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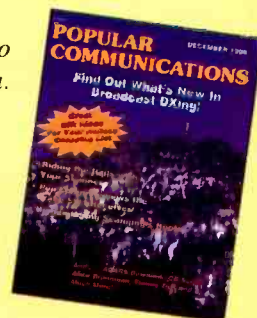
DECEMBER 1996

VOLUME 15, NUMBER 4



page 32

ON THE COVER: Television and commercial radio site on Slide Mountain, located west of Reno, Nevada. (Photo by Larry Mulvehill, WB2ZPI.)



FEATURES

One of The World's First Broadcast Stations

8

Today, WHA is Wisconsin's oldest continuously licensed AM broadcaster. Travel back in time with Alice to learn more about how they got their start.

By Alice Brannigan

Radio Resources

20

Here's how to get on track with exciting railroad communications.

By Bill Mauldin

Product Spotlight

24

Get the information you need on the Drake SW1 AM Shortwave Receiver.

By W.W. Smith

The Listening Post

50

Anguilla on shortwave? SW news, plus frequencies, your logs and more!

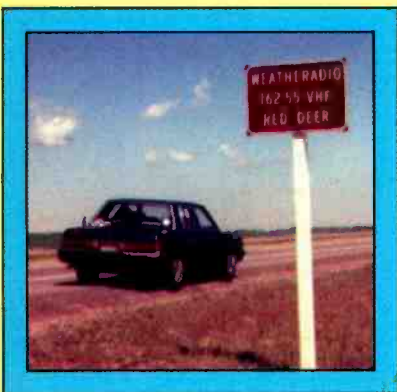
By Gerry Dexter

COLUMNS

The Radio Connection.....	12
Product Parade.....	18
Broadcast DXing.....	32
CB Scene.....	38
The Computer Corner.....	42
World Band Tuning Tips.....	44
Clandestine Communiqué.....	58
The ACARS Downlink.....	62
Scanning The Globe.....	68
Communications Confidential.....	70
The Pirate's Den.....	80
The Loose Connection.....	84

DEPARTMENTS

Tuning In.....	4
Pop'Comm P.O.....	6
How I Got Started.....	28
Reader Survey.....	31
Readers' Market.....	85



page 68



page 70

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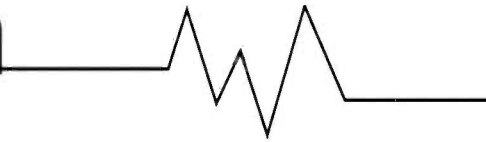
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Tuning In

AN EDITORIAL

BY HAROLD ORT, N2RLL, SSB-596



Yes Virginia, Radar Detectors Can Save Lives!

When was the last time you drove through the Commonwealth of Virginia? With its mountains, beaches, and tourist attractions, it's the place to be, any time of year. But there has to be a catch! Unfortunately there is.

Unlike other states, (with the exception of Washington D.C.), Virginia decided many years ago to ban radar detectors. They've realized that raking in the bucks is more important than highway safety. More about that later. Specifically, the law prohibits not only the use of a radar detector or having one readily accessible to the driver or passenger, but also the sale of a radar detector. So every time I hit the border I dutifully remove the radar detector from the windshield, unplug it from the cigarette lighter receptacle and toss it in the glove compartment. I'd be better off tossing it in the trunk so it isn't "accessible," but why bother? Truth is, having to do this bothers me a lot, and the powers-that-be in Richmond should know a couple of things up front.

First, I'm not going lightning-fast as I cross the border. The only reason I use a radar detector is to keep from receiving a ticket I didn't deserve in the first place. My theory is simple: If I'm speeding beyond what an officer would consider reasonable and prudent for traffic conditions, or driving recklessly, I deserve a ticket—whether or not I even own a radar detector! Sure, "speeding is speeding" once you've crossed the limit allowed by law, but isn't it strange that even when you're going 65 mph, you're passed by 8 out of 10 cars going faster? So, if by having a detector I can slow down a few mph, I will, and let the clown doing 85 get the trooper's greeting!

Secondly their out-of-date anti-radar detector law really isn't slowing anyone down. That is the law's purpose though, isn't it? In reality, Virginia has devised a legal way to have a law on the books that puts it back into the stone age! Behind the closed doors, can't you just hear it? The logic must go something like this: We're really bringing in the bucks using this radar technology, but what if we could bring in more? Why not make it illegal for drivers to detect police radar, period? So, they did. But even back then, in doing so they somehow ignored the fact that they're outlawing the use of a radio receiver that merely tunes a specific band of frequencies. They

also ignored the fact that most detector-equipped drivers are actually better drivers, overall. So what they have is an ill-conceived law that generates who-knows-how-much money, all with impunity.

As if the anti-detector law isn't bad enough, now they have another problem. How do they repeal a law (and save face at the same time) that has seen better days? Hello, Virginia! There's a not-so-new highway warning system called the Safety Warning System (SWS for short) that is fast gaining popularity elsewhere. A SWS-equipped police cruiser, ambulance, highway maintenance vehicle or other public safety vehicle sends out a low-power radar signal that alerts drivers to slow down when approaching a road hazard or other highway emergency situation. New state-of-the-art detectors will even display one of 64 short emergency messages warning drivers before it's too late. It even works well with older radar detectors, which will only emit an audible signal alerting drivers of a nearby radar-equipped vehicle.

But the nagging question remains: How can the SWS system work in Virginia if using radar detectors is illegal? It can't, of course—that is until the bureaucracy decides to get off its collective behind and repeal the anti-detector ban. I'm not talking about some half-baked, tongue-in-cheek repeal that prohibits detectors while allowing for reception of SWS signals either.

I'm sure that someday the SWS will work in places like Virginia, but for now, someone in Richmond must first be convinced that it's more important to save lives than generate revenue.

Since 1989—The Radio Monitors Newsletter of Maryland

Every once in a while a radio newsletter crosses my desk that deserves a round of applause. Ron Bruckman and company have put together one heck of a newsletter, as the title says, "for the SERIOUS scanner & shortwave enthusiast". In just a few pages, they've got lots of good, gutsy information about our radio hobby. Besides frequent frequency listings and tips, they tell it like it is; that alone makes it worth becoming a member. Contact Ron via e-mail at RBscan@aol.com or write to P.O. Box 394, Hampstead, MD 21074-0394.

POPULAR COMMUNICATIONS

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Pop'Comm P.O.

LETTERS TO THE EDITOR

Each month we select representative reader letters for our Pop'Comm P.O. column. We reserve the right to condense lengthy letters for space reasons and to edit to conform to style. All letters submitted must be signed and show a return mailing address or valid e-mail address. Upon request, we will withhold a sender's name if the letter is used in Pop'Comm P.O. Address letters to: Harold Ort, N2RLL, SSB-596, Editor, Popular Communications, 76 N. Broadway, Hicksville, NY 11801-2909, or send e-mail via the Internet to <popularcom@aol.com>.

Dear Editor:

After reading the great articles in the October issue, I had to write and tell you about the three Navy towers in San Diego. Around the first part of this year the government decided to remove the three towers and make way for much needed military housing. The towers were dynamited and removed. It was a sad day for me and a lot of other native San Diegans as those were three of the most prominent landmarks in town. Thanks again for a great magazine!

Robert Quintero
San Diego, CA

Dear Editor:

Harold, I got this off the Internet from "In a Hurry, Are We, Sir?" (British Police Wit)—"Two members of the Lothian and Border traffic police were out with a radar gun recently, happily engaged in apprehending speeding motorists when their equipment suddenly locked up completely with an unexpected reading of well over 300 mph. The mystery was explained seconds later as a low-flying Harrier hurtled over their heads. The boys in blue, upset at the damage to their radar gun, put in a complaint to the RAF, but were somewhat chastened when the RAF pointed out that damage might well have been more severe. The Harrier's target-seeker had locked on to the "enemy" radar and triggered an automatic retaliatory air-to-surface missile attack. Luckily (?) the Harrier was operating unarmed.

Kent Brittain
Texas

Dear Editor:

A big hello from Trevor Fletcher now

in Calgary Alberta. My letter is this: First, *Pop'Comm* as always is GREAT—no other magazine on the shelves comes near to it! Second, I'm glad to see a few more letters to the editor being printed. Other people's views on your magazine are important. I like to know what the guy in the southern U.S. thinks about things and vice-versa. Third, I'd like to see your faces at the top of your columns. I used to think Alice Brannigan was some old lady. Then we saw her picture and wow! Take care. Trevor Fletcher aka Cornbinder, SSB 174/SWL 174 All-Around-Nice-Guy and *Pop'Comm* Fan.

