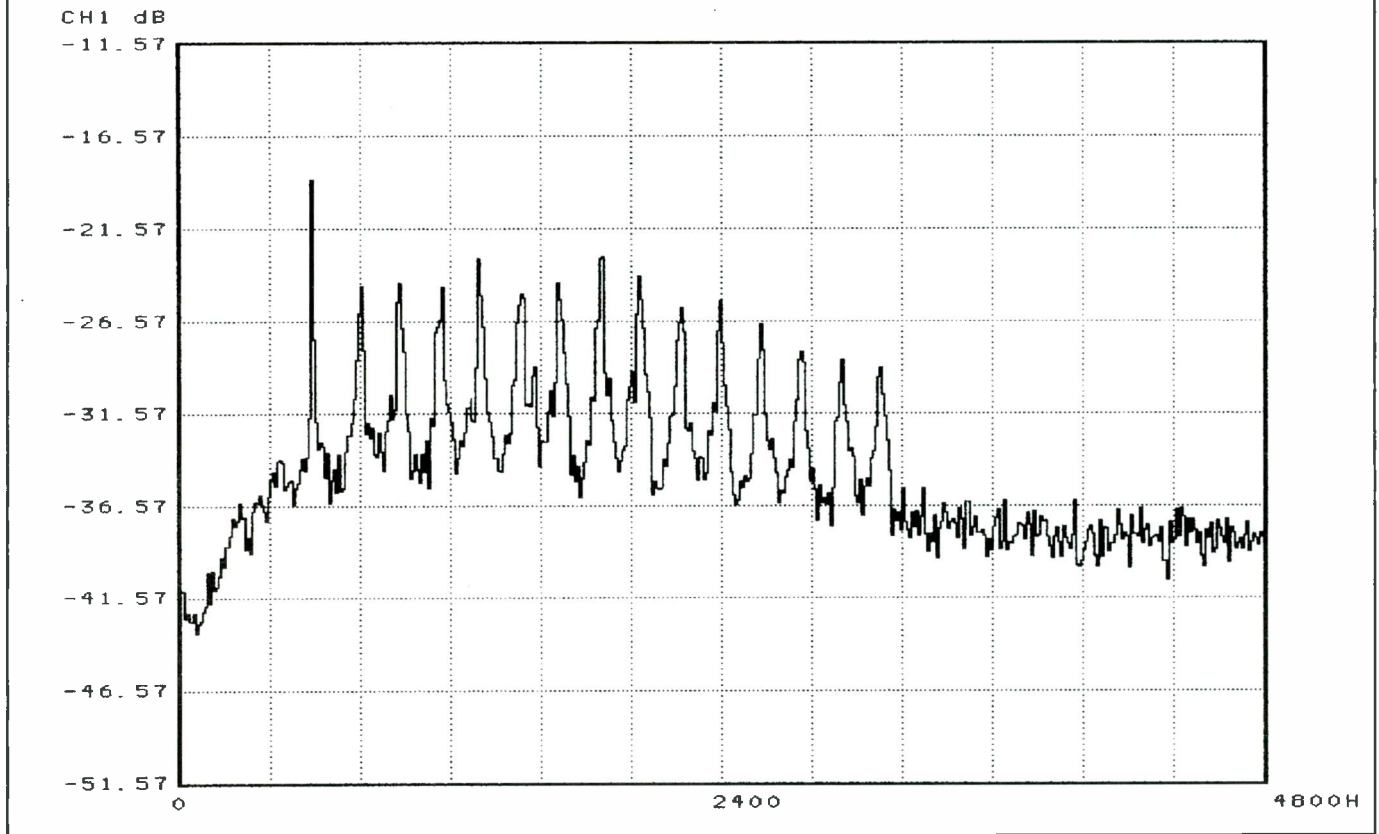
200: Beacon UAB, Anaheim Lake, BC, Canada.
(GB)

201: Beacon GL, La Grande Rivere, PQ, Canada
at 0802. (AH)

204: Beacon AEW, Biscayne Bay, FL at 0906.
(AH)

212: Beacon SJ, St. John, NB, Canada at 1030;
Beacon PMX Palmer, MA at 1031; Beacon TS, Tim-
mons, Ont., Canada at 0835. (AH)

SPECTRUM ANALYZER CH 1



Kevin Tubbs, VT, has provided another signal readout. This one was heard on 10598.5 kHz in USB and is a VFT-F8A.

- 214:** Beacon DA, Dawson, Y.T., Canada. (GB)
224: Beacon GVA, Henderson, KY At 0445. (PC)
227: Beacon SJY, San Jacinto, CA at 0539. (BV)
242: Beacon ZT, Port Hardy, BC, Canada. (GB)
245: Beacon TLR, Tulare Municipal, CA at 0553. (BV); Beacon PWF, Batavia, OH at 0815. (PC)
248: TWEB GLA, Glen Allen, AK. (GB)
251: Beacon DD, unid. Hrd at 0837. (PC); Beacon AM, Amarillo, TX at 0451. (BS)
253: Beacon UR, Burbank-Glendale-Pasadena, CA at 0550. (BV)
254: Beacon 5B, Summerside, PEI, Canada at 0105; Beacon CAT, Chatham, NJ at 1824; Beacon LLW, Elizabeth City, NC at 1421. (AH)
257: TWEB CUN, Fairbanks, AK. (GB); Beacon FFF, Plymouth, MA at 0106; Beacon SQT, Melbourne, FL at 0758; Beacon TBY, Oxford, CT at 1426; Beacon YXR, Earlton, Ont., Canada at 0825. (AH) Beacon TEC, Blackburg (Virginia Tech), VA at 2044. (Ed.)
263: Beacon DYQ, Greeneville, TN at 0910; Beacon GGP, Logansport, IN at 0912. (PC); Beacon CQR, Chandalar Lake, AK. (GB)
268: Beacon S7, Hanover, Ont., Canada at 0921. 1000 Hz; 400 Hz in Guide. (PC); Beacon ZW, Teslin, Y.T., Canada; Beacon SKW, Skwentna, AK. (GB)
272: Beacon UCP, New Castle, PA at 0935. (PC)
279: Beacon CQX, Chatham, MA at 0311. (PC)
281: Beacon VIR, Barrow, AK. (GB)
284: Beacon PTB, Petersburg, VA at 0940. (JO); Beacon YOC, Old Crow, Y.T., Canada. (GB)
290: Beacon AOP, Rock Springs, WY at 0446. (BS)
292: Beacon W, Cape Hichinbrook L.S., AK. (GB)
294: Beacon ZIP, Zipaquirá, Colombia at 0345. Two dits after ID. (PC); Beacon CL, Ft. Macon, NC at 2013; Beacon J, Jupiter Inlet, FL at 0945. (AH)
302: Beacon XY, Whitehorse, Y.T., Canada. (GB)
305: Beacon RO, Roswell Industrial, NM at 1235. (BS)
307: Beacon R, Snug Harbor, Ont., Canada at 1010. (JO)
314: Beacon SPY, St. Paul Island, AK. (GB); Beacon GGU, Prague, OK at 0455. (BS); Beacon P, Ft. Gratiot Light, MI at 0337. (PC)
318: Beacon SSB, San Sebastian, Venezuela at 0425. (PC)
320: Beacon HTN, Miles City, Wiley Field, MT at 1255. (BS)
326: Beacon MCY, Mercury, NV at 1250. (BS)
328: Beacon ILI, Iliamna Ak. (GB)
329: Beacon KD, unid at 1243. (BS)
330: Beacon BZP, Galena, AK. (GB)
332: Beacon FIS, Key West, FL at 0457. DSB mode; Beacon HEG, Jacksonville, FL at 0500; Beacon PH, Port Huron, MI at 0350, ex-JI, ex-PHN. (PC)
333: Beacon STI, Mountain Home Municipal, ID at 1302. (BS)
335: Beacon CDH, Camden, AR at 0514. (PC)
336: Beacon MCZ, Williamston, NC at 0053. (JO)
341: Beacon DB, Burwash Landing, Y.T., Canada; Beacon CD, Cold Bay, AK. (GB)
344: Beacon FCH, Fresno, Chandler Municipal, CA at 1304; Beacon XX, Abbotsford, BC, Canada at 1305. (BS); Beacon JA, Jacksonville, FL at 0802. (JO)
350: Beacon NY, Enderby, BC, Canada at 1308. (BS); TWEB VTR, McGrath, AK. (GB)
353: Beacon LWT, Lewiston Municipal, MT at 0326. (BS)
356: Beacon PB, West Palm Beach, FL at 0740. (JO)
358: Beacon TNY, Fayetteville, TN at 0600. (PC)
359: Beacon BO, Boise, ID at 1304. (BS)
362: Beacon OX, Oxford, CT at 0424. (PC)
366: Beacon YMW, Maniwaki, PQ, Canada at 0755. (JO); Beacon CYO, Circleville, OH at 0440. (PC)
370: Beacon MQI, Manteo, NC at 1034. (JO); Beacon PAI, Picoima Barton Heliport, CA at 0719. (BV)
371: Beacon EVC, unid, at 0330. (BS); Beacon TVY, Tooele Valley, UT at 0721. (BV)
373: Beacon 2R, Tyendingaga Mohawk, Ont., Canada. 400 Hz. (PC)
374: Beacon LV, Livermore Municipal, CA at 0724. (BV)
377: Beacon HWS, Mosinee, WI at 0543. (PC)
378: Beacon CPM, Compton, CA at 0733. (BV)
379: Beacon PYI, unid, at 0602. 1000 Hz, heading approx N/S, Brazil?? (PC)
380: Beacon BBD, Brady, Curtis Fld., TX at 0341. (BS); Beacon AJL, Abejorral, Colombia at 0610. (PC); Beacon UCY, Cayo Jabo, Cuba at 1015. (AH)
383: Beacon PI, Pocatello, Municipal, ID at 0735; and Beacon JF, unid, at 0737. May be NY JFK Int'l w/freq change from 373 kHz and higher power. (BV)
385: Beacon WL, Williams Lake, BC, Canada at 1303. (BS)
388: Beacon MFV, Melfa, VA at 1323. (JO); Beacon ISZ, Cincinnati, OH at 0650. 1000 Hz. (PC)
392: Beacon ML, Charlevoix, PQ, Canada at 0749. (JO)
397: Beacon SB, San Bernardino, CA at 1320. (BS)
400: Sault Ste Marie, MI at 0836; Beacon PTD, Pottsdam, NY at 0634. (AH)
404: Beacon MOG, Montague, CA at 1312. Ex-382. (BS)
407: Beacon AKT, Appleton, WI at 0452. Ex-FXV; 1000 Hz. (PC)
412: Beacon MTU, Mitu, Columbia at 0710. Best DX, 2793 miles. (AH)
414: Beacon PYD, unid at 0832; Beacon SKX, Taos Municipal, NM at 0834. (BV); Beacon BC, Caie Comeau, PQ, Canada at 0757. (JO)
415: Beacon ASJ, Ahsokie, NC at 0011. (JO)
420: Beacon CFY, Lake City, SC at 0928; Beacon GAS, Galipolis, OH at 0939. (AH)
425: Beacon PCA, Punta Cana, Dominican Republic at 0917. 1594 miles. (AH)
428: Beacon EEJ, Sanford, NC at 0118. (JO)
430: Beacon LML, Lamalinda, Columbia at 0759; Beacon VA, Baradero, Cuba at 1017. 1412 miles. (AH)
432: Beacon IZN, Lincolnton, NC at 0633. (JO)
450: Beacon PPA, Puerto Plata Int'l, Dominican Republic at 0944. (AH)
515: Beacon OS, Columbus, OH at 1010. (AH)
521: Beacon INE, Missoula, MT at 1312. (BS)
523: Beacon JH, Johnstown, NY at 0909. (AH)
526: Beacon RWE, Camp Roberts/San Miguel, CA at 08746. (BV)

2103.5: CCG2959, Canadian Fisheries Patrol Ship Leonard J. Cowley at 0404 wkg CGJY, Canadian CG ship Sir Wilfred Grenfell in USB reis in scene for SAR & has picked up debris. Both ships out of St. John's. (RB)

2182: C6MT7, Container ship M/V Hibiscus II at 0357 wkg NMN, CommSta re MEDICO concerning crewman came to swallow the spoon. Ship later advised divert to port for medical treatment for man. At 0535, USCG Group Woods Hole, NMF2, wkg F2V Lucky Man ref a MEDICO. All USB (RB)

2598: VON, St. John's CG radio, Newfoundland, at 0550 w/pan-pan announcement of overdue F/V Patrick & Elizabeth, 48 ft. w/5 POB, in area 4700N/5130W. At 0716 VCO, Sydney CG Radio, NS, Canada w/gale warning for St. Lawrence Seaway. All USB. (RB)

2703: R10, u/i military?? Sounded by British. W/RO, R20, R30, R100, R1220 for rdo cks at 2205. Two days later hrd U10, also sounded by British. W/U0, U20, & U30 for rdo cks, tracking reports & coded mssgs. Hrd 2240. All in USB mode. (AB)

2845: PBB, Dan Helder Naval, Netherlands at 0559 in 75/850 RTTY w/test tape. Parallel freq 3764.4 kHz. (RB)

3262: SLHFM "P" in CW at 2302. (AB)

3488: Gander in LSB at 0000 & New York at 0001. Aviation wx. (SW)

3607.8: GHD, Gallan Head, UK at 0632 w/Sitor-A phasing 'channel-free' sig and CW ID. (RB)

3673: PA90PCH, special event station for 90th birthday of Scheveningen Radio, Holland. In CW at 2305. Also on 145.325 MHz. (AB)

3771: PI4RCK, same event as preceding item but in LSB. Hrd at 2338 and also on 145.575 MHz. (AB)

4013.5: Army MARS net w/AAT4GJ (NCS) at 0219. (BL)

4017: CW cut nbr stn at 0200 rptng 33922 and went off air. Came on later in middle of mssg. (TS)

4071: C6LG5, Norwegian Cruise Lines cruise ship M/S Dreamward wkg AT&T High Seas stn WOM, Pennsco, FL at 0309 for R/T t/c. At 0406 cruise ship M/V Crown Princess concluding R/T t/c w/WOM. At 0536, ELNC5, M/S Ecstasy concluding R/T t/c w/WOM. All in USB, duplex w/WOM on 4363 kHz. (RB)

4289: VCS, Halifax CG Radio, MS, Canada in CW clg CQ. (SW)

4307: YL/EE in AM at 0007 rptng 740 740 740 and 1-0 count. At 0010, ten tones and into 3/2F# mssgs. (TS)

4360: SYN2, Mossad bcst in USB at 2130. (AB)

4380: Chirpy dots and dashes here at 1248. (BS)

4381: WLC, Rogers City, the "Voice of the Great Lakes." at 0246 w/MAFOR (Marine Forecast) wx bcst for Great Lakes, starting w/Lake Superior. At 0400, WAH, St. Thomas, U.S. Virgin Islands w/t/c list. Both in USB. (RB)

4385: WOO, Ocean Gate, NJ in USB at 0204 w/t/c list. (SW)

4408: Various Hollywood Marine towboats, incl Spirit, Enterprise & others at 0018 wkg simplex chat. One towboat is at "lowa point," the 282.5 mile marker of the Mississippi River. At 0208, VCS, Halifax CG Radio< NS, Canada w/sked wx bcst. Both USB mode. (RB)

4446: SLHFM "V" in CW at 2037. (AB)

4462.5: WLO, Mobile, AL in FEC at 0105 w/wx. (TS)

4519: Royal Navy 'GB' w/Coastal Control. Requests 'Quick Brown Fox' & voice rdo cks. Sends test slip 'RYRYRY VMGTGNJBH' in 75 & 100 bd RTTY at 0903. (AB)

4563: U/i stn with 1-8 count foll by several phrases in RR. Hrd in stn fm 1655 till it faded away at 2212. Hrd similar stn last June, also RR w/1-10 count & several phrases, like a voice mirror. Stn was on air for couple of weeks and was audible several hours every night. USB mode. (AB)

4576: SLHFM "V" in CW at 0003. (AB)

4588: U/i ASCII at 0040. Poss Asian stock market report. Oriental characters w/Yen symbols. (SW)

4602: OA, Irish military Dublin w/57. Requests 57 to call 35 at 0955 in ARQ 100. At 0957 stn 57 asks 35 to contact OA on 1986. FEC 100. (AB)

4615: Very loud jammer at 2245. (AB)

4721: Andrews AFB in USB at 0318 wrkg SAM 60202 (VIP flight). (TS)

4725: Andrews AFB in USB at 0745 wrkg Reach

To: David Sabo, Seoul, Republic of Korea



V I S



This confirms your reception of

Sydney Marine Radio, Australia

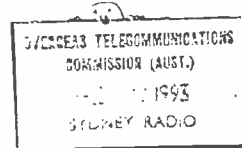
on 8734 kHz USB/voice at 1055 UTC on August 16, 1993.

Transmitter/Power: MARCONI 10KW

Antenna: LOG PERIODIC

Location: LA. PEROUSE.

(Signature/Official Stamp)



David Sabo, South Korea, used this PFC to obtain his verification of reception.

121KW w/pp to Hilda East advising that another a/c using same callign. (TS)

4730: GFW, RAF Akrioti, Cyprus in USB at 1915 w/wx. (AB)

4821: Nbr stn w/id 283, 3/2 grps in GG at 1901 in USB; another day at 1900 nbr stn w/id 507, 88 gruppen. 5F grps in GG. USB. (AB)

4846: Buchan Radar w/3KK, Y90, JESSIE, K2A. Rdo cks & track reports at various times. First hrd 0000; Neatishead Radar w/4GR in USB at 0745 for rdo ck. (AB)

5000: USCG CAMSLANT Chesapeake clg Cutter Nunivak at 0010 in USB. CAMSLANT thought they were on 4426/4134 kHz SCN freq. (ER)

5050: Nbr stn '621/00 000' (used cut zero). CW at 2300. (AB)

5240: YL/EE w/5F grps. (JS) No time given for this nbrs bcst. (EJ)

5262: HEP, Interpol Zurich, Switzerland in CW at 1205 w/VVV DE HEP. (AB)

5305: SLHFM "C" in CW at 2122. (AB)

5320: NOY, USCG Group Galveston at 0208 in USB wkg Rescue 2138 (Falcon Jet) who is flying cover for the Res 6573 (HH-65-A) relaying hospital instructions for a man hoisted off a merchant ship who had apparent heart attack. 2138 advised that 6573 can't pass too much info now as they are in full CPR. ETA to hospital & arrangements for which help pad to use were made. (RB)

5335: PAPA wkg KILO at 0444 w/request he authenticate. KILO does so & authenticates into the net. Believed be UN Haiti maritime net due to accents of some units. USB mode. (RB)

5400: WUG, US Army Corp of Engineers, Vicksburg, MS at 2050 w/Sitor-A bcst showing USCOE vessels & positions in Vicksburg district. (RB)

5430.5: 'Mike Control' wkg 'Bessamer?' in USB at 0223 re unknown location of 'Mike Battery Convoy' headed for Fort Campbell. Seemed to be confusion as to where the convoy was. (TS)

5494: Weird crackling sound. Also hrd on 5500 kHz, USM/AM at 2048. (AB)

5598: Speedbird 292 in USB (MIA-LHR) clg NY LDOC at 0207 reporting "space vehicle re-entry at

0130." Gave FL of 330+position. Captain stated that some passengers thought it a distress flare but from its position relative to the horizon, it was not a distress flare. (SA)

Edinburgh Rescue w/Coast Guard 'HL.' A boat w/6 POB sunk. CG heli flew 6 casualties to hospital in Lerwick (Shetland Islands). USB at 1440. (AB)

5716: 'Cynthia' nbr stn w/1-10 count. 'Count 194' & into 3/2F grps in EE. USB at 2200. (AB)

5718: CKN, Vancouver Military at 0609 wkg Rescue 456 who advised they will be landing Prince Rupert after pp RCC as to if they would be needed in AM. Selcall ck HFK. USB mode. (RB)

5760: Army MARS net at 1435. (BL)

5770: Nbr stn at 2200 w/mssgs in 5F grps in GG for 820 & 039. (AB)

6227: At 0008, ADMM, USAV Contreras (LCU-2015) clg AAC2, harbormaster. Ft. Eustis, VA on "CH 3," no joy. At 0011, AADX, USAV Buena Vista (LSU-2008) clg ADMN, unk USAV, no joy. At 0102, WRS2924, the Moran tug Marian Moran wkg WBV, Moran Towing re mssg to crew mbr. All in USB mode. (RB)

6270.5: SXDH, Greek container ship C/V Caribia Express at 0045 in Sitor-A w/telex in Greek. (RB)

6288: Italian Naval station IGJ42 Augusta, Sicily w/CW mkr at 2320. (ER)

6336: MTO, Royal Navy, Rosyth, Scotland at 2358 in 75/850 RTTY w/test tape. (RB)

6501: USCG Honolulu COMMSTA (NMO, computer generated OM voice) w/High Seas/coastal/off-shore forecasts in USB fm 1153-1202. Singed off announcing next sked 1745 on 8764 and 13089 kHz. (DS)

6513: VFF, Canadian CG Iqualuit, NWT w/marine wx notices to shipping in EE & FF. USB at 0210. (ER)

6516: NMY42, Group Moriches, NY at 1326 wkg Commander Task Unit re flight cancelled due to weather. At 1810 NCBE, USCGC Tahoma (WMEC-908), wkg SALMON 07 re contact report. At 1814, NMY42 wkg USCGC Sorrel (WLB-276), NRZ1, re CAMSLANT Chesapeake, NMN request they shift HFDL to 14506 kHz. All in USB. (RB)

6676: Singapore VOLMET, OM/EE in USB at



Ref. HQCAA/2008/7/Comm.Ops.

CIVIL AVIATION AUTHORITY
(HEAD QUARTERS)
19, LIAQUAT BARRACKS
KARACHI
Date 21st July, 1994.

Dear Patrick Privat,

FREQUENCY MONITORING REPORT.

1. The undersigned is to express deep pleasure to acknowledge your letter dated nil having details of your reception on 5658 KHZ on 8th July, 94 between 2125 to 2155 UTC.
2. We are pleased to confirm the extracts of your reception on radio frequency 5658 KHZ being used for communication with aircrafts in this region.
3. It is a matter of joyful pride that our signals are quite loud and clear at such a marked distance.
4. We are again thankful for your keen interest in monitoring our transmissions and look forward to have more reports from you on our performance.
5. Wishing you happy listening.

Yours faithfully,


(M. JAMIL AKHTAR KHAWAJA)
Deputy Manager (Comm.Ops)

Patrick Privat, France, received this QSL letter.

1253. Very annoying QRM from Chinese pirates. On another day, Bangkok w/VOLMET bcst at 1541 ending before 1544. Was OM in heavily accented EE, medium sigs, but very clear. Ended bcst w/"Bangkok Radio, Out." (DS)

6683: NIGHTWATCH 01 wkg Andrews at 0155 in USB, pp "downtown" (White House Comms Center). Callsign probably E-4B Advanced Airborne Command Post. At 0207 AF-2 wkg Andrews in LSB for pp, "downtown." (RB); Andrews wkg AF-1 fm 0304-0551. pp fm situation room going to Anthony Lake taken by satellite at 0345. Entire time was spent by AF-1 and ANDY attempting establish digital data xmsns. AF-1 to CROWN to AF OPS Center "departed Miami 0352, arrive ANDY 0550." AF-1 terminated w/ANDY when on ground at 0551. On another day, SAM200 wkg Andrews on X-91 at 0300. A/c carrying Sec. Defense and Chairman Joint Chiefs of Staff to Andrews from Haiti. Gen. Shelikasvili in pp w/Aide to Vice Chairman, Cdr. Simmons & Admiral Ellings. Conversation concerned Iraq/Gulf situation. (PS) Most of discussion probably should have been in the scrambled mode! (Ed.)