Trevor:

Again, our sincere thanks for being such a loyal *Pop'Comm* reader. Other than an occasional glimpse of Alice, would you REALLY want to see a mug of myself, Bill Price, Pete Bertini or Ed Teach every month at the top of each column? Not me!



Benton Owsley's monitoring station in Ventura, California.

Dear Editor:

We are once again renewing for another year with your fine magazine. I enjoy reading your magazine every month and always look forward to the next issue.

I am an active SWLer and also like to listen to those pirate broadcasts. Your articles help me stay informed about what's happening on the bands. I am enclosing a picture of my shack here in Ventura, California.

Benton Owsley, Monitoring Station
WDX6IDD

Dear Editor:

I would like to express my views on a disturbing trend on the part of some of

your readers who go about knocking the quality of certain brands of radio receivers. I would remind such people of something far more dangerous to our hobby—that is the total extinction of it. You may call me a doomsayer, but look at what's happened over the past few years. The V-chip, more and more restrictive laws on what frequency bands can be built into a scanner, more and more restrictions on what we can or cannot listen to. Does this remind anyone of the "good old days" between 1939 and 1945 when the mere possession of a shortwave radio resulted in more than confiscation and jail time?

Now, I'm not saying that U.S. lawmakers would ever resort to such draconian measures to prevent John Q. Public from scanning the airwaves, but I do think that they are going too far banning everyone from enjoying the hobby just because .0001 percent of the people who buy scanners are bonafide criminals. Why ban the technology? The more something is "banned", the more people want it. And if you're going to transmit stuff over the radio that is so hush-hush, why not encrypt it? The technology has progressed to the point that even small town police departments can encode transmissions so heavily that no one could ever develop a cost-effective home-brewed method of decoding such transmissions.

Of course, I believe strongly that anyone who uses a scanner to commit any kind of crime should be punished to the fullest extent of the law . . . but why punish the 99.999 percent that just consider scanning a fascinating and fun-filled hobby? I say that we better all start fighting to preserve our hobby before we no longer have a hobby to fight for.

David Finley
New York

David:

Yes, it does appear that our world is upside down when it comes to certain recently-passed anti-listening laws, especially with the burden of privacy on the senders' shoulders. You've made some important points, David—but don't give our lawmakers too much credit, please. In the blink of an eye they would certainly think nothing of passing some Humpty

(Continued on page 79)

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By Alice Brannigan

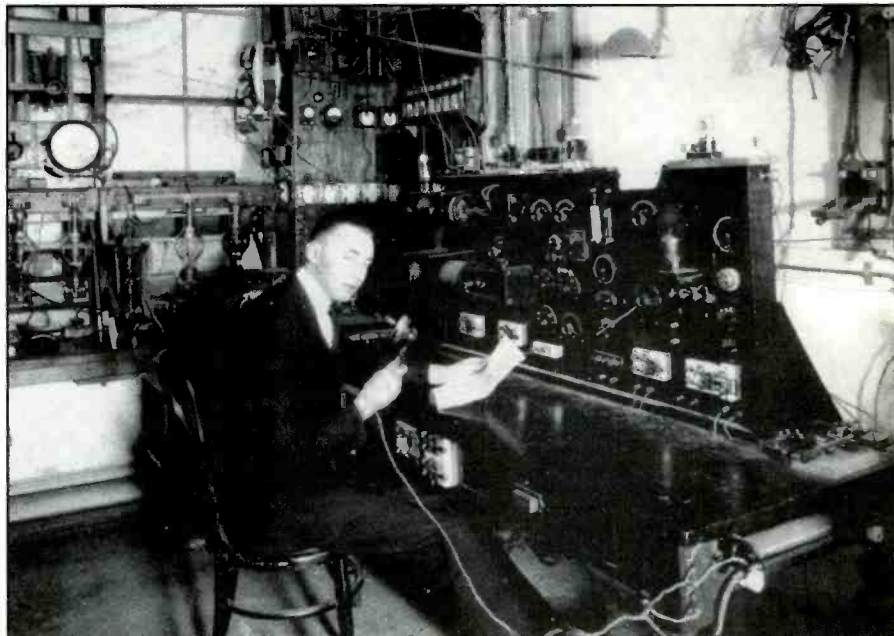
In 1909, the Department of Physics of the University of Wisconsin opened a point-to-point radio station at Madison. In the spring of 1917, serious experimentation began when the equipment was moved from Science Hall to Sterling Hall. That March, Experimental Amateur license 9XM was issued to Professor Earle M. Terry. Though most private stations had been ordered off the air during World War I, 9XM was allowed to operate because it was at a U.S. Navy training facility.

Beginning on January 3, 1919, 9XM started transmitting weather bulletins in code, and in May, the station claims to have begun "regularly scheduled operation." The government's official wartime ban on radio transmissions was lifted on July 31, 1919. By 1920, 9XM's weather reports were being sent in voice.

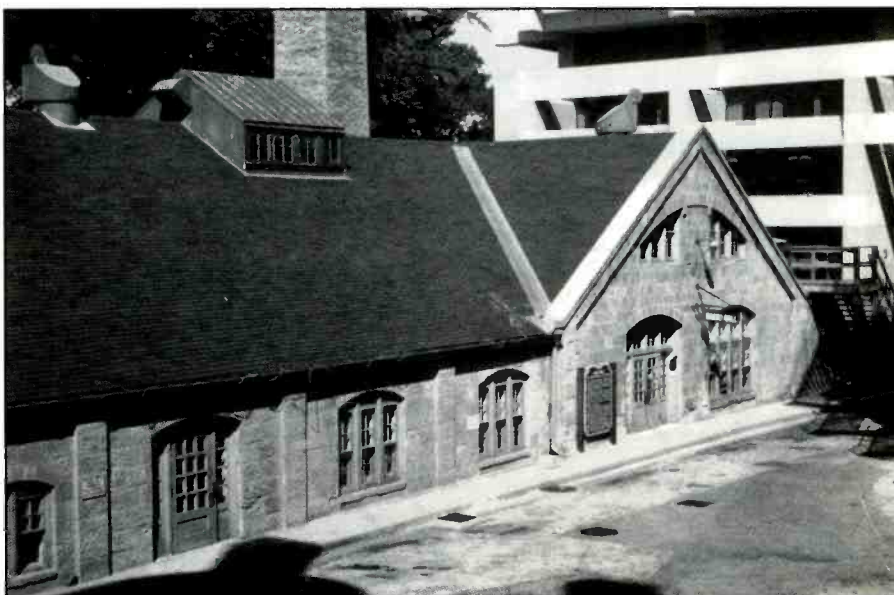
When the radio broadcast service was being created, the Radio Division, Bureau of Navigation, U.S. Department of Commerce suggested that the University should apply for a broadcast license. On January 13, 1922, the call letters WHA were given to this station for 4 kW operation on 833 kHz. It was the 34th broadcasting station license issued. The WHA transmitter was the reworked old 9XM spark-gap transmitter.

"Though most private stations had been ordered off the air during World War I, 9XM was allowed to operate . . ."

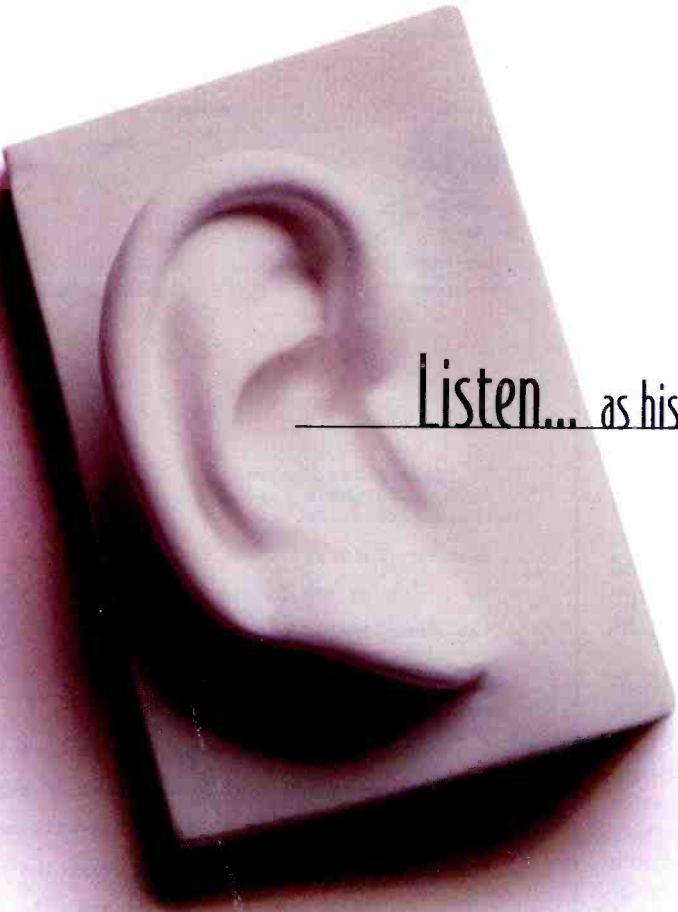
In March of 1922, WHA shifted frequency to 730 kHz. In October of that year, with the installation of its new vacuum tube transmitter, power was reduced to 500 watts. Broadcasting was so new that neither the stations nor the government knew precisely how much power stations needed when faced with vari-



The original WHA broadcast transmitter was converted from the station's previous spark apparatus operated under the amateur experimental call letters 9XM.



WHA's "Radio Hall" studios, which are no longer used by the station. This photo was snapped in 1972 by Jan D. Lowry, California



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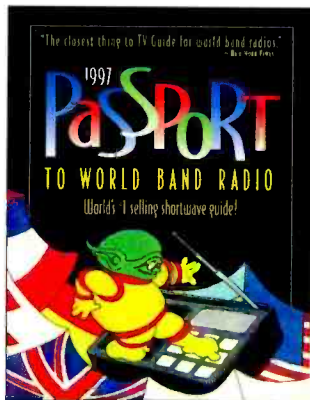
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CIRCLE 123 ON READER SERVICE CARD

ables such as seasonal, hourly, interference, coverage, and equipment differences between stations sharing frequencies. In January of 1923, WHA's power was cut back to 100 watts, but in April was brought up again to 800 watts, then down to 500 watts in July, and 100 watts again in October. Power went back up to 500 watts in January of 1924. WHA operated three nights a week, one hour each, with educational and agricultural lectures, plus special programs. On July 6, 1924 the station's license expired and broadcasting ceased. The government canceled the license in early September, but a month later WHA was reissued its license for 500 watt operation on 1090 kHz. This was a time-share arrangement with Chicago's KYW, which was shifted to 560 kHz in January, 1925, though WHA was soon allowed to increase its power to 750 watts.

In June of 1927, the newly formed Federal Radio Commission reassigned WHA to 940 kHz, where it would divide time with WLBL, in Stevens Point, Wisconsin. By November, the two stations were bumped to 570 kHz and told they must also divide time with WNAX in South Dakota, and WIBO in Illinois. This arrangement lasted until April of 1929.



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MADISON

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PROGRAM DIRECTOR
H. L. EWBANK
CHAIRMAN-UNIV. RADIO
COMMITTEE
EDWARD BENNETT
TECHNICAL DIRECTOR
GLENN KOENLER
ELECTRICAL ENGINEER

December 7, 1931

Mr. Joseph Leo Hueter
1802 W. Columbia Ave.
Philadelphia, Pa.

Dear Mr. Hueter:

We are indeed glad to verify your report on the reception of our test program of November 28, 1931. Word from you is gratifying as this program went on the air entirely unannounced beforehand.

We expect to make some changes in our equipment before long and plan to have a real DX party, at which time we hope you will be with us. This will be scheduled far enough ahead to be announced through the press.

Thank you for your report. It will be a pleasure to hear from you again.

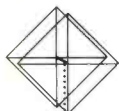
Cordially yours,

H. B. McCarty
WHA

This 1931 veri letter from WHA shows an enthusiasm for receiving DX reports. (From the collection of the late Joe Hueter, now in the Pop Comm archives.)

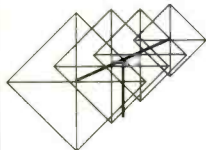
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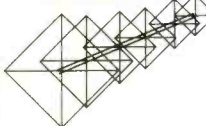
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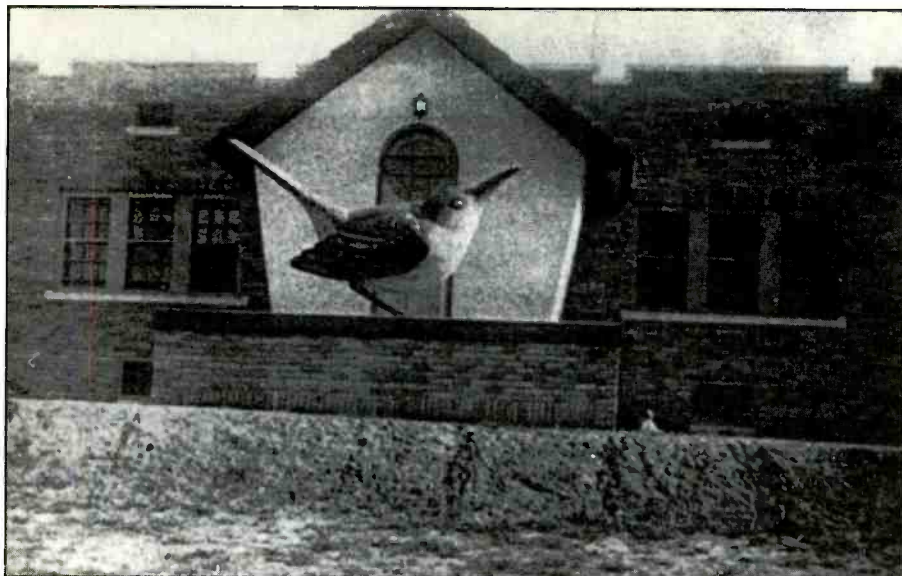
when WHA was shifted back to 940 kHz and licensed for daytime-only operation. After the death of Dr. Terry on 1929, operations of WHA were transferred to the University's Electrical Engineering Department. The antenna system was moved from its campus location to a new site three miles south of Madison. A 1 kW transmitter was installed, and power was increased to that level in January, 1933.

The broadcasting studios had remained at 132 Sterling Hall, but in 1934 the main studios were replaced by those in Radio Hall, a specially remodeled heating plant located behind Science Hall, adjacent to the old WHA tower bases. In April of 1935, WHA increased its power to 2.5 kW. With the completion of its new transmitting plant on Fish Hatchery Road, power was further increased to 5 kW in September, 1936. Two 205-ft. towers supported the single wire "T" antenna system.

In late 1938, the licensee name was changed to the State of Wisconsin, which owned the previous licensee, the University of Wisconsin. That same year, several on-campus studios were added in the west wing of the Memorial Union. A major North American frequency overhaul in March, 1941 saw WHA change to 970 kHz.

In May, 1972, WHA was granted permission to relocate its transmitter to the intersection of Martin Street and Frazier Place at the University Arboretum. A new transmitter there is operated by remote control from Radio Hall. In 1973, the license was transferred to the Regents of the University of Wisconsin.

Later that year, new studios were completed in the seven-story Vilas Communications Hall on the campus. This houses the offices and AM/FM studios, replacing Radio Hall. In 1989, WHA began low-power (51-watt) night operation.



The WREN transmitter at Tonganoxie, Kansas, back in 1932, displayed a gigantic wren on the front stoop. (Courtesy Jan D. Lowry, California)

Today, WHA is Wisconsin's oldest continuously licensed AM broadcaster. It operates on 970 kHz with 5 kW. The NPR and PRI affiliate is non-commercial and runs an educational/talk/news format. Offices and studios are at 821 University Ave., Madison, Wisconsin. There are those who feel that WHA is entitled to wear the mantle of being the world's earliest broadcasting station.

Our thanks to Broadcast Pro-File for allowing us to excerpt some highlights from their lengthy and detailed research report on the history of WHA. BP-F is a commercial research service that, for a reasonable fee, can provide detailed histories of all American AM/FM/TV broadcasters, past and present. A complete catalog is available for \$1. For more information, write to: Jan D. Lowry, Broadcast Pro-File, 28243 Royal Road, Castaic, CA 91384-3028.

"Today, WHA is Wisconsin's oldest continuously licensed AM broadcaster."

Taking A Call Sign Literally

As you know, some broadcast station call letters incorporate certain corporate or network initials, or spell out words. Stations may request specific call letters and, if the requested call letters are available to broadcast stations and aren't already assigned to another station, the

FCC will often look with favor towards honoring the request.