6730: WAR-46 and LOOPHOLE attempting work NOGHTWATCH on X-903 at 0547, negative contact. SAM206 on F-267 wkg Andrews for rdo cks at 0627. (PS)

6735: Foxtrot Tango at 2213 wkg SCREWTOP 01/02 advises "Vipers are Mustang." (RB)

6741: CW stn QL clg FY & RM at 0050. AT 0122, IB wkg PK. Sent QTC 1 UP 48 BK but wasn't hrd at 6789 kHz. (TS)

6773: Delta wkg Alpha in USB w/encrypted RTTY at 0354. (TS)

6779: DREL, German Navy minehunter FGS Koblenz (M-1071) wkg DHJ59, Wilhelmshaven Naval w/QRU at 0056. At 0126, DRAN, German Navy type F-12 frigate FGS Augsburg (F-213) "The Wild 13" wkg DHJ59 in EE/GG/RTTY comms. At 0249, DRAZ, German Navy training sailing ketch FGS Nordwind (Y-

834) wkg DHJ59 after RTTY t/c. At 0249, DRAV, German Navy frigate FGS Karlsruhe (F-212) wkg DHJ59 then into RTTY. Voice mode is USB. (RB)

6785: CW stn at 0402 rptng 382. At 0405 sent 249 249 78 BT BT and into 5F grps mssg. Singed down w/00000. (TS)

6788: OTH radar hrd at 0136, later hrd on 6810 kHz. (TS)

6797: YL/SS at 0500 in AM. 0500-0503 Attention 36200, 0503-0504 30200 107. Into 5F grps at 0504. Final Final at 0513.

6840: YL/SS 0235-0241 w/nbrs t/c in 4F grps. Parallel w/9955 kHz. (AP)

6936.7: RFLI, Fort de France, Martinique in ARQ-E3 192/425 idling at 0222, circuit LIJ to Dakar. (RB)

6996.5: AAA3USA, Army MARS, Fort Meade, MD at 2250 wkg AAT4TFC w/packet t/c. (RB)

7183: WA3NAN shuttle audio relay at 0350. (BL-IN)

7324: Region 1 Air Force MARS net at 1425. (BL-IN)

7349.5: WGY905, FEMA, Battle Creek, MI & WGY912, FEMA Special Facility, Berryville, VA testing phone links at 1428. (BL-IN)

7535: SESEF Norfolk w/primary mode of USB of USB wrkd by foll: NJLK, USS Kauffman (FFG-59) at 1614 w/1 xmtr test. At 1749, NTIC, USS Ticonderoga (CG-47) w/start of HF xmtr tests. At 1844, USNS Concord (T-AFS-5) w/test of xmtr #3. (RB); Cracking sound (see also 5494 kHz entry). Hrd at 1530. (AB)

7609: NPCR, USCGC Dallas (WHEC-716), at 2339 wkg NOTC, USS Caron (DD-970) in USB relaying info fm CG 1716. Rare use if USN ships name as callsign ID. (RB)

7806: YZD7, TANJUG, Belgrade at 2223 in 50/425 RTTY w/nx in EE. (RB)

7832.5: Army MARS stn AFF2GA at 2110 in 75/170 RTTY t/c wkg AFF2R as NCS of RTTY MARS net. (RB)

7834.5: 5ST, ASECNA Antananarive, Madagascar, at 0245 idling in ARQ-E3 48/170. (RB)

8125: KDM50 (NCS) w/FAA Eastern net at 1445-1508. Tested scrambling equipment. (BL-IN)

8198: V7AJ9, M/V Talty at 0129 clg AT&T High Sea's stn WOM in Fort Lauderdale, FL w/no joy. At 0256, C6HA6, M/V Protank Mersey clg/wkg WOM for R/T t/c. At 2132, S/Y Newcastle Australia, unk call, concluding R/T t/c w/WOM. Vsl entered in BOC challenge "Around Alone," 1994-1995 yacht race. At 2204, NCOM, USNS Comfort (T-AH-20), clg/wkg WOM for R/T t/c. Comfort is a hospital ship taken out of moth balls for Haitian Ops. At 2322, AAEA, USAV Chickahominy (LCU-2011) wkg WOM for free 3 min R/T calls home for ships deployed to Haiti. All in USB mode. (RB)

8308: Tango at 0450 clg any stn this net. Clg in USB mode. QUEBEC answers. Haiti related USN comms. (RB)

8368: FANC, French Navy oceanographic/survey ship L'esperance (A-756) at 0013 in CW clg/wkg FUF, French Navy Fort de France, Martinique. (RB)

8377: GBTT, Queen Elizabeth 2 at 2343 w/Sitor-A telex to Cunard Lines re 3 piano's needing to be tuned. (RB)

8378.5: JXVF, Norwegian factory fishing ship Volstad at 0056 in Sitor-A w/fish catch report to Greenland "fisker licenskontrol" & CC'd to Greenland "Komando." (RB)

8386: M/V Bartok, P3ZB3 at 1146 w/Sitor-A telex reporting main engine trouble. (RB)

8390.5: UHBT, TH Kooperatsiya at 0050 in TG's. At 2225, YLAO, Latvian tanker TK Mikhail Lomonosov, in telex attempting arrange swap for 80 Mercedes parts & ladies boots, size 38, in exchange for "fine Russian salt water red caviar" and crabs. At 2317, LANK4, M/T Tol Sailor w/arrival report telex. All in Sitor-A mode. (RB)

8417: GKE4, Portishead Radio at 2143 w/Sitor-B relay of SOS from "CG Falmouth" for the 60 ft S/Y Gartmore Investment Managers, a yacht race. message shows yacht Newcastle Australia, another BOC yacht, responding to assist. (RB)

8447: WLO, Mobile, AL in LSB at 1643. CW wx stn w/QSX indicated on 4, 6, 8, 12 MHz. (SW)

8471: NMN, Portsmouth, VA w/CQ mkr at 1345. (BL-IN)

8480: White noise here at 0533. (TS)

8582: Ningbo, PRC in CW at 0638 w/CQ DE XSN QRU IMI BK mkr. (DS)

8604.3: Balacan, Philippines in CW at 1657 w/CQ DE DJZ KDZ MCI MLA RDO QSL 8 12 AND 16 MHz K. (DS)

8722: VIS, Sydney, Australia wkg ELWK8, unk vsl, at 0639 for R/T t/c in USB. (RB)

8912: Scrambled speech and data xmsns hr at 0547 in US Customs freq. (TS)

8993: Advance 20, probable ground unit in Haiti at 2324 in USB wkg MacDill GHFS for a morale pp home. (RB)

9017: LIFELONG wkg NIGHTWATCH 9017 kHz primary (X-904); 13211 kHz secondary (S-312); and rdo cks on 11226 kHz (X-905) & on 6730 kHz (X-903) from 2012 to 2244. (PS)

9222: YL/EE in AM w/181 x3 \$ 1-0 count fm 0200-0210. At 0210 ten tones foll by grupo 32 x2 & into 3/2F grps. Rpt at 0213. Ended w/Fin at 0216. (BS)

9402: YHF, Mossad bcst in USB at 0830 w/5L grps. (AB)

9960: YL/SS in AM at 0318 w/4F grps. Closed at 0325 w/"9828 3131 9826 FIN." (VD)

10075: "Cedar Rapids" LDOC at 0527 wkg United 990 after hitting wrong selcall and bringing up United 976 by mistake. At 0540 Houston LDOC (Universal Radio), wkg Miami 402 outbound fm Bogota, Columbia. Both in USB mode. (RB)

10233: OP, Belgian Airforce in Rwanda w/1P in USB at 1208 for rdo ck. (AB)

10242: Data xmsns here at 1927. US Customs/DEA freq. (TS)

10584: KUL, Prob RR diplo. Header: 11177 00142 80801 26635 01499. 75/500 RTTY at 1420. (AB)

10722: YL/SS in AM at 1300. Rptng 770 x3 00000 from 1300-1304. (BS)

10780: King 1 w/Cape Radio for check-in to shuttle Columbia (STS-65) support at 1444. Secondary



AUCKLAND METROLOGICAL RADIO

VERIFICATION OF RECEPTION

TO: EDWARD RAUSCH III

DATE: 26/03/94 FREQ: 9458.6kHz MODE: CW

XMTR: Aerocon 1330 ANTNA: Conical Monopole

POWER: 5 KW WATTS LOCATION: 37°01'S, 174°49'E

REMARKS: Antn located at Auckland, Keyed by computer at MetService, Wellington.



Ed Rausch
SIGNED

This PF was executed by Ed Rausch, NJ.

4704 kHz was announced at 1520. (BL)

10798.1: RFLI, French Forces Fort de France, Martinique at 2205 in Sitor-A-E3/96 idling. (RB)

10940: Open carrier noted at 1128, then at 1130 hrd 10 beeps and YL w/4F grps. As per Sunday & Monday sked. (DS)

11176: Croughton w/Reach 112KW. Status A3: Problems w/#1 engine. USB at 0734. ACE-1 w/Ascension/PP to Langley Base Ops in USB at 2100. 'We have numerous DELTA VICTORS on board We need cars & equipment. Please make arrangements for our DELTA VICTORS.' (AB)

11214: Darkstar November MCC (E-3C Mission Control Coordinator-MCC), at 1521 wkg RAYMOND 24 (552nd AWACS. Tinker AFB) in USB re attempt get a radar unit wrking. (RB)

11226: ENCOMPASS wkg NIGHTWATCH on X-210 at 2223. rdo cks, secondary 9017 kHz (X-904), then moved off to S-309. (PS)

11330: Tokyo Aeradio wkg Northwest-17 in USB mode at 0556. (DS)

11463: Italian Embassy Warsaw in ARQ-E/96 at 1453 w/mssgs to MFA Roma. (AB)

11902: OTH radar at 1558. (TS)

12103: SAM, MFA Stockholm in SWED-ARQ/100 at 1440 w/5L grps. (AB)

12140: HWN, Paris-Houilles Naval, France in RTTY 75/425 at 2037 w/RV tape. (TS)

12193: KUL, prob RR diplo. Header: 11177 00142 80801 26635 01499. RTTY 75/500 at 1410. (AB) The 10548 kHz item was the repeat of this msg. (Ed.)

12195: RSZ, Prob RR diplo. Header 11177 00099 57833 26543 00469. RTTY 100/500 at 1410. (AB)

12300.5: YL/SS rptng 154 & 1-01 count in AM at 0006. At 0010 sent 3/2F# mssg. (TS)

12317: 5YE, Nairobi Meteo, Kenya, w/wx fax chart, 120/576. Fair quality. (RB)

12442: ARP, South American Antarctic Expedition Base #3 in CW at 12903. (BL)

12491.5: XCSG, B/M Nacional Victoria at 2133 w/Sitor-A AMVER. Vsl is the ex-Sonora. (RB)

12504.5: EQJL, Iranian cargo ship Iran Dastgheyb at 2153 in Sitor-A w/telex's to Acadiaship. Each starts w/"In the name of Allah." (RB)

12590.5: KLB, Seattle Radio at 2030 w/Sitor-B tfc list. (RB)

13076.7: Danman, Saudi Arabia in CW at 1230 sends DE HZG QXS CH 3/4/5. Monitored until 1235. Was vry weak and was fading. (DS)

13112: Halifax in USB at 0136 w/tfc reports for various ships. (SW)

13211: LOOPHOLE wkg NIGHTWATCH on S-312 at 0010. Traffic 26 items. message follows "5EMA7H XHGP4PYNMHFTKV F7AEVT. Primary S-312, Secondary S-309. (PS)

13247: Sigs here at 2326 sounding like various feedback tones on Air Force 1 and FEMA Mt. Weather freq. (TS)

13267: Irkhutsk VOLMET in USB at 0158. YL/RR opr, weak sig. (DS)

13375: YL/EE in USB 1615-1646 w/5F grps. Each grp sent twice. Unid musical tune at 1645. Sounded like it was played on an electronic organ. (BS)

13426: YL/EE in AM at 0004 rptng 999 x3 & 1-0 count. At 0010, ten tones and 3/2F# mssg. (TS)

13580: HMF36, Korean Central News Agency, N. Korea at 2210 in RTTY 50/170 w/EE nx. (RB)

13906: YL/EE in AM mode at 1312 passing 3/2F grps. Weak. Was//with 10262 kHz. (DS)

1441.5: NAVMARCORMARS (Navy MARS) on calling primary. All hrd were calling State Side stns pp's. NNN0CXZ, USS Wainwright (CG-28) at 0033; NNN0CMU, USS Seattle (AOE-3) at 2059; NNN0CVK, USS Nashville (LPD-13) at 2102; NNN0NXL, USS Ashland (LSD-48) at 2221; NNN0CUB, USS Arthur W. Radford (DD-968) at 2222; NNN0CMS, USCGC Courageous (WMEC-622) at 2238; NNN0NXJ, USS Tortuga (LSD-46) at 2259; NNN0CST, USCGC Decisive (WMEC-629) at 2310. All in USB mode. (RB)

14546: YL/EE in AM mode at 1401 rpts 581 581 581 & 1-0 counts. Concurrent with YL/EE 586 586 586 on 7871//10723 kHz. This is a YL/EE Sunday 1400 sked. (DS)

15011: CZW, Halifax Military having trouble copying a unit at 1843. QSY'd to "948" USB. What frequency is "948" in the Canadian military? (BL) Don't know Brad. Neither the "Canadian military Radio Frequency Guide" by Ing. nor the Grove Shortwave Directory show that type of designator for frequencies. (Ed.)