Stations have long known that a catchy call sign is easy for the public to remember, and helps to give their station a desired image. How long have they known this? Jan Lowry passed along a wonderful photo of the original WREN transmitter building at Tonganoxie, Kansas, when the station first started broadcasting from Lawrence, Kansas, on 1220 kHz with 1 kW back in June of 1932.

Notice the humongous cement wren statue placed on the front stoop, which looks like a bird house! Now that's taking fullest advantage of a call sign, wouldn't you agree?

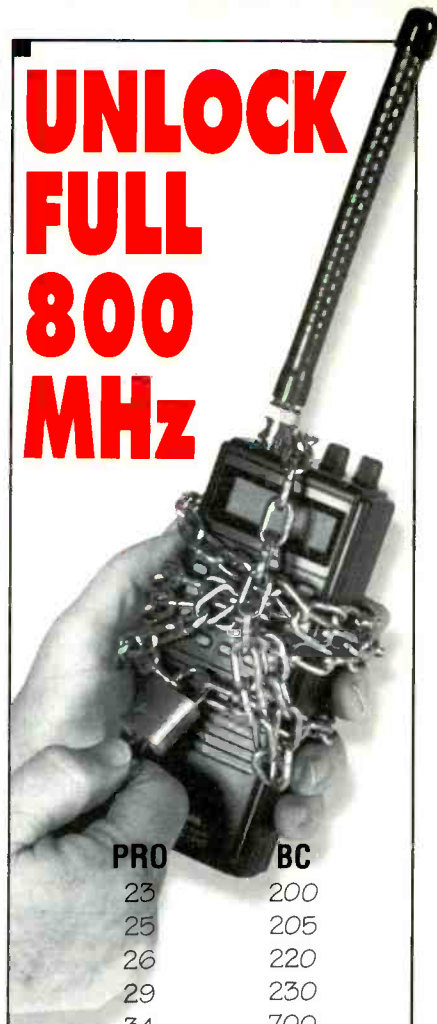
WREN shifted to 1250 kHz in 1942, then moved to Topeka soon after World War II. At Topeka, WREN increased its power to 5 kW. This was a station that shared hours on the frequency with KFKU in Lawrence, Kans. throughout its existence, which lasted into the 1980s.

Let's Hear From You!

We are always looking for old time radio and wireless photos, QSLs (originals or good copies), picture postcards, news clippings, station listings, personal memories, and what-have-you. If you have or find anything that might be of interest to us here at *Pop'Comm*, send it to us at *Popular Communications* magazine, 76 North Broadway, Hicksville, NY 11801.

Best wishes for the Holidays! See you on the road to Radioville. ■

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The Radio Connection

BY PETER J. BERTINI

A LOOK BEHIND THE DIALS

The Fine Art of Radio Restoration

We left off last month talking about tackling the restoration of a Hallicrafter's S38 SW receiver, and a simple AC/DC Emerson bakelite kitchen radio from the late 1940s. I could wrap this column up and retire from writing by telling you to chop out all of the old capacitors and resistors, and replace them with new parts with like values. And, oh, while you're at it, order a new set of tubes and change them, too. A few "before" and "after" pictures of the sets would round off the column!

Since Harold, our editor, is a difficult taskmaster. My marching orders are to deliver a column that is interesting, entertaining and at the same time, educational. At first, I thought this would be an easy task. I feared I would exhaust the subject in a few short columns. But that would be an assumption on my part that all of you are experienced radio technicians! This month's column was going to deal with some safety issues—AC line cord replacements and replacements for capacitors that are subjected to AC line potentials. I could quickly show you "How," but I would rather take the time and also show you "Why." This will take some talk about basic radio theory, and it will involve some simple math. We will also cover test equipment and soldering techniques. It will be a long road to travel, but when the journey is done, you will know what every part in a radio is for, how the circuits work, how to align the radio and what all those knobs on more advanced sets do.

Old Tubes Never Die—They Just Fade Away

Most folks hold the notion that dad's (or mom's) old radio only needs a "NEW TUBE" to bring it back to life. Whatever the problem, simply finding a "NEW TUBE" for the radio will magically fix all that ails it.

I rarely find dead tubes in old radios. Yes, tubes do age as they are used, and with aging a radio tube will show a grad-

ual loss of emission. And yes, eventually a tube will fail and cease to work at any level. But, in most radio circuits, a loss of tube emission is compensated to some degree by the use of cathode biasing. Don't fret if I am getting too technical here, we will discuss how tubes work in future columns.

Tubes and Tube Testers

If you have a few graying hairs, like me, you might recall those large tube testers that were fixtures in drugstores during the early 1960s when tubes reigned king in television sets. (Some folks actually collect those old testers, but that's another story . . .)

Folks back then were a self-reliant sort, and after paying a repairman to come and change a tube, they soon got the notion that they could save a bundle—IF they had a way to test and change their own TV and radio tubes. Enter the drugstore tube tester! Dad would bravely remove the back cover from the TV, remove of the tubes, pack'em in a paper bag, and drive off to the nearest drugstore.

Alas, most of these testers were akin to snake-oil medicine! Sporting large multicolored meters and neon lamps for showing leakages, they were quick to fail any tube with the slightest problem. Poor dad usually came back home with several new (and mostly not needed) tubes and a much thinner wallet. If dad was lucky, a guilty tube was found, and he was an instant hero!

Most of the common vintage tubes are still plentiful and very reasonably priced—when the need arises to change a tube. But tubes are like a natural resource—most aren't being made anymore, and when the stockpiles are depleted, they will become very dear and very expensive. The nice thing about tubes (with a few rare exceptions, some vintage transmitting tubes use filaments that require special treatment before full filament voltage can be applied) is that they keep well in storage.

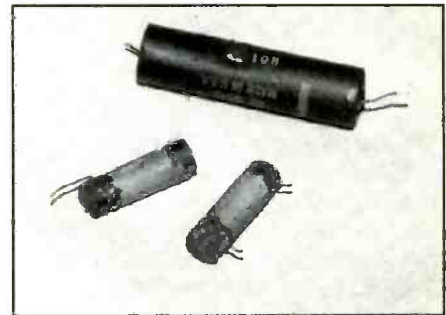
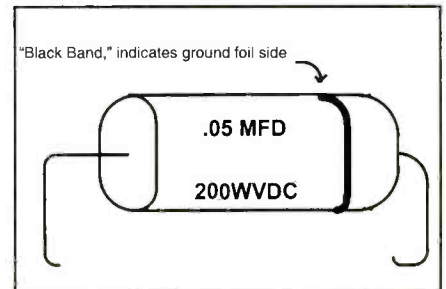


Photo A: Early wax paper capacitor. The cardboard tube housing usually has the capacitance value and working voltage printed on it. Sometimes, with age, the wax coating will become opaque. Scraping the wax away with a small penknife will reveal the markings. The photo shows a few early wax capacitors clipped from a 1930s American Bosch chassis. Note the larger fellow is an electrolytic capacitor. In this case the white band signifies the positive lead.

Yes, I own and use a high-quality mutual conductance tube tester, but mostly I rely on how well a tube performs in the set to gauge its merit. Even a tube that passes with flying colors may have loose elements, and be microphonic—this is something a tube tester will not show. We will discuss sources for tubes and how tube testers work in future columns.

"Well, Pete, if it isn't a bad tube, why doesn't my old set play?" Chances are the culprit will be one or more bad capacitors. Early sets used lots of "wax-capacitors." They were cheap, and reliable based on the designed working life for a radio. Remember, few radio manufacturers envisioned that their radios would be used for more than a few years, and cer-

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Photo B: Typical vintage electrolytic capacitors, circa 1930s, usually rated at 8 mFd and 450 volts. The round metal can styles either had a large mounting nut for attaching to the chassis, or were held in place with special clamping hardware. One example has an isolated can, the negative and positive leads were brought out with cloth-covered wires. The other style used a large solder lug for making the positive connection.

Some power supply arrangements required the negative side of the capacitor to "float" above ground -- you may find insulating paper used between the clamp and capacitor body in those instances.

The rectangular fellow is a 4 mFd paper capacitor housed in a metal can. It dates from the 1920s and was used in battery-powered sets.

tainly never imagined that they would still be playing away 60 years later! **Photo A** shows a drawing and selection of early wax-paper capacitors.

And, those vintage electrolytic capacitors shown in **Photo B** have a finite life. Few work properly after 30 or 40 years!

Wax capacitors were made from two long strips of aluminum foil, insulated from each other by a strip of waxed paper. This was then rolled into a tubular shape and the leads were attached. The size of the foil surfaces (area in square inches) and the properties of the insulating material (called a "dielectric") determine the amount of capacitance. A larger capacitance required more foil than a smaller one, thus a larger value capacitor is physically larger than one with less capacitance. A capacitor designed to withstand a high DC voltage required thicker insulating paper, and thus is larger in size than another capacitor of the same value that has a lower voltage rating. The foils and paper were "rolled" into a compact cylinder, and the leads attached. The assembly was then placed into a cardboard tube, and

was impregnated with wax. Over the span of many years this wax dries out and cracks, allowing moisture to enter into the insulating paper separating the foils. These old capacitors usually have a fair amount of "leakage," or loss of insulating ability. They are also very prone to mechanical failure, either opening (loss of all capacitance) or becoming a short circuit if subjected to a high enough voltage to breakdown the insulating paper. Modern capacitors are made with plastic dielectrics that are not only moisture-proof, but also are often "self-healing" when punctured by high voltages.

A bad capacitor can cause many problems in a set besides making it appear dead. A bad capacitor can cause symptoms ranging from loss of sensitivity (open screen or cathode bypass), audio distortion or destruction of the audio tube (plate to grid capacitor that has high leakage), or instabilities (a bad bypass capacitor). Other strange things can occur if a power line bypass capacitor should open.

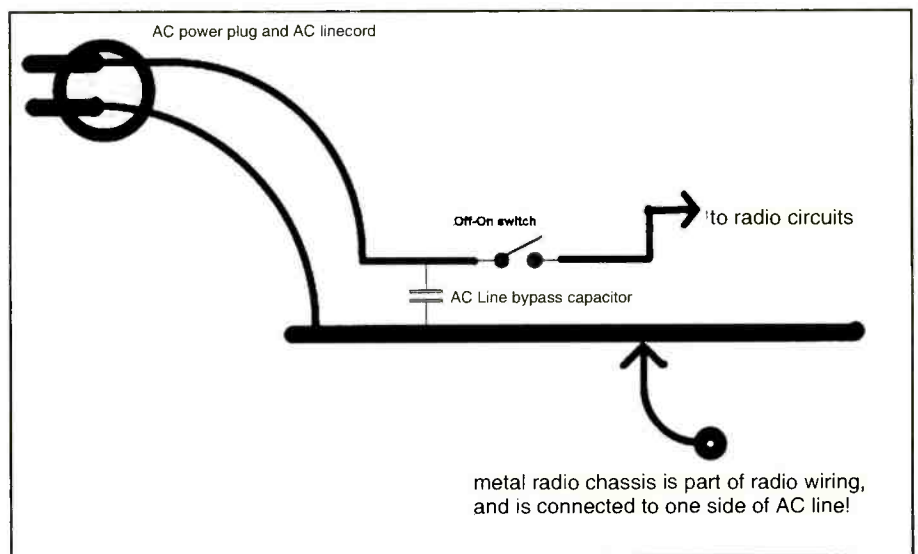
Tunable and Non-Tunable Hum

Filter capacitors have a limited life span. As they age, their capacity can slowly decrease until the radio develops a noticeable or very loud hum. The hum is always there, whether we have the dial set to a station or a quiet portion of the band. But, there can be other reasons for hum to appear on radio signals.

Jumping ahead a bit, most transformer-powered sets have capacitors from both sides of the AC line to the radio chassis. If these capacitors are not in place, a radio might have a strong AC hum on some stations, but no hum on other parts of the dial! This is because the AC line acts like part of the antenna system (part of the ground system) and without the capacitor (which pass RF, or radio energy) the AC line frequency can modulate the radio signals the set is trying to receive. Sometimes AC/DC radios used a "floating ground"—a common ground point that is not directly connected to the metal chassis. A coupling capacitor is used between the floating ground point and the metal chassis, which makes the chassis look as if it is at ground potential for RF signals. If that capacitor shorts the radio chassis could become "hot" with AC voltage!

The common "theme" here is that we are dealing with capacitors that are exposed to raw AC line voltages. These capacitors require extra special attention when we restore the chassis. The reasons will be discussed further in this column when we talk about RMS voltages in more detail next time.

I often see vintage radios being offered as "restored." A "restored" set maybe nothing more than a set that by some miracle still plays without apparent problems, or a set that has had only the filter capacitors changed! A full restoration usually involves changing all capacitors, and at least testing all of the resistors to see how far they have shifted from their



Drawing 1: A look at how the AC line voltage feeds a typical AD/DC small kitchen radio. One side of the AC line is connected directly to the chassis. Whether the chassis is live with AC voltage depends on how the plug was inserted into the power socket. Note that the AC line bypass capacitor is subject to the full AC line voltage.



Photo C: Here are some more modern electrolytic filter capacitors. While the early capacitors shown in Photo B usually held only one capacitor per container - the more modern capacitors shown in the back row can sport up to three or four capacitor sections. These multi-section filter capacitors appeared in the 1940s, and are still in limited production. But, finding the exact values is getting more difficult. These capacitors use special mounting plates which accept the twist-lock mounting taps. The plates are made in metal, or in an insulating phenolic for floating grounds.

The front row shows some current-production axial and radial lead imported capacitors. Don't be fooled by the small sizes. Some of those little ones are rated at 450 volts and 33 mFd!

original values. If they are far off the mark, or discolored from heat, they should be replaced.

Let's talk a bit about polarized and non-polarized capacitors. Non-polarized capacitors generally are used for bypassing and coupling duties in a radio set. A non-polarized capacitor means that the capacitor may have either DC or AC voltages applied across it without harm. Filter capacitors are usually polarized devices; you must observe the proper voltage polarity when installing these fellows, or they will be destroyed. The reason these capacitors are polarized is because they rely on a chemical reaction to the applied voltages to properly "form" the insulating layer (dielectric) between the capacitor plates. The dielectric is a special chemical paste applied to the aluminum foil strips. This chemically-produced dielectric is much thinner than if some other material for the dielectric was used, such as paper or plastics. While electrolytic capacitors are normally used for power supply filtering, regular non-polarized capacitors could be used as well. But, polarized filter capacitors pack much more capacitance into a smaller package than




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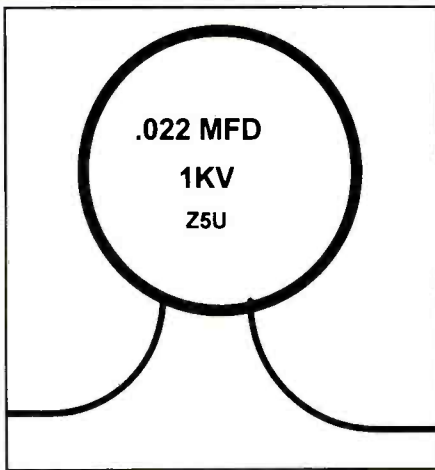
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Drawing 2: Disc ceramic capacitors were used in early sets, but most are found in higher end models starting in the '50s. They are far more reliable than earlier wax paper capacitors. The cryptic "Z5U" marking indicates the temperature stability rating for the capacitor. The voltage rating and temperature code may note appear on all disc capacitors.

other types of capacitors. The comparisons shown in **Photo C** illustrate this point. Electrolytic capacitors offer a large size and cost savings for a given voltage and capacitance rating. Electrolytic capacitors are also less expensive. While a 4-mfd 400 Vdc mylar capacitor would cost you several dollars, a 4-mfd 400 Vdc electrolytic sells for well under a dollar.

The subject of filter capacitor replacements will be covered when we get into how power supplies work and when we deal with different model radios down the road. But, a few guidelines are in order in case some readers get ahead of me in restoring a radio. The general rule for replacing non-polarized capacitors, such as those wax-paper beasts, is to use the highest voltage capacitor you can find, at least equal to highest DC voltage found in a set. There are a few sound technical reasons for this, which I will explain in greater detail when we discuss power supplies and how tubes work. Another reason for this is simply based on esthetics. Tube radio chassis's are large and roomy, and the parts are large by today's standards. It just wouldn't look right to replace a large .22 MFD 50 volt wax capacitor with a minuscule modern equivalent. But, this rule doesn't apply to polarized electrolytic capacitors! They must be operated near their stated voltage ratings for the dielectric insulation to properly form. Using a 500 Vdc electrolytic in a 160 volt circuit is a bad practice. On the other

hand, if the rectifier tube "warms up" before the rest of the tubes in a radio, the DC voltage may be unusually high until the remaining tubes start to draw current. Most sets allow at least a 20 or 30 percent safety rating on the filter cap voltages. For instance, if the sets' power supply is rated at 350 volts, the filter caps might have a 400 or 450 volt rating.