15630: YL/SS w/5F grps from 0003-0012. Down with Final Final at 0012. (BS)

15682: The Lincolnshire Poacher lady with 3/2F grps at 1244./16084 kHz w/some jamming on that frequency. Was USB mode both freqs. (DS)

15730: PCW1, MFA, Hague, Holland, selcall TVQF. In ARQ 100 at 1458 w/press review. (AB)

16340: Unid diplo. Prob RR. Header: 11177 50002 100..remainder missing. Into 5L grps. RTTY 75/500 at 1130. (AB)

16786: DSR, Rostock, Germany at 1908 w/GG nx, sports in Sitor-B. (RB)

16798.5: URDR, RTMS Zvezda at 1403 in RTTY 50/170 w/tfc to Kaliningrad. (RB)

16950: Penang Naval Radio, Malaysia in CW at 1404 w/mkr V's DE 9MB 13/16/19 K. (DS)

16987: VPS79, Cape d'Aguilar, Hong Kong w/CQ mkr at 0832. (DS)

17016: SLHFM "C and S" in CW at 1600. (AB)

18585: Prob RR diplo. Header: 11177 50002 00000 26083 16001. RTTY 75/500 at 1025. This was the first xmsn of mssg. The 16340 kHz item was pos the repeat. (AB)

28222: W9UXO, Prospect Heights, IL propagation beacon hrd at 1340. (BL)

Thanks to all of our contributors this month: Brad Low, TX and IN; Al Hemmalin, RI; Jim Osborn, VA; Perry Crabill, Jr., VA; Bjorn Vaage, CA; Steve Alhart, NJ; Gerald Brookman, AK; Basil Shelley, CA; David Sabo, South Korea; Ary Boender, Netherlands; Richard Baker, OH; Paul Swietek, AZ; Ed Rausch, NJ; Tom Severt, KS; Vince DiMaggio, CA; J. Steiger, OH; Sue Wilden, IN; Alexander Pangburn, CA; and Richard Monjure, LA.

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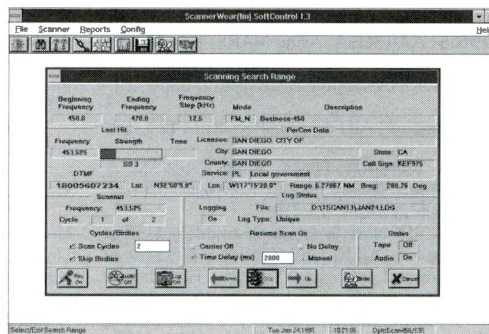
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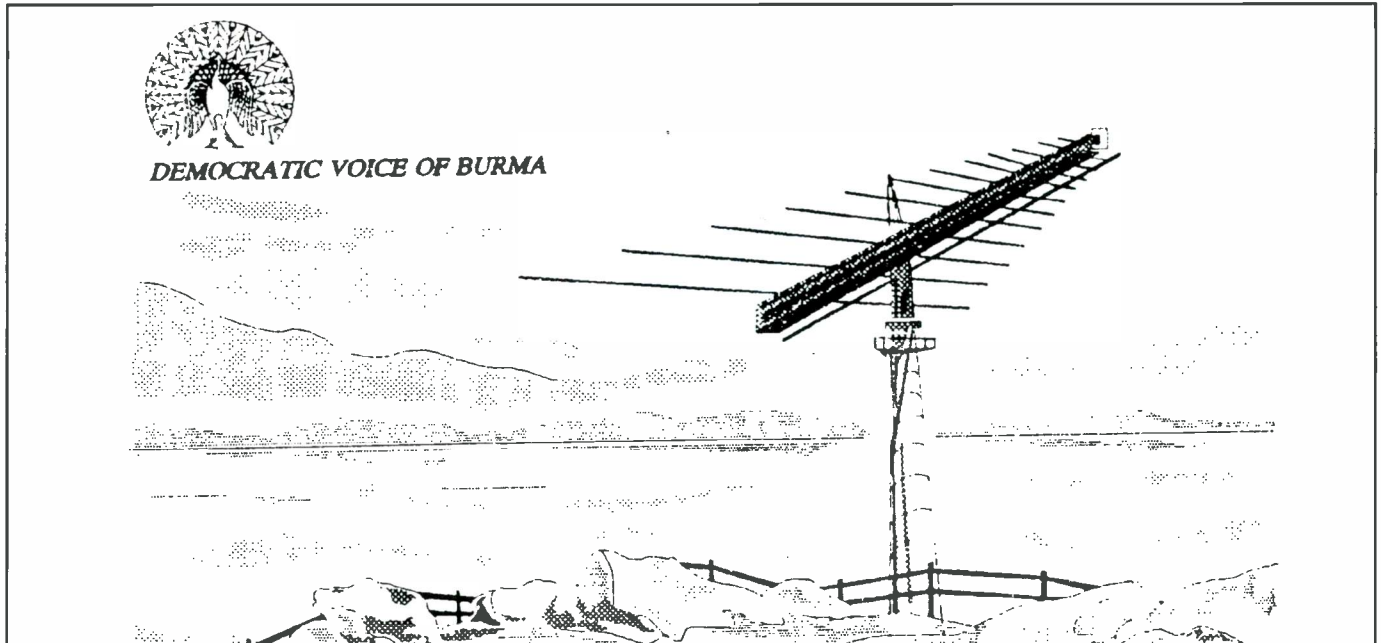
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CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES



The Democratic Voice of Burma now has two daily broadcasts over Radio Norway's transmitters.

It looks as though it's for real. The forever mysterious anti-Castro station Radio Caiman has reportedly been closed down permanently, according to a column by Georgie Anne Geyer in Texas' *Houston Post*. The item referred to the station as "a CIA radio" and said that it broadcasts from Costa Rica. Clandestine hunters had long suspected the station was a CIA operation, but had placed the transmitter in Guatemala, based on the findings of what should have been some fairly accurate direction-finding efforts in the months after the station first went on the air.

Radio Caiman went on the air in March, 1985. At the start, the only programming was non-stop songs in Spanish, sung by a man who sounded like Nat King Cole. There were no announcements of any kind so, lacking a better name, DX'ers dubbed the station "Radio Nat King Cole." It was September before the station began identifying as Radio Caiman. Regular programming started in October. It never announced the name of its backing organization, and clandestine hunters were never able to find any kind of mailing address. You might think this wouldn't be surprising if the CIA was a suspect, but CIA-backed clandestine stations have maintained addresses and front organizations in the past. Indeed, the lack of any address or backing organization contributed to the belief that Caiman was a CIA effort. Caiman led clandestine hunters on a merry chase and we're sorry to see it go.

Cuban clandestine La Voz del CID's 9941 frequency is now being changed to 9922 at some point during the evening broadcast—sometimes as early as 0100. This station continues to be jammed by Castro, but remains

generally audible in most of North America.

Another intriguing clandestine may also be living on borrowed time. Press reports say that the two main rebel groups in Colombia have taken the first steps toward negotiating an end to the long guerrilla war in that country. One of the groups—the ELN (National Liberation Army)—operates Radio Patria Libre, which has maintained a pretty regular schedule over the past several years, broadcasting from rebel camps inside Colombia itself. This one, too, has frustrated DX'ers because no office or mailing address has been found. Patria Libre can be found broadcasting in Spanish from 0030 to 0110 (approximate) and 1130 to 1210. And the frequency varies a great deal. Your best bet is to check the area between 6250-6350, also around 6550.

A rather confusing situation has developed on the clandestine scene in Mozambique. What seems to be the original Voz de Renamo has changed its name to Voz do Sonho (Voice of the Dream) and says it broadcasts from Gorongosa in the northern region of Mozambique on frequencies 6100 and 6175. The schedule, at least in part, is 0500-0645 and 1530-1800. Another Voz de Renamo is broadcasting from the capital, Maputo, on 6030 and 7135.

The Democratic Voice of Burma now has an additional transmission each day at 0030 to 0100 on 9660. The other broadcast is at 1430 to 1500 on 15180. Transmissions are in Burmese and are broadcast via the facilities of Radio Norway, making them relatively easy to hear in North America.

The Voice of Free Tajikistan is broadcast in the Tajik language on 7032 between

0900 and 0930, but transmissions are reported to be somewhat erratic.

Guatemalan clandestine, Voz Popular, is being heard on occasion in the area between 6965 and 7035 around 0000, programming in Spanish against the government. This station has been around for a few years, and claims to have a 2 kW transmitter, but it isn't reported very often. It's run by Unidad

Revolucionario Nacional Guatemalteca (URNG)—Guatemalan National Revolutionary Unity—an organization of four leftist anti-government groups.

Radio Mogidishu, the Voice of the Somali People, which speaks on behalf of General Muhammad Farah Aydid now operates from 0330-0500 (Fridays 0400-0600), 0900-1300 and 1500-1900 on 6870, broadcasting in Somali, Arabic and English. The only reception possibility in North America is the 0300 transmission during which, unfortunately, no English is scheduled.

The Voice of Iraqi Kurdistan is one of several Kurdish clandestines, all of them very difficult to hear in North America due to their use of 4 and 6 MHz frequencies in the middle of our daytime hours. This one, though, has a transmission at 0345 (on 4180), so it is possible east coast area clandestine hunters with good antennas (and good luck) can pick it up on occasion. Broadcasts are in Kurdish and Arabic.

Let us know what you are discovering—clandestine logs, QSL'ing information, background info on stations and their backing organizations, news clippings, station schedules and the like are always most welcome for use in this column.

Good hunting!

SATELLITE VIEW

BY DONALD E. DICKERSON, N9CUE

INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

It has finally begun! You knew it would happen, we've been telling you about it for years. Satellites are carrying your favorite international broadcasters. For a while commercial spacecraft of the television variety have been carrying audio feeds for world-wide shortwave stations. The satellites distribute signals to transmitter sites in other countries where programming is used by local AM/FM stations, or at shortwave transmitter sites where air

time has been leased. The Voice of America uses satellites exclusively for program distribution, utilizing a variety of domestic and international telecommunication satellites to form their network (see August 1994 Satellite View).

Shortwave broadcasters can be found on hundreds of channels, and dozens of satellites. Perhaps the most interesting and easiest way to find shortwave broadcasters on satellite is through



WRN NETWORK ONE NORTH AMERICAN SCHEDULE Galaxy 5, Transponder 6, 3.820 GHz, V-Polorization, Audio Subcarrier 6.8 MHz. All programmes in English

UTC	MON-FRI	SAT	SUN	EDT
0300	Radio Vatican	Radio Vatican	Radio Vatican	2300
0330	Radio Netherlands	Radio Netherlands	Radio Netherlands	2330
0430	BBC Europe Today	BBC Europe Today	BBC International Call	0030
0500	Deutsche Welle	Deutsche Welle	Deutsche Welle	0100
0600	Radio Canada Intl	Radio Canada Intl	Radio Canada Intl	0200
0630	Swiss Radio International	Swiss Radio International	Swiss Radio International	0230
0700	ABC Radio Australia	ABC Radio Australia	ABC Radio Australia	0300
0800	KBS Radio Korea Intl	KBS Radio Korea Intl	KBS Radio Korea Intl	0400
0900	Radio Moscow Intl	Radio Moscow Intl	Radio Moscow Intl	0500
0930	Radio Netherlands	Radio Netherlands	Radio Netherlands	0530
1030	CET - Budapest	Swiss Radio Intl	Swiss Radio Intl	0630
1100	ABC Radio Australia	ABC Radio Australia	ABC Radio Australia	0700
1200	RTE - Ireland	RTE - Ireland	RTE - Ireland	0800
1300	Radio France International	Radio France International	Radio France International	0900
1400	YLE Radio Finland	YLE Radio Finland	YLE Radio Finland	1000
1430	R. Vlaanderen-Brussels Calling	R. Vlaanderen - Brussels Calling	R. Vlaanderen - Brussels Calling	1030
1500	ABC Radio Australia	ABC Radio Australia	ABC Radio Australia	1100
1600	Radio Moscow Intl	Radio Moscow Intl	Radio Moscow Intl	1200
1630	Radio Netherlands	Radio Netherlands	Radio Netherlands	1230
1730	RTE - News from Dublin	RTE - News from Dublin	RTE - News from Dublin	1330
1800	ABC Radio Australia	ABC Radio Australia	ABC Radio Australia	1400
1900	Blue Danube Radio	Glen Hauser's World of Radio	UN Radio & BBC Europe Now	1500
1930	R. Vlaanderen-Brussels Calling	R. Vlaanderen - Brussels Calling	R. Vlaanderen - Brussels Calling	1530
2000	Radio Sweden	Radio Sweden	Radio Sweden	1600
2030	BBC Europe Today	Topical Tapes - International Call	BBC Europe Today	1630
2100	RTE - Both Sides Now	RTE from Dublin	RTE from Dublin	1700
2300	Polish Radio - Warsaw	Polish Radio - Warsaw	Polish Radio - Warsaw	1900
2330	Radio Netherlands	Radio Netherlands	Radio Netherlands	1930
0030	Radio Sweden	Radio Sweden	Radio Sweden	2030
0100	YLE Radio Finland	YLE Radio Finland	YLE Radio Finland	2100
0130	KBS Radio Korea Intl	KBS Radio Korea Intl	KBS Radio Korea Intl	2130
0230	Israel Radio	Israel Radio	Israel Radio	2230