One other really bad practice I see all too often is where a repairman has replaced bad electrolytic capacitors by simply bridging new ones across the old ones (in parallel.) You might get away with this 99 percent of the time, but eventually you will have an old dead electrolytic short and cause considerable damage to the set. It's sad, but some of those early radio repairmen were real hacks. When an electrolytic shorts, it will set off a chain reaction. First, the rectifier tube will overload and begin arcing; it will be damaged, and may even "dead" short if the filament opens and hits the tube plate(s)! If the set is transformer-powered, the transformer will soon overheat and probably burn out. Alas, most of these early radios were not fused! In later columns we will learn how to how to fuse a radio chassis. New power transformers are still being made, but they are very expensive.

My drawing shows the typical markings found on a wax paper capacitor. That cryptic marking showing ".05 MFD" is the capacitance rating of the capacitor, or in this case it shows us that it is a .05 microfarad capacitor. That "200 WVDC" marking means the capacitor is designed for a working voltage of no more than 200 volts of DC voltage. Oops. I almost forgot to mention what the black band indicated on these early capacitors. One of the foils that make up the capacitor plates will be on the "outside" when the capacitor is wound into a cylinder. It was felt that the wire lead attached to this end of the capacitor should either go to ground for bypass applications, or to the lowest "impedance" point of the circuit if used for interstage coupling. The reasoning was that the foil would act like a shield, preventing unwanted stray signal pickup from adjacent AC or RF signals in the set. This band is still used on some newer capacitors, but most likely it will be missing.

RMS voltage

Using capacitors wisely in power supplies, or across AC circuits requires a basic understanding of RMS, or "Root

Mean Squared" voltages. If you measured your AC line voltage with a simple VOM (volt-ohm-meter), you would probably see a reading of 115 to 125 volts AC. AC voltages constantly change polarity; 60 times a second is standard for most of the United States. What you probably don't realize is that your test meter is designed to measure the RMS voltage in AC circuits, and most meters are also designed to work properly only with a pure sinewave voltage.

If your line voltage measures 125 Vac, the peak voltage on your AC line is nearly 177 volts—the peak voltage at the crest of the sinewave! But, why do we use RMS voltage readings? RMS voltage readings allow us to calculate the true work (power) an AC voltage source can deliver—RMS voltage values allow the use of Ohms Law, and formulas for determining wattages, etc., to be directly applied. Fortunately, our power companies deliver an AC voltage that is a pure sinewave to our homes. We can calculate the peak voltage by simply multiplying the RMS voltage reading shown on our meter by 1.414. To deal with measuring complex waveforms, we would have to resort to calculations involving integral calculus or use very costly AC laboratory-grade meters intended for that purpose.

Think of AC voltage readings as being an "average" reading of the voltage. For example, a voltage of 12 Volts RMS or 12 Vdc connected to a resistor would produce the same amount of heat output.

Disc Ceramic Capacitors

Some manufacturers used disc ceramic capacitors; a typical example is shown in **Drawing 2**. Disc ceramic capacitors are generally more reliable than their wax-paper cousins, and often work better in many RF circuits. The dielectric in these fellows is a thin ceramic wafer that resists absorbing moisture. Unless the capacitor is known to be bad, or shows signs of physical abuse, I usually don't bother changing them. Disc capacitors were commonly used in communications receivers, ham radios, and CB sets.

I think we have enough knowledge in hand to begin working on the Emerson kitchen table radio in our next Radio Connection column. Next month we will put to practice some of what we have learned so far. I could go on for several more columns just discussing capacitors; but I will pick up this subject again as needed. ■

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Battery Voltage displays current operating battery voltage. Digital Coded Squelch (DCS) silently monitors busy channels. Auto Range Transpond System™ (ARTS™) uses DCS to allow two radios to track one another. And, the FT-50R is ADMS-1C Windows™ PC programming compatible, too. To round out the FT-50R, it has four battery savers, and super loud audio—remarkable in an HT this size.

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Product Parade

REVIEW OF NEW, INTERESTING AND USEFUL PRODUCTS

Carrying Case for Drake's SW8 Receiver

The R.L. Drake Company, which makes the SW8 portable worldband communications receiver now makes a woven nylon carrying case for the radio. It enables the user to take it wherever they go, protecting the receiver from scratches or other damage that may occur from normal use. The case includes an adjustable strap and closes with a Velcro flap.



It can be purchased factory-direct for \$49 by calling 1-800-9DRAKE4 or through a Drake authorized radio dealer. Dealer prices may vary. For additional information, contact the R.L. Drake Company, P.O. Box 3006, Miamisburg, OH 45343 or phone 513-866-2421 or <<http://www.rldrake.com/>>.

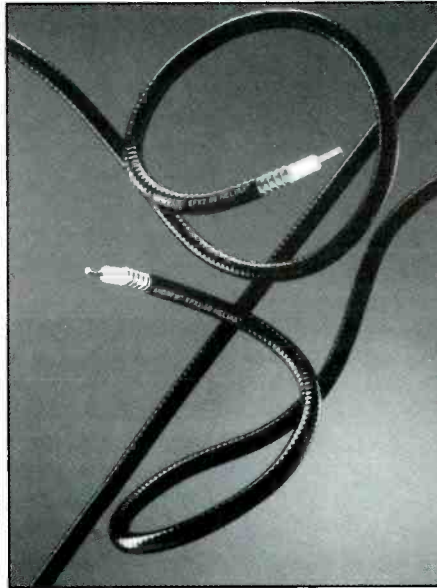
Andrew Corporation's New Coax

Andrew Corporation has announced the availability of ExtraFlexible LDF (EFX2-50), a new foam dielectric coaxial cable. According to Andrew Corp., at 894 MHz, the cable has an attenuation of 3.48 dB/100 ft. A full line of connector interfaces is currently available.

For more information, contact the Andrew Customer Support Center at telephone number 1-800-255-1479, ext. 164 and request Bulletin 3761.

Firestik 2-Meter Mobile Antenna

Firestik Antenna Company recently reintroduced their 2-meter mobile antenna, the 2MP-4. Constructed of a 3/8-inch fiberglass core, each of the 48-inch antennas are individually hand-wound with



double-insulated wire before receiving a black, red, white or blue outer covering. The omnidirectional antenna is configured as a 5/8 wave in order to maintain a low angle of radiation.

Firestik Antenna Company, known for its line of CB antennas, has manufactured communications products for more than 30 years. For more information on their 2-meter antenna and other products, write to them at 2614 East Adams Street, Phoenix, AZ 85034 or call 602-273-1836 or e-mail to <firestik@primenet.com>.

New Hamtronics WWV Broadcast Receiver

Ever wish you had an HF receiver so you could listen to WWV? If you're interested in tuning WWV to calibrate a clock or signal generator, Hamtronics, Inc. has developed a new low-cost dedicated receiver just for listening to the 10 MHz WWV broadcasts.



The new model RWWV is a sensitive and selective AM superhet receiver pcb module, crystal-controlled on 10 MHz. The receiver is pre-assembled and is also available in kit form. According to Hamtronics, it "makes a fun project, even for beginners." It operates on a 9 to 12 Vdc power supply or a 9 volt battery (not included). It has a 50 ohm input to allow connection to any type of HF antenna. The receiver has a speaker amplifier and a squelch circuit to mute the audio if the signal fades into the noise.

The new fully assembled RWWV receiver includes a detailed instruction manual and is available for \$129 from Hamtronics, Inc., 65-P Moul Road, Hilton, NY 14468-9535 or by calling 716-392-9430. It is housed in a cabinet with speaker and includes the AC power supply. The kit (with speaker and cabinet and power supply) costs \$89 or just the pc board module is \$59. The company will also send you a complete catalog which includes all of their equipment, including repeaters, transmitters, receivers, transmitting and receiving converters, preamps, and data modems. Be sure to let them know you read about it in *Pop'Comm!*

New Low-Profile Power Supplies from Tripp Lite

Tripp Lite's new TL Series of DC power supplies are designed to match all popular two-way radios on the market and work as an integrated base station installation. The TL Series lineup includes two 11 amp models, the standard TL 11 model and the TLC 11 which features a metal enclosure designed to house and protect the radio. These new models bring the total of available DC power supplies in Tripp Lite's line to 20.

Both TL Series power supplies are housed in compact, dark metal cabinets that harmonize with modern communications equipment, according to the company. A radio installed in the TLC 11 gives an integrated, professional appearance to any radio console.