Schedule subject to change - listen to WRN for details
Schedule valid from 25th September 1994 to October 22nd 1994

****WRN programme information can be heard daily at 0025, 0625 & 1325 EDT****

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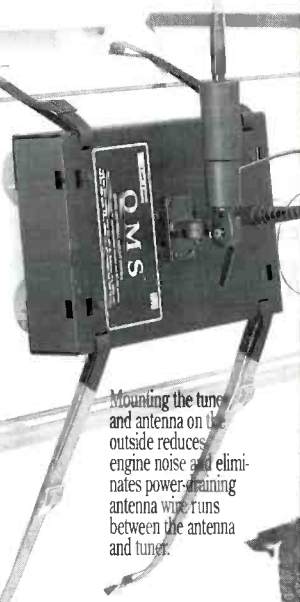
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The AR-3000 continues coverage from .5 to 1500 MHz.

the World Radio Network (WRN). WRN is a London-based service that collects segments of the English service broadcast of all major international shortwave stations. They then schedule and feed them to Telesat 303 and Galaxy 5—two satellites in geostationary orbit over the United States. This offers a steady diet of shortwave news and information from some of your favorite broadcasters without a shortwave receiver. Stations include Radio Australia, Kol Israel, Radio France International, BBC, Radio Sweden, Radio Korea, ORF Austria, YLE Radio Finland, Radio Netherlands, RTE Ireland, and Vatican Radio to name a few (see WRN schedule).

WRN began broadcasting recently in Europe and became an instant hit. Many European radio stations and cable networks have signed up for WRN service. WRN in Europe also carries NPR, C-SPAN, and CBS news. The service selects the usual fare of in-depth sports, science, political, and economic news programs, and save some room for the more unusual, entertaining programs.

In the U.S., if you are equipped, you already have a state of the art shortwave receiver. In addition, you are not subjected to signal fade, noise, or interference as with HF shortwave receivers.

If this has stirred your appetite for a TVRO adventure, here's something you can try. Several TV satellites carry audio feeds from shortwave broadcasters. Many are additional audio sub-carriers attached to the main carrier of the channel or transponder. Search each of these channels for your shortwave DX catch. Better yet, get some resource information on where these shortwave transmissions are located on each satellite. This will save you a couple of years of searching each separate transponder on each satellite. One of the best resources is a book called *Satellite Radio*, by Thomas Harrington. This is a detailed guide to each satellite

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CIRCLE 92 ON READER SERVICE CARD

76 / POPULAR COMMUNICATIONS / April 1995



The AR-2500 is an ultra wide range multi-mode (AM/FM/WFM/SSB/CW) receiver.

transponder; it identifies each radio station on the transponder's audio sub-carriers, and lists SCPC (single carrier per channel) and FM/FM audio services.

Let's take a closer look at standard audio sub-carriers. SCPC, and FM/FM, beginning with a standard sub-carrier. This video and audio signal (which carry the sound track for the TV program) do not take up all the room on a satellite transponder. Satellite operators realized they could attach extra audio signals to the main TV signal, and they could be tuned as easily as the audio for the main TV program. A video signal takes about 5 MHz of frequency space on the transponder. Sub-carriers are above this, usually between 6 and 8 MHz. Early TVRO receivers had tunable audio controls so all the sub-carriers could be tuned. Today's IRD unit will not tune across the transponder for other audio signals. An inexpensive stereo processor attached at the IRD receivers baseband output or composite video output (either one) of your station will allow you to tune sub-carriers.

Another method of tuning these sub-carriers is to attach a quality HF shortwave receiver to the baseband or composite output of your TVRO receiver. The HF short-wave receiver must be capable of tuning the FM mode. You are looking at a Kenwood, ICOM, or similarly equipped receivers. An additional benefit to using this method is that satellite transponders carry only sub-carriers and not video signals. This means the space between 0 and 5 MHz on the transponder are also full of sub-carriers. The short-wave receiver method then allows you to tune not only the upper half of the transponder, but the lower as well. The lower half, known as FM/FM or FM², a trademark of the first company to use this portion of the satellite transponder.

SCPC is another method of running separate audio signals through a satellite transponder. This time instead of a single carrier with multiple audio channels super-imposed, a group of individual signals with individual carriers are sent through the transponder. Unlike standard sub-carriers, SCPC signals must be pulled off the feedhorn between 950 and 1450 MHz. Your signal is taken directly off the coax line via a splitter. Check the splitter output that connects to your receiver. Make certain there is no DC voltage on the line and use a through tap to remove the voltage if present. Your receiver or scanner will need to be a quality, stable receiver, with both a narrow and wide FM mode.

Or you can buy SCPC receivers that simplify tuning and make listening "user friendly" and more fun. See ya' next month.

For more information on *Satellite Radio*, the *Satellite Radio Guide*, the FM² T-1 sub-carrier translator, or the SCPC 100, contact Universal Electronics, Inc., 4555 Groves Road, Suite 12, Columbus, OH 43232. Call (614) 866-4605, or FAX (614) 866-1201. Be sure to tell them POP'COMM sent you!

THE MONITORING MAGAZINE

FOR THE HANDICAPABLE COMMUNICATIONS HOBBYIST

Hello again. I hope this month's installment finds everyone well and happy. First off, a couple of items of old business. In our October, '94 discussion of various amateur radio nets, I made passing reference to the SWL net, which "meets at 10 a.m., Eastern time on 7.240 MHz..." This passage should have read "Sunday mornings at 10 a.m., Eastern time..." My apologies for any inconvenience this error may have caused.

The June, '94 column promoting resources and opportunities for hams and prospective hams mentioned the Fairfield Amateur Radio Association (FARA) net for the visually-impaired, Thursday evenings at 9:30 p.m. Unfortunately, the net went dormant during the summer of 1994, and was officially suspended in late October, for lack of volunteer conductors. Of course, handling things this way allows for the possibility of reactivating the net, should circumstances permit. The only thing I can advise at this point is to keep listening.

Veteran *POP'COMM* readers are familiar with the military's GPS (Global Positioning System). A recent piece by *New York Times* reporter Daniel Goldman profiled a new GPS application which, should it prove workable and affordable, could revolutionize the daily lives of the working blind. Dr. Reginald Golledge, a blind geographer at the University of California, in Santa Barbara, has been field testing a combination GPS receiver, speech synthesizer, and light-weight headset while traveling across campus. As Golledge approaches various objects—from benches to the campus library—the objects announce themselves. Theoretically, this system—used in conjunction with a dog guide or a white cane to help avoid transient or moving objects not appearing on a GPS map—could allow a profoundly or totally blind person to travel through unfamiliar urban terrain in perfect safety.

Utilizing the principles of psychoacoustics, the system attempts to create a three-dimensional sonic landscape, in which the verbal cues vary in intensity and direction, according to the listener's proximity thereto. Furthermore, as a traveler approached a given landmark, the nature of the prompts would change: "Library is 30 feet ahead. Library is 20 feet ahead...Entrance here." To compensate for the slight inaccuracies deliberately introduced into GPS transmissions, the satellite signals would be compared to a reference signal from a stationary terrestrial source.

Obviously, this would be a truly revolutionary use of communications technology, orienting blind people to their surroundings in a way never before possible. However, bear in mind that the system described herein is an early prototype, which developers estimate is approximately a decade away from commercial viability. For one thing, the current version weighs 28 pounds (and some of you thought lugging a notebook PC through an airport was difficult). The second and even more significant factor is cost. Although no estimate was given, this would not be a mass-market device, like a walk-about CD player or miniaturized television set. In the recent past, limited production and accompanying high prices have combined to keep such potentially useful objects as computer-controlled braille embossers and stand-alone text readers out of the hands of many individuals who could benefit from their use. On the other hand, the microchip revolution has wrought miracles few could have anticipated. One thing is certain; this technology warrants watching.

This month's mailbag yields a nice letter from Lorie McCloud, of Corpus Christi, Texas. An enthusiastic *POP'COMM* reader who has also been a part-time broadcaster on a local public radio station, Lorie enjoys commercial AM, FM, and shortwave DX'ing. Her current receiver is a Realistic DX440, and she ranks Radio Australia among her favorite international broadcasters. She would enjoy snagging some of the more obscure Pacific signals, such as the Australian domestics, and Singapore, and wonders what kind of antenna would be most appropriate.

Well, Lorie, both the alternatives you mentioned—long wires and actives—are perfectly viable. While I have no first-hand knowledge of the popular DX440, I have used my own Sony ICF 2010 with two different outdoor verticals. Popular wisdom teaches that portables cannot be used with outdoor antennas, but I have had good luck with them. Of course, portables do not exhibit the dynamic range of tabletop or amateur transceivers, but serious cases of cross modulation (the mixing of out-of-band signals with the desired signal) and desensitization (caused by overload from another loud signal close to the one you are listening to) are mostly infrequent and of short duration, and judicious attenuation can often eliminate them altogether. (Cross modulation is usually eliminated with a

fixed attenuator while a variable RF gain adjustment works better for desensitization. Some of the better portables have both features.) The point is not that you should purchase a large outdoor antenna. Just feel free to experiment; after all, this is a hobby. Your ideas just might work.

Also, Lorie is considering going for her ham ticket and wants to know, "Does a no-code ham license allow you any distance, or is it strictly 2-meter stuff?" By 2-meter stuff, I presume you mean repeater activity, for which the band is justly famous. But repeaters are not the only game in town. The VHF bands—6 meters, 2 meters, and 1-1/4 meters—offer FM simplex, satellites, packet, even weak-signal modes (CW and SSB). As for distance, you have probably experienced at least a few openings on the FM broadcast band, and they can be spectacular. Most VHF DX is accomplished via the weak-signal, narrow-band modes, but anything is possible. I know a guy who worked the space shuttle with a handheld transceiver. Overall, results will depend on propagation, mode, amount of power, and, of course, the antenna. (Hint: most weak-signal devotees use horizontal polarization.) And we haven't said a thing about UHF and microwave. Obviously, you learn as you go along, and your interests crystallize. The main point is to have fun.

David Legg, of Highland, Indiana, writes that he is disabled, and wishes to become a "professional radio monitor," but does not know how to go about it. Frankly, David, I am not sure what you mean by a "professional radio monitor," but I presume you mean you would like to monitor the international broadcast bands for a living. This is not an everyday vocation, but there are a few full-time monitoring services in the world, with the BBC's being probably the best known. The primary prerequisites for such work are the ability to handle a bank of sophisticated communications equipment, good logging skills, and good linguistic skills. As you know, this magazine features several columns which depend upon loggings from their readers. You might try submitting listings to one or more of these, and see how it goes. Good luck, and thanks for thinking of us.

Well, it's about that time again. Thanks to all those who helped make this month's visit possible. Keep those letters coming, in care of HandiChat, Popular Communications, 76 N. Broadway, Hicksville, NY 11801-2953. Until next time, take care.

WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Two Amateurs Surrender Licenses in Exam Fraud Third Agrees to Settlement

Amateur Extra Class licensees Robert L. Flores, N6WPQ, and Rose Marie Flores, N6WPR, both of Santa Monica, CA, surrendered their licenses for cancellation following the initiation of license revocation and suspension proceedings in an examination fraud case. The third amateur involved in the case, Amateur Extra Class licensee James B. Williams, AA6TC, of Willmington, CA, agreed to a settlement.

The Private Radio Bureau started proceedings against respondents Williams, Rose Marie Flores, and Robert L. Flores by an Order to Show Cause and Suspension Order released September 27, 1994. The Order asserted that respondents and a fourth person were volunteer examiners (VEs) at an amateur operator license examination session held at the Carol Little company in Los Angeles, CA, on August 15, 1993. It was undisputed that during the session they administered examinations to seven members of a class that had been held for Company employees. The VEs report indicated that they examined 15 additional persons, ten of whom passed examination elements. The respondent VEs claimed that there was a second examination sitting following the testing of the Company employees.

Information available to the Commission, however, indicated that the respondent VEs did not examine any additional persons and there was no "second sitting." Specifically, the Order alleged that the respondent VEs willfully signed VE certifications and Certificates of Successful Completion of Examination indicating that persons who were not examined at the Company session had passed the examination elements required for amateur operator licenses at that session. The Order alleged further that the respondent VEs insisted other persons obtain amateur operator licenses by fraudulent means and that the respondent VEs misrepresented material facts to the Commission.

Williams' Bureau settlement provided for a one year subscription of Williams' amateur operating license and his voluntary contribution to the United States Treasury of \$500. Williams agreed to fully cooperate with the Bureau's investigation of possible fraudulent amateur operator license examinations. Without full cooperation, Williams' amateur station license could be revoked and his amateur operating license suspended for the remainder of his term.

The Commission has canceled the amateur radio station and operator licenses of Robert L. Flores and Rose Marie Flores. The license applications of the ten persons who were not examined, but were reported to have passed examination elements have been dismissed.

Request for Waiver to Use Frequencies in the 482-488 MHz Band in New York City

A Request for Conditional Waiver of Parts 2 and 90 of the Commission's Rules and Regulations to permit the use of frequencies in the 482-488 MHz band (television channel 16) was submitted by the New York City Public Safety Agencies (NYCPSA) also with supporting material.

NYCPSA consists of 12 local government public safety organizations in the New York Metropolitan area. On April 10, 1992, NYCPSA filed a Joint Request for Waiver to permit these agencies to operate public safety radio station on channel 16. On April 14, 1994, NYCPSA submitted a Supplement to the Request for Waiver. On November 21, 1994 it submitted a Request for Conditional Waiver, which amends the Joint Request filed in April, 1992. Attached to the request is an agreement between the Television Broadcasters All Industry Committee (TBAIC) and NYCPSA, that sets forth the terms of the proposed public safety operation. The TBAIC filed concurrently a Statement in Support of the Conditional Waiver Request.

NYCPSA argues that delays in and interference to critical radio transmissions are currently experienced in the New York area. NYCPSA further states there is no spectrum available currently to coordinate responses of multiple agencies in emergency situations. NYCPSA contends that there is an immediate need for spectrum relief.

The Agreement satisfies the immediate need of the NYCPSA for additional spectrum for public safety operations while preserving the authority of the Commission to allocate Channel 16 for Advanced television (ATV) operations in New York City. Under the terms of the Agreement, NYCPSA would operate on Channel 16 on an interim basis until such time, if any (but in no event in less than five years) when that channel is allotted in New York City for ATV, and a television broadcast licensee is ready to commence ATV operations. The Agreement includes standards and operating parameters intended to ensure that NYCPSA operations in Channel 16 would not result in prohibited interference to ex-

isting television broadcast licensees in the vicinity of New York City.

FCC Establishes Wireless Telecommunications Bureau

The Commission announced the establishment of the Wireless Telecommunications Bureau (previously Wireless Telecommunications Task Force).

The Wireless Telecommunications Bureau will handle all FCC domestic wireless telecommunication programs and policy, except those of satellite communications. This includes all activities of wireless telecommunication providers and licensees.

The Bureau will serve as the Commission's principal policy and administrative resource with regard to spectrum auctions.

Regina M. Keeney has been named as the Chief of Wireless Telecommunications Bureau, and Ralph A. Haller and Gerald P. Vaughan are Deputy Bureau Chiefs.

Keeney said, "The Wireless Telecommunication Bureau will ensure that the FCC is at the forefront of policy making for wireless communications services, including cellular, paging, personal communications services, public safety, and their commercial and private radio services.

"Our goals are to promote economic growth, foster competition, and enhance accessibility of emerging technologies to consumers. Additionally, the Bureau will work to foster efficiency and innovation in the allocation and licensing of the electromagnetic spectrum."

The Wireless Telecommunications Bureau will have seven divisions: Commercial Radio Division, Enforcement Division, Policy Division, Auctions Division, Private Radio Division, Licensing Division, and Customer Service Division.

The Commercial Radio Division will develop policy, rules, and procedures for other authorization and regulation of wireless telecommunication facilities and services. The Division is responsible for rule making and regulatory matters concerning Cellular Services, Personal Communications Services, paging and Specialized Mobile Radio, Air-Ground, and Basic Exchange Telecommunications Radio Services.

The Enforcement Division will ensure compliance by wireless telecommunication server providers and subscribers with the Communications Act, other statutes and Commission Rules, orders, and policies. This division will administer the FCC's EEO Programs for the wireless telecommunication service providers, and respond to public information inquiries concerning rates

or practices, among other duties.

The Policy Division will, based on major technical, economic, and regulatory developments, legislative actions, and Commission and court decisions, propose and develop FCC rules and policies to govern wireless telecommunications services.

The Auctions Division is responsible for conducting the auctions of the electromagnetic spectrum. These responsibilities include recommending appropriate auction methodology for particular services, marketing, application processing, and development of all auction-related contracts. Additionally, this division will advise the Commission on policy, engineering and technical matters relating to auctions of spectrum used for other purposes.

The Private Radio Division will handle rule making and regulatory matters concerning Public Safety, Industrial, Land Transportation and other private mobile radio services, Aviation, Marine, Amateur, IVDS, broadcast auxiliary service, Personal Radio Services, point-to-point microwave, antenna tower clearance, and the radio operator examination program. Additionally, this Division will project demand for existing and possible new communications requirements and services.

The Licensing Division will oversee the processing of applications and licensing of Specialized Mobile Radio, paging, Private Land Mobile, private and common carrier microwave, broadcast auxiliary, amateur radio, IVDS, aviation and marine, and General Mobile Radio Services.

The Customer Services Division will be responsible for providing technical assistance to consumers, manufacturers, frequency coordinators, and others on questions related to application processing and licensing in the wireless telecommunications services. The Customer Services Division will also provide automated support, processing, and data services for the Licensing Division and for the Bureau.

Notified of Apparent Forfeiture of \$105,000 for Failing to File Appropriate FCC Forms

The FCC notified AllCity Paging Inc., of an apparent liability for a forfeiture in the amount of \$105,000 for willful and repeated violations of Communications Act and the Commissions rules.

AllCity voluntarily informed the Commission that a system audit conducted by AllCity disclosed 84 instances in which it failed to file an FCC Form 489 and 12 instances in which it failed to file FCC Form 401 as required by Part 22 of the FCC's Rules. The 84 failures to file FCC Form 489 involved changes in antenna height and system or line losses. The 12 others involved changes in facility locations, coordinates, service and/or interference contours, and antenna heights.

Based on its review of the nature and number of AllCity's violations, the Commission concluded that for each violation involving a failure to file FCC Form 489, a forfeiture of \$2,000 per violation was warranted, and for each violation involving the failure file form 4011, a forfeiture of \$3,500 per violation was warranted.

The Commission stated, however, that because AllCity voluntarily disclosed the violations and fully cooperated with FCC staff during the investigation, and because the infractions were minor, the total forfeiture will be reduced to \$105,000.

FCC, NWS, and FEMA Unveil the New Emergency Alert System

"This is a test of the Emergency Broadcast System (EBS)." Those words will soon be silenced due to the emergency warning system of the 21st century. The FCC, the National Weather Service (NWS), and the Federal Emergency Management Agency (FEMA) recently introduced the new Emergency Alert System. (EAS)

"We have created an Emergency Alert System for the 21st Century," said FCC Chairman Reed Hundt. "This new system will work with all the new technologies of the information superhighway. Broadcast, cable, satellite, and wireless cable all deliver entertainment, education and now, lifesaving emergency information."

Special equipped consumer products such as television, car radios, pagers, CD players, etc. are shut off. Weekly tests will be replaced by monthly coordinated tests transmitted by all broadcast stations and cable systems which closely follow procedures used during an actual emergency.

The EAS also has the capability of providing alerts in the language normally used by the broadcasting station or cable system.

On the national level, the President activates the EAS through the White House Communications Agency. Broadcast stations, cable systems, and satellites then transmit the message to the public. On the state and local level, the EAS allows specific areas to be targeted with specific emergency information.

Using advanced digital technology developed by the NWS, will allow the new EAS to automatically receive and redistribute National Weather Service hazard warnings to people in the threatened areas.

"Seventy percent of all natural disasters proclaimed by the President are weather related. Linking the National Oceanic and Atmospheric Administration (NOAA) Weather Radio network electronically with the nation's Emergency Alert System will help the nation's Emergency Alert System will help the National Weather Service save lives by reaching more people with timely, site-specific severe weather warnings," said Elbert W. "Joe" Friday, Jr., NOAA Assistant Administrator for Weather Services.

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Beaming In (from page 5)

FCC Regulation 22.941(a) discusses how, when it comes time to renew a license, the licensee has to demonstrate that he or she "has substantially used its spectrum for its intended purpose," and that all applicable FCC policies, rules, and the Communications Act have been met. Furthermore, the applicant for license renewal must attest that he has not otherwise "engaged in substantial relevant misconduct." That includes relevant and non-FCC relevant misconduct, "including misconduct constituting a felony."

Under existing FCC regulations, the FCC could really snap the whip with fines and revocations. This has never happened. Criminals use these facilities openly, freely, and with impunity. Present rules might let common carriers take the initiative to make the determination to deny access to their facilities to any parties they have reason to believe could jeopardize the renewal of their licenses. This hasn't happened either.

What's my best guess as to why the FCC is standing there doing nothing, not enforcing its rules, while this is going on? Our readers may have hit it on the head, bringing up questions of individual rights, communications privacy, and such. I suspect if the FCC began pressing compliance and enforcement, the cellular industry would

freak out via its powerful Washington lobby. These folks have demonstrated their clout in the past, and the FCC seems duly impressed with them.

Operating under the unwritten federal "Ignorance is Bliss," law, the FCC hasn't monitored cellphone conversations for possible criminal activity. Ergo, the agency is unaware that it is taking place. This law has always served the FCC well. In 1960, *Radio Swan*, a quasi-clandestine anti-Castro 50 kW broadcasting station opened up on 1160 kHz from (American) Swan Island. Stations KSL and WJJD complained loudly about interference from *Radio Swan*. Castro was at the UN howling about what he claimed was a CIA station. All news media covered the *Radio Swan* saga.

I wrote to the FCC to ask for a justification regarding their allowing an unlicensed broadcasting station to continue its operation from an American territory, especially since it was causing interference to licensed stations. The FCC dismissed my inquiry by stating it was unaware of *Radio Swan*'s existence. To keep clear of any fallout from the CIA's controversial and questionable *Radio Swan* operation, the FCC didn't just monitor 1160 kHz. Therefore, *Radio Swan* officially didn't exist. The unwritten law in action!

As for the cellular companies, perhaps, as common carriers, they view themselves much like railroads. You pay the fare, you ride, and the carrier isn't too worried about

who you are. If anybody else is, it's that person's problem to check you out.

Cellular companies are making lots of money. Therefore, they are justifiably disinclined to think up ways to cut off service to customers and diminish their income. This is especially true if, as claimed, most of the nation's zillions of drug dealers are their customers. They would argue that, as common carriers, if they refused service to persons they only suspected of illegal activities, they would be inviting costly legal actions filed by every one of those parties. Fat chance that without solid court convictions to support their service refusals, they would prevail in any legal actions.

Certainly, the FCC must have figured all of this out, or else it has been clearly explained to them by the industry's lobbyists. It's my personal opinion that drug dealing and all manner of other criminal activity will continue therefore, to blatantly take place on cellular and paging services.

It's an odd situation. The FCC is faced with the rather sticky wicket of having to license facilities that are well established as the best communications tools of the nation's illicit drug trade, and other organized criminal activities. Yet, despite fancy sounding regulations, there's apparently nothing they can do to get it stopped. Not good. Not good at all.

Readers having suggestions, solutions, or comments, are invited to let me know what they think. ■

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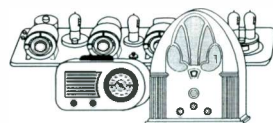
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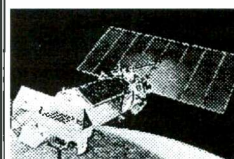
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Reviewed by Larry Miller in April '93 "MT"
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REALISTIC SCANNER MODIFICATION BOOK. The best collection of mods and tricks for PROs 23, 34, 35, 37, 39, 43, 46, 51, 2006, 2022, 2026, 2027, 2030, 2032.0 **UNIDEN SCANNER MODIFICATION BOOK.** The best collection of mods for the BC200/205XLT. Books are \$15 each, or both for \$25. Free copy of **EAVESDROPPING FOR FUN AND PROFIT** with order. Books cover cellular, speed increase, extra channels, remote control, transportable power, with easy to follow instructions, pictures and diagrams. H. Davis, Box 231195, Montgomery, AL 36123.

BBS USERS: Call the Radio Room BBS (413) 586-3713. Amateur, Scanners, Public Service, CB, Pirates. Internationally netted! Open 24 hours. Our motto, "If you like to talk, or just listen..."

HAMFEST HAMCOMP '95 sponsored by the Delaware Valley Radio Association on April 2, 1995, in Trenton, NJ. Write DVRA, P.O. Box 7024, West Trenton, NJ 08628, or call (609) 882-2240.

FOR SALE: Microcraft code/RTTY all-mode LCD reader. Connects to receiver speaker, \$75 post-paid. Ken Greenberg, 4858 Lee, Skokie, IL 60077. (708) 679-8641.

POPULAR COMMUNICATIONS 1982 through April 1993 for sale. Missing 8/83 and 1/85 through 9/85. \$150 post-paid. Zack Schindler, N8FNR, (810) 541-1740.

MILITARY ELECTRONICS. URC-68 AM/FM handhelds w/Nicad's \$225/pr. URC-773 FM manpack (uses D-cells), \$375. RC-292 field antenna, \$75. TRC-3 seismic intrusion det.sys. (uses 9v. bat.) \$250/set of four. 1-800-316-0701.

BROADCAST FM RADIO! Low-power, low cost neighborhood stereo FM station. Legal, exciting. Free info. Micro. Box 974, Depoe Bay, OR 97341.

SECRET CB BOOKS 1-29, \$10 each. Sams books \$15 each. Modulation kits RCI 2950, HR 2510, Connex 3300, Cobra 148, Cobra 29, plus many more, \$17. Call 1-800-536-0109 for free catalog.

WANTED: 10 METER RIG. Amplifier and microphone also if available. Something simple, nothing fancy. Will pay adequately. Contact Jeff at Box 1089, Morrisville, PA 19067, or call (215) 736-0360.

FOR SALE: ICOM IC-R9000 communications receiver deluxe. 100 kHz-2000 with satellite interface unit, \$2,000. Purchased new 1991. Seldom used, privately owned. Contact Braxton Mfg., phone, (203) 274-6781 8 a.m. to 4 p.m. ET, or FAX (203) 274-9195 anytime.

MONITOR FROM SOUTHERN CALIFORNIA seeking other monitors interested in a free exchange of information. Other areas also desirable, 150 kHz through 1300 MHz. Write D.J. Sweeney, 1521 Miramar Drive, Fullerton, CA 92631.

FREE INFORMATION for scanner enthusiasts! New book on police and fire scanning for beginners. BW Enterprises, P.O. Box 179, Muskego, WI 53150.

WISCONSIN (Green Bay) April 8, 8 a.m. to 12 noon. Sponsors Ashwaubenon High School Tech Club and Brown County ARES. Ham Radio & Computer flea market. Ashwaubenon High School, 2391 South Ridge Road, Hwy 41 Exit Oneida St., North to Andersen Dr., West to Ridge. VE testing reg. 8-9 a.m. Refreshments, free parking. TI 147.075+. Admission \$3/adv, \$4/door. Tables \$4/4ft adv, \$5/4ft door. Setup April 7, 7-10 p.m. Chad Stiles, N9PAY, 2171 Barbary Lane, Green Bay, WI 54304. (414) 494-2936, or Lisa Kolbusz, N9VJL, 520A Columbia Ave, Green Bay, WI 54303. (414) 497-1807. **RADIO MODIFICATIONS!** Super-narrow AM/FM/SSB filters, powerful antenna boosters, smoother tuning, SCA decoders, I.F. shift, alignment and more! For details, tell us what radio you own. Worldcom, Box 3364-p, Fort Pierce, FL 34948. (407) 466-4640.

EUROPEAN PRESIDENT JACKSON CB, 400 frequencies, AM/FM/SSB, 10-watt AM/FM, \$300; President George CB (new), 400 frequencies, AM/FM/SSB, 15-watt AM/FM, \$500. Call Gary, (818) 793-9379.

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FOR SALE: Bearcat 2500XLT unlocked. Outside scanner antenna. Mobile scanner antenna. Accessories. Spare battery pack. All for \$369. John, (203) 254-9549.

TRADE OR SELL: Kinemetrics model 60-DC, WW synchronized clock. Receives 60 kHz time signal and displays day-of-year and time. Includes service manual, loop antenna and 50-foot RG-58 download. SASE for tech data. Either \$389 or trade for AOR AR 1500XLT or AR 2800. Jeff, (216) 721-5815.

HEATHKIT GR64 shortwave receiver manual wanted. Will pay postage and copying. Jim Sullivan, 13 Vinlen Drive, Windsor, CT 06095.

SCANNER SOURCEBOOK. Nationwide directory of products available for your scanner. Over 400 listings, 42 pages. SASE for info, or \$12 postpaid. Griffin Research, 16333 Harbor #110-P, Fountain Valley, CA 92708-1311.

HOME AUTOMATION. Become a dealer in this fast-growing field. Free information. Send name, address, phone to ECS, Box 407, Fairbury, NE 68352, or call (800) 838-4051.

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ICOM 12 GAT HANDHELDS. Two for sale, complete with heavy-duty spare batteries, wall chargers, DC adapters, and quick chargers. MINT, \$500 for one pair. 1 KANTRONICS KAM w/software, \$100. Call Bob, (718) 575-9243.

TO HEAR THE TRUE MEANING of Christianity, listen to 7315 kHz, Monday through Friday, 2 to 3 UTC; Sunday, 0230-0400. Scriptures for America, P.O. Box 766, LaPorte, CO 80535.

FOR SALE: Aiwa D1000 (Sangean 808) w/SW mini-booster and 110 FM filter mod., \$150; DX440, \$100; Magnavox 3805, \$50. WANTED: Magnavox 2999, SONY 5900, 6500 and MW loop antenna. Pete, (205) 773-5505.

KENWOOD TH25AT, wall & desk chargers, wrist strap, three battery packs, Larsen 1/4-wave duck, DC adapter, Lighter plug and cable, speaker/mic, original owner, \$450. KB8LFE, (810) 545-1006, after 7 p.m. EST.

WANTED: Original spare parts (e.g. knobs, tubes, etc.) for Collins RX type 51S-1, or similar. Also defective receivers. Please write to Henri Walser (HB9-DBW), P.O. Box 213, 4009 BASEL, Switzerland. Phone, 061-301-7573.

FOR SALE: Bearcat handheld scanner model BC-200XLT, with stand and extra antenna. Excellent condition, less than one year old. Richard Broomfield, Box 502, Mansfield Center, CT 06250. Phone, (203) 341-1075.

P.A. VALLEY VIDEO is celebrating its ten year anniversary. We have moved and simplified our Name to serve you better. Our new address is Valley Video, 10737 York Road, Cleveland, OH 44133. Phone (216) 237-9800, FAX (216) 237-4441.

FOR SALE: Radio Shack HTX-100 10M-Xtsvr @ \$125; RS HTX202 2M-Xtsvr @ \$150; both in excellent condition. Call Paul, (215) 422-3069.

YOUNG FRENCH READER OF POPULAR COMMUNICATIONS is looking for gift of bumper stickers of American Radios and televisions. Thanks. Send to Fabien Serve, 31 Chemin Dessous Du Rocher, 91120 Palaiseau, France.

YAESU FTH 2070 for sale, \$1000. Takes all the following: Dual band ht, charger, software, and interface cable. Radio covers VHF and UHF. Excellent condition. Call Kevin, (401) 539-0629.

CBs/SCANNERS WANTED! Crime Watch Group needs donations to help fight crime. Any type accepted, 23 ch., xtal, repairables. please help out. Rob Belleville, Box 892, Northboro, MA 01532-0892.

FOR SALE: Midland MOD 13-778 AM SSB HT rare. Three chl cry controlled. Exterior antenna and power jack, \$175. Will ship. (602) 970-8118, Bob, Phoenix, AZ.

WANT TO BUY electrical schematic for a COBRA SR 925 scanner radio. Reply to Box 1761, Rockford, IL 61110.

WANTED: A SHORTWAVE RECEIVER or police scanner. Disabled young man seeking donation. Pen pals interested in electronics also appreciated. Travis Thompson, 210 Esmeralda Avenue, Olney, IL 62450.

LOOKING for owner's and/or technical manual for Hallicrafters Sky Champion, model S20-R. Write Dean, 1827 Valley-Hi Drive, Fairbanks, AK 99709.

WANTED: Schematic or operator handbook for Allied Knight/Scan-Master. Also for sale Yaesu FRDX 400 Rec., Flox 400 Trans., Poss. Del. 200 mi \$300.00. J. Coda, 405 E. 3rd Ave., Elkhorn, WI 53121 (414) 723-6366.

FM TRANSMITTER. Gates commercial broadcast, mono. 10W. Two Xtals, 160W amp. Compressor/limiter. 5/8 antenna. Many more extras. Note: FCC license required to broadcast. \$1500 firm. (206) 246-2181.

GATEWAY 2000 Computer 486DX2. 66MHz. 16 MB RAM. 2-340MB Hard Drives. Floptical Drive. Modem. CD ROM. Tape Backup. Tower Case. Excellent condition. \$3500.00 + 150.00 Shipping. (808) 661-7394.

WANTED: RADIO NEWS MAGAZINE, February 1944 (Special Signal Corps Issue). Pay \$25-\$50, depending on condition. Also want military Radio Manuals (all years) Gene, KD4YIZ, 1-800-619-0900, MML, Box 720024, Atlanta, GA 30358-2024.

WANTED: information on programming SBE Optiscan scanner. Either copy of code book or required calculations. If you can help, send info to David Bauman, P.O. box 131, Stroudsburg, PA 18360.

UNIVERSAL M-7000 & MANUALS, \$400. AOR AR-800 20-channel handheld scanner, \$75. OptoElectronics Frequency Counter, 1300 H/A, \$75. Tom (317) 269-1533.

WANTED: All possible modifications for Realistic PRO-2026 mobile scanner. Send info Bob Madorin, 7815 Westgate, Lenexa, KS 66216.

WANTED TO BUY Regency Z60 scanner. Must be in good condition. Gary Churchill, Nine Newton Road, St. John's, Newfoundland, Canada A1C 4C9.

WANTED: Service manual /schematic for JFD model 7200 field strength meter. Marvin Moss, Box 28601, Atlanta, GA 30358.

EMPIRE DEVICES, noise/field intensity meter, five plug-ins covering 14 kHz to 1000 MHz. Makes super-hot all-band receiver, \$1000, or will trade ham RF power amp, ultralite aircraft engine. Call (713) 934-4659.

KENWOOD R-2000 receiver, mint condition with manual and cords, \$500. One of a kind Bearcat III scanner, mint, \$100., or best offer. Scott, (402) 397-4610, after 6 p.m.

ICOM-IC-R7000 N.I.B. condition, \$995. Commodore 64 with SWL microcog, air dos, disc drive, monitor, \$225. WANTED: Realistic PRO-2006, mint condition. John F. Dubino, 73 Devens Street, Greenfield, MA 01310.