Designed to power any type of 12 Vdc equipment, the TL Series combine all the standard features of Tripp Lite's PR Ser-



ies DC Power Supplies, including automatic overcurrent protection and full line isolation. The power supplies start at a suggested retail price of \$85. For more information, contact Tripp Lite at 312-644-6505 or e-mail them at <info%triplite@mcimail.com>.

New Dual-Band Mag Mount Antenna from MFJ

A new amateur antenna, the MFJ-1729 Super Gain, that offers 6.3 dB on 440 MHz and 2.6 dB on 2 meters, is now available from MFJ. The cellular-looking black stainless steel whip screws onto a black base which has a protective outer pad to prevent scratching your automobile. The antenna, which retails for \$29.95 includes 12 feet of coax with PL-259 coax connector, and a free BNC handheld adapter. It handles 300 watts PEP. For more information, contact MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762 or call 601-323-5869 for more information.

New Technology Allows Two Modems to Share Communication Line

An innovative switch that allows two modems to share the same communication line has been developed by Texas Engineering Experiment Station researchers. The novel switch can maintain connection with one modem line, or RS232 line, while monitoring a second high-priority modem line. This communication line can be connected to a data logger or any other RS232 communication port that uses a modem in a similar manner. TEES, a state research agency, is a member of the Texas A&M University System.

When an incoming call is detected on the second modem line, the device will automatically switch to the second modem and stay connected to the second line until the incoming call is no longer detected. It will then return to the first

communication line and resume normal operation until another call is detected on the second line.

Current technology like automatic serial switches will not allow switching from one modem, usually called the local connection, to another while the first connection is active. This technology is more useful than previous methods of collecting data from a data logger because it can make data accessible by more than one party. For example, doing spot polls won't require a person at a remote site to manually switch between two modems. For more information on licensing this invention, refer to TAMUS 769 and contact Lois Mercatoris, Technology Licensing Office, The Texas A&M University System, College Station, TX 77843 or call 409-847-8682.

DSP Blaster

Brian Beezley, K6STI, announces the availability of DSP Blaster, "the first PC software for real-time, DSP filtering of audio signals from radio receivers." DSP Blaster uses your PC's sound card, optimized DSP algorithms, and 100 percent assembly language to functionally replace DSP filters implemented in hardware. DSP Blaster is intended for routine, daily use by amateur radio operators at HF and above.

The product provides a variety of high-quality SSB, CW and DATA filters for transceivers that lack accessory IF filters. The DSP Blaster provides adaptive noise reduction and automatic notch filtering for inexpensive or older transceivers without built-in DSP hardware. It provides spectral and waveform displays for use with any transceiver and it draws a system block diagram—simply click your mouse on a filter block to turn it on or off. Pass the mouse over a block to inspect or modify filter properties.

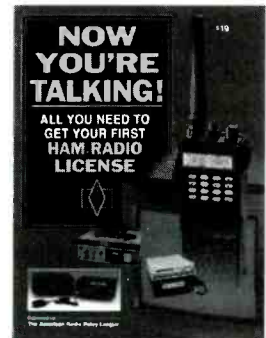
You can select among three different audio sources with a mouse click. In addition, the DSP Blaster software license permits an amateur to install the software on each of his or her computer systems, lowering the cost of DSP for multiple radios, operating positions, or locations.

The DSP Blaster sells for \$100, plus \$5 for overseas. Brian accepts Visa, MasterCard, Discover, U.S. checks, cash and money orders. You can e-mail your order to <k6sti@n2.net>. For more information contact Brian Beezley, K6STI, 3532 Linda Vista Drive, San Marcos, CA 92069 or call 619-599-4962. ■

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INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

Scanning and Railroads

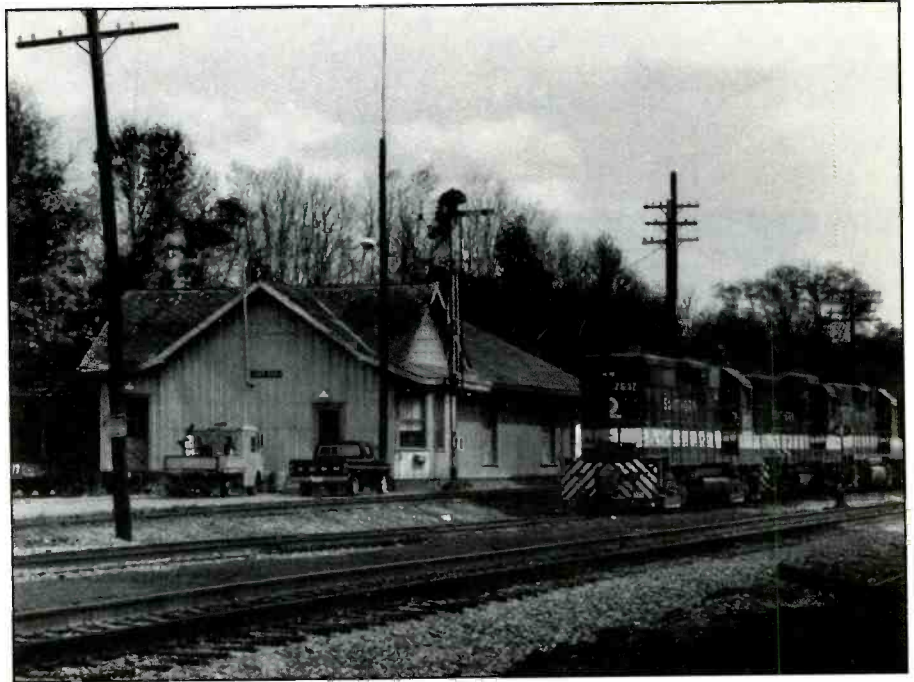
When most people think of a scanner, they think about monitoring the police, the local fire department, or airplanes. There is considerably more on the scanner band than fire, police, and aircraft. If you've never listened to the railroad covering your area or your local transit system, you are missing some of the most interesting, and sometimes the most exciting systems on the scanner.

People who follow and track trains, often taking pictures and listening to the radio excitement, are known as "railfans". These train people often combine three or four hobbies into one. Railfans not only are devoted train watchers and scanner listeners, but many are also involved in photographing trains. They also use ham radio transceivers, GMRS, or CB to communicate with each other in their hobby of train chasing.

When you combine the ability to communicate with the hobby of train watching, you can become very proficient in the hobby. Train watching and photography can also be a very rewarding hobby because of the variety of magazines devoted to railroading that buy pictures and articles from railfans. Of course, nothing can compare to actually taking a train trip and having your scanner along to keep up with everything!

"There is considerably more on the scanner band than fire, police, and aircraft."

There are generally three ways to integrate your scanner into this hobby for more enjoyment. You can monitor the rail frequencies in your area and quickly learn about train locations and train dispatching. Those close to a major switching yard can often take their portable scanner to an easy-to-reach observation location, and have the enjoyment of seeing the action. And, last but certainly not least, you can use your scanner to assist you in catching the action on film or video for your own



Some railroads, such as Norfolk Southern use their own channel for ETM broadcasts.

collection or for sale. Railroad video is a big business, and it takes a modern scanner or transceiver to track and capture the action. If you happen to be good with your camera, you can often do well at making money with your photo or video shots.

Special Trains

Serious train watchers look for more than just a passing freight train or the Amtrak passenger train. Special trains and private passenger cars are considered quite a catch if you are in the right spot at the right time. Listening to the railroad police can also be as exciting as monitoring the local police and sheriff if there is a special operation in progress. Many of you might remember seeing the news articles about the bomb that derailed the train in Arizona a few years back.

Special railroad police operations also make the headlines. Not too long ago, railroad police made many arrests watching for car thieves who would strip cars

as Arizona trains would stop for signals in the desert night.

Tracking the Action

Where do you find the action? The railroads normally carry out the majority of their operations on the VHF scanner band. Railroads operate on 91 assigned frequencies between 160.215 and 161.565 MHz. Of course, there are some other frequencies and services that are used by the railroads, but most of the actual train action is in the frequency range that I mentioned.

What will you find in this band? Railroad radio can be a combination of many things. Many local freight yards have their own movement channel. This is a simplex channel where the engineers communicate directly with the folks doing the coupling and with each other. Most yards also have a control tower, so they are on the channel directing and acknowledging switch openings and

(Photos Courtesy William Mauldin Productions, Inc.)

"... nothing can compare to actually taking a train trip and having your scanner along to keep up with everything!"

closings. Trains, like airplanes, are dispatched and controlled by a dispatcher. Normally, the dispatcher is located in a central dispatch center or CDC. He sits at a computer and communications console. From his position, he can normally see a display on the location of each train and its relation to other trains on the track system. Remote receiver and transmitter sites allow excellent communications with the trains as they move through the assigned area of the dispatcher. Most dispatcher radio systems use one VHF frequency to talk to the train, and listen on the "train to dispatcher" channel. This is not a repeater system. It is a duplex system. Normally, you will not hear the train unless it is close to you. When the dispatcher activates his transmitter, he normally activates all transmitters on the circuit. You can often hear instructions being given to trains many miles away.

The next radio system that can often be



You can monitor the rail frequencies in your area and quickly learn about train locations and train dispatching.

monitored is call PBX. This is a system that might be considered a "radio-telephone" system. PBX systems are used very much like telephones—both sides of

the conversation can often be heard. These are used for emergencies and other railroad business. PBX systems were very active back in the 1980s, however,



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THE MONITORING MAGAZINE

December 1996 / POPULAR COMMUNICATIONS / 21



For some really interesting, and sometimes exciting scanning, try listening in to Amtrak or other local train systems' transmissions.

with the wide coverage of cellular telephones today, they seem to be used less and less. As you scan and search the rail frequencies, if you encounter a transmission that sounds like a telephone conversation relating to trains, emergencies, or just general railroad business, you have found the PBX channel for your area.

As trains move from one yard to another, they are on the "road", using the "main line". There is normally a "road" frequency used by each railroad. This is a simple channel that allows one train to talk directly to another with limited range. Dispatchers also have remote receivers that monitor the road channel and often times they also have a transmitter on that frequency. This is normally considered the action frequency of the railroad. When a train is on the "main line", it is on the high speed, enroute track that is used for traffic. All other tracks are considered side tracks. When a train is on the "main line", it is normally moving under a clearance with time restrictions and priorities. As you might expect, passenger trains have priority over freight trains when it comes to "main line" track use.

In addition to the trains and the dispatcher, there are other things that are also found on the "road" frequency. As you might imagine, when a long freight or passenger train is moving, there is a need for the engineer to know if there are any problems with the cars traveling behind him. Many railroads have installed small computer-equipped buildings along the

tracks. These buildings have equipment to monitor sensors in the tracks. As the train passes the sensor on the main line, the computer checks for dragging wheels and "hot boxes" as the wheels whiz pass the sensors. If a defect is detected, the computer counts the wheels, and makes a calculation. A programmed computer activated voice is used to notify the engineer to stop the train when a problem is detected. Some of the more advanced systems send the information in data bursts or information alerts to both the dispatcher and engineer. These sites are known as "defect detectors". When a train passes, the detectors will broadcast a message to the train and dispatcher such as "CSX Railroad West Palm Beach defect detector—no defects". These transmissions are low power and can not be heard for more than a couple of miles, but it is enough to let you know that a train is close if you are monitoring a road frequency close to a defect detector site. Sites are spaced about 15 to 20 miles apart. If riding a train with a scanner, this also helps you to keep track of your location.

As the little red caboose is dropped from service, the railroads are using rear-end train devices to tell the engineer if there is a problem in air brake pressures or other mechanical problems that can be programmed into the system. These small electronic devices transmit a data stream to the cab computer about every minute or less. Most rear-end train monitors (ETM) are mounted on the coupler of the

last car on the train and are attached to the brake hose for pressure monitoring. Even when the train is sitting, the ETM is sending data to the engine. Most ETM systems broadcast on 457.9375 MHz, however, some railroads such as Norfolk Southern use their own channel. Norfolk Southern uses 161.115 MHz with about five watts output. The 457.9375 MHz ETM units normally broadcast with about two watts. These systems can be heard for about five miles, depending on conditions.

Most large railroads have their own police department. Railroad police have a long history, going back as far as the Texas Rangers. Rail police in the early days in Texas were considered Special Texas Rangers with wide-ranging powers of investigation and arrest.

Most railroad police have their own channel for communicating matters related to law enforcement. However, they can transmit on all frequencies assigned to the rail system.

What You Need

There are several things that you can get to improve your monitoring ability. First, you need to find a good frequency directory. A directory devoted to just railroad communications is even better. One of the best out today is *The Compendium of American Railroad Frequencies*, 12th Edition. Information on this book can be obtained by writing to P.O. Box 1612, Waukesha, Wisconsin 53187. You also need a good map. Maps that show local railroads in detail are also a must. One of the best is the DeLorme Mapping Company Gazetteer series. A good computer map is DeLorme Map Expert. These excellent maps are available at local mapping book stores or by calling DeLorme at 1-800-227-1656. And, of course, you need a good mobile or handheld scanner that covers the railroad frequencies mentioned earlier.

One word of warning. Due to liability risks and possible criminal activity, most railroads do not take kindly to railfans on railroad property. If you do decide you are seriously interested in getting some close up photos during your monitoring event, a call to the local railroad office might keep you from getting in the wrong place at the wrong time. There are many observation sites that offer excellent views without violating the property rights of the railroad. Use common sense and enjoy this exciting aspect of radio communications monitoring. ■

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The new Drake SW1. (Courtesy R.L. Drake Company)

When I started out in the shortwave aspect of the hobby, the most popular beginner's level receiver was the RadioShack Realistic DX-150. It covered from 535 kHz through 30 MHz in four bands. It was powered by either standard AC house current or 12 Vdc. Many of the current Grandmasters of the shortwave listening hobby made some of their first loggings on this receiver. Or perhaps they went with one of the other inexpensive receivers of the day such as the Heathkit GR-54, the Lafayette HA-600T, the Hallcrafters S-120, or the Allied A2525. If any of those names brings a tear to your eye, you are like me, one of the hobby's old timers. As an old timer you may, also like me, be lamenting the limited examples of high quality, entry level shortwave equipment to be found today. How can we get our kids interested in radio if we have no receivers they can own and enjoy?

The New SW1

Well one of those grand old names in the radio hobby has decided to step up to the plate with a genuine American-made shortwave receiver. Of course, the company I am referring to is R.L. Drake. This organization is long known for its quality products. A testimony to this is the high resale value that is expected for almost any of their receivers dating all the way back to their R-4 series receivers from the early '60s.

Drake's latest offering is the new SW1 AM Shortwave Receiver. This basic shortwave broadcast receiver harkens back to the days of those great receivers

so many of us old timers used. But it is also loaded with features we could only have dreamed of back then. The SW1 provides continuous AM mode coverage from 100 kHz through 30 MHz. It is a synthesized receiver with microprocessor-controlled tuning. The unit has 32 programmable memories. Tuning is accomplished by either dial, up/down buttons or direct frequency entry keypad. The receiver also has two antenna inputs allowing for use of either a coaxial cable or wire feedline.

This receiver is designed to operate directly at 12 Vdc or 120 Vac with its supplied wall transformer/adaptor. Let's dig a little deeper into the specifications and see how this American made receiver fills the bill for a first receiver.

The physical size of the unit is 10 7/8" wide, 4 3/8" high and 7 5/8" deep. Weight is 4.7 pounds including the AC transformer/adaptor. This unit is light and small enough to fit on any desktop for either casual or serious listening. Two other places I found fun were my car (It fit neatly under my dashboard) and my night stand. The unit's front panel is spartan compared to many higher priced "bell and whistle" ridden receivers. However, don't let this fact be viewed as a shortcoming. Every control you need to enjoy

shortwave broadcast listening is present in a logical sequence. The first thing you will notice is the front panel speaker grill. Unlike many units that put the internal speaker on the side or the top, the SW1 puts its speaker in the direction of your ears. Next to the speaker we find separate RF gain and volume (AF gain) controls. Next comes the 16 button programming and tuning keypad. This is followed by two larger buttons that allow for tuning the unit up and down. Finally there is a large traditional tuning wheel with a finger indentation for quick spinning. To some people, the ability to tune the receiver by three different means may seem like overkill, but I would venture to say that these possibilities, along with the logical control layout, make this an ideal receiver for visually impaired individuals. Above the keypad and tuning controls is a fairly large frequency display.

This display can show up to five, 3/4 inch tall digits displayed in bright green. The digital frequency readout displays out to 30,000 kHz with readout accuracy to the nearest 1 kHz. The display also indicates when AC or DC power is supplied to the receiver and when the units' memory mode is in operation. A 1/8 inch headphone jack is on the left side of the receiver, and will take either stereo or monaural

"Someone with no prior shortwave listening experience could plug this receiver in, hook up a short wire antenna and spend several evenings just tuning