SELL OR TRADE: Optoelectronics APS 104 and R10 FM communications interceptor, both are less than one year old. Will sell both for \$900, or trade both for Motorola STS, or Motorola MTS 3400 or ICOM IC-4SRA. Also has Ranger RC1-2970 AM/FM/SSB/CW Amateur 10 meter mobile transceiver. Has extended coverage 26-31 MHz. Under warranty, mint condition, \$200., or trade for a good handheld two-way, or Bearcat SC150 Y/B SportCat. Call Keith at (316) 838-8389.

REALISTIC PRO-34 handheld scanner with 800 MHz. Unit works fine, but case and LCD readout have some damage. Owner's manual included—\$30. Dave Gelbin, (203) 243-0018.

CLEANING OUT. SX96, SW4, R4, Grundig Oceanboy, \$215 each. Old fada, Philco, Crosley, \$100 each. More-parts-manuals. List: \$1 & SASE. Joe Bedlovies, POB 139, Stratford, CT 06497.

THE FREE RADIO NETWORK BBS. (417) 624-1809. 1200-14400 baud 24 hours. Totally free for all Pirate radio enthusiasts! Lots of interesting files. DXing tips and information. Come join us!

UNIVERSAL M-7000 & MONITOR. Almost new set will decode most types of RTTY and FAX. Owner lacks time to use and will sell both for \$450. Call Steve K. at (316) 267-6371 (day) or 634-2604.

WANTED: Keyboard touch pad for Regency MX 7000 scanner, or MX 7000 for parts if touch pad intact. (803) 489-0268, or (803) 489-9838. Ask for Ken or leave message.

NRD525 Receiver with matching speaker, includes CMH530 RTTY demodulator and CMH532 RS-232 interface, \$850.00. Cost \$1400.00 new, used very little, no mods. Standard filters, 1/2/4 KHz. Receives AM/FM/USB/LSB 90 KHz through 34 Mhz. Paul, WD30, (412) 367-4632 after 5pm eastern.

WANTED: a new or used Uniden MR8100 or MR8100A with external speaker. Contact Ron at (616) 796-1706, or write to 18899 13 Mile Road, Big Rapids, MI 49307.

FOR SALE: ICOM-R71A. P/B tuning filters, remote, speech, etc., \$700. Jeff (901) 681-9267, evenings.



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13 memory phone, 3 direct access emergency memories, auto redial, ringer on/off, top light flashes when telephone is ringing, tone/pulse switchable, desk/wall mount, front door closes for authentic fire box appearance. FCC approved. Size 16"H x 8 1/2"W x 7"D.

We also have the PB104, dark blue POLICE PHONE BOX for only \$45.99 (\$5.50 Shipping).

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Frequency coverage 25-1200 MHz — only 22 inches tall. No holes to drill — includes contact glue pads for easy installation. Complete with 17 foot cable, Motorola connector, and mounting hardware. Swivels to vertical position — performance unaffected by moisture on the window.

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Digital programmable 200 channel hand held scanner with raised button keyboard for easy programming of the following frequency ranges: 29-54 MHz, 118-174 MHz, 406-512 MHz, 809-956 MHz. Features include: Scan delay, memory backup, key pad lock, sidelit LCD, direct crystal display, channel lockout, 10 twenty channel banks, direct channel access, automatic search, one full year factory warranty, 10 priority channels, Ni-Cad battery pack, AC adapter/charger, flexible rubber antenna, carry case are all included. Size is 2-11/16"W x 1-3/8"D x 7-1/2" high. (*Excludes Cellular) #CC-008 Heavy Duty Leather Carry Case \$27.99

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Programmable, digital, AC or DC operation, weather button, priority, lockout button, squelch, memory backup, 2 digit LED display. Frequency coverage 29-54 MHz, 136-174 MHz, 406-512 MHz. Sizes 9"x6 1/2"x2 1/4". Includes AC adapter and telescopic antenna. Optional Cigarette Lighter Cord #142MPC \$4.99

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(Plus \$9.00 Shipping Each)



16 channel digital readout two-way radio. Covers high band frequency range of 146-162 MHz without retuning. Perfect two-way radio for ambulance, police, fire, tow trucks, taxis, commercial companies who use this band. Features include CTCSS tones built-in, priority, 25 watts output, channel scanning, back-lighted keyboard, message light, time out timer, scan delay, external speaker jack. Size is 2 1/4"H x 6 1/2"W x 1 1/4"D.

SPECIAL PACKAGE DEAL includes RH-256NB, mobile microphone, 1/4 wave body mount antenna, mobile mounting bracket and mobile power cord, all for the low price of \$339.99. We also have the hand-held version WHS-150 at only \$349.99.

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Our best selling mobile scanner, 16 channel AC-DC programmable digital. AC-DC cords, telescopic antenna, mobile mounting bracket, weather search priority, 29-54 MHz, 136-174 MHz, 406-512 MHz, external speaker and antenna jacks.

BEARCAT BC-100XLT

100 Channel Digital Programmable Hand-Held Scanner

\$159.99 (\$7.00 Shipping)



Our best price ever on a full featured complete package hand-held scanner. Manufactured by Uniden. Features include 11 bands of weather, aircraft, public service, trains, marine, plus more (29-54 MHz, 118-174 MHz, 406-512 MHz), 10 channel banks, 10 priority channels, lighted LCD display, earphone jack, channel lockout. AC/DC operation, scans 15 channels per second, track tuning. Special package deal includes the following accessories: AC adapter/charger, rechargeable Ni-Cad battery pack, flexible rubber antenna, carry case.

SPORTCAT SC-150

100 Channels - 12 Bands Including Public Service, Air And 800 MHz

ONLY \$174.99

(\$8.00 Shipping)



Programmable hand-held sport scanner with 100 channels and 12 bands with aircraft and 800 MHz. Features include: 10 one touch direct access channels with 10 corresponding channel identifiers, band search, data lockout, headphone jack, WX search, rechargeable Ni-Cad battery, illuminated LCD, lockout, auto delay, volume and squelch control. Available in yellow and black. (Specify color.) Dimensions 2 1/2" x 1 3/4" x 6". Coverage: 29-54, 118-174, 406-512, 806-956 MHz.

Cobra SR-901

AVAILABLE ONLY FROM SCANNER WORLD ONLY!

\$74.99

Each (Plus \$6.00 Shipping Each)



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Features include: 10 programmable channels, one touch memory channels, one touch memory programming, external speaker jack, 29-54 MHz, 136-174 MHz, 400-512 MHz, squelch, lockout, full frequency digital readout, AC or DC operation, retains memory up to 3 days without power, scan button. Includes AC adapter, telescopic antenna, and complete operating instructions. Size: 7 1/4"W x 2"H x 7 1/4"D. One year factory warranty. Optional mobile cigarette lighter cord #901MPC \$4.99

UNIDEN BEARCAT BC 800XLT DIGITAL BASE SCANNER

\$229.99

(\$8.00 Shipping)



Receive police, fire, ambulance, cordless phones, marine, trains, weather, ham, stock cars, public service plus much more. Frequency coverage 29-54 MHz, 118-174 MHz, 406-512 MHz, 806-912 MHz (continuous), 40 channels, AC/DC operation, digital programmable, memory backup requires 2 AA batteries (not included), telescopic antenna included, AC power cord included, external speaker jack, external antenna jack. Dimensions: 9 1/4"D x 4 1/2"H x 12 1/2"W. Channel lockout, direct channel access, scan delay, priority, digital display, auto weather button, automatic search, track tuning.

UNIDEN BEARCAT BC-760XLT

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Digital Programmable 100 Channel Scanner

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Advertisers' Index

AMC Sales, Inc.	5
A.R.R.L.	23,73
Ace Communications	88, Cov III
Alpha Delta Communications, Inc.	16,53
Antenna Supermarket	19
Antique Radio Classified	81
Atlantic Ham Radio	84
Barry Electronics Corp.	82
Bearcat Radio Club	80
C. Crane Company	83
CB City International, Inc.	50
CRB Research	16,82
Cellular Security Group	39
Chilton Pacific Limited	81
ClearTek	84
Colonie Computech Corp.	83
COMMtronics Engineering	82
Communications Electronics, Inc.	21
Computer Aided Technologies	39,50,51
Consumertronics	55
Copper Electronics, Inc.	4
DWM Enterprises, Inc.	83
Delta Research	76
Drake, R.L. Company	13
EDCO	7,27,30,61,80
EDE/SPY OUTLET	16
Electronic Equipment Bank	1
Firestik Antenna Company	82
GENie Radio & Electronics RoundTable	52
Gilfer Shortwave	6
Grove Enterprises, Inc.	37
ICOM America, Inc.	46, Cov IV
Index Publishing Group, Inc.	41
JPS Communications, Inc.	29
Jo Gunn Enterprises	5
K & L Technology	79
L & L Electronics	82
Lentini Communications, Inc.	11
MFJ Enterprises, Inc.	43
MARYMAC Industries, Inc.	55
Microcraft Corporation	84
MoTron Electronics	50
Mouser Electronics	81
Optoelectronics, Inc.	Cov II, 75
Philips-Tech Electronics	82
Quement Communications	84
R.C. Distributing	52
REACT International	40
Radio Bookstore	11
Radio Control Systems, Inc.	70
Radio Shack	35
Radioware Corporation	9
SGC, Inc.	74
Scanner World USA	85
Scrambling News	50
Signal Intelligence	9
Software Systems Consulting	51
Sports Communications Dist.	33
TEN-TEC, Inc.	31
Tiare Publications	33
Tucker Electronics	14,15
U.S. Scanner Publications	57,76
USRadio	41
Universal Radio, Inc.	3,12
Vanguard Labs	81
Viking International	50
Wilson Antenna, Inc.	49
Xandi Electronics	12

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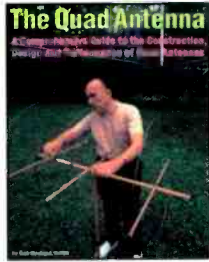
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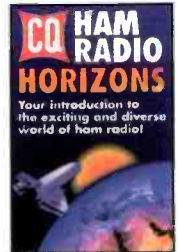
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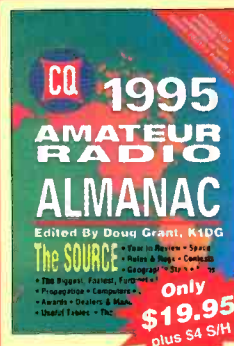


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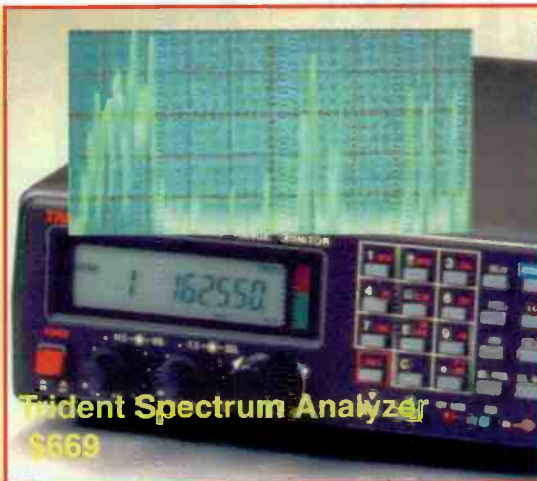
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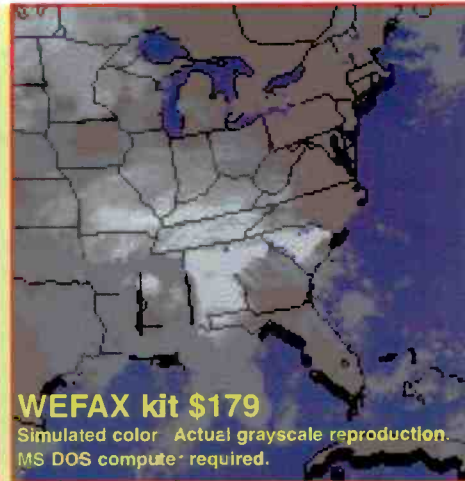
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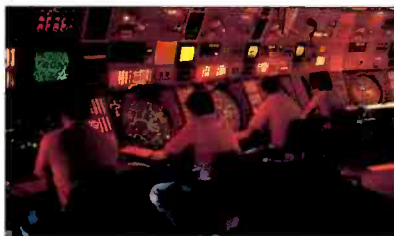


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IC-R7100A-12
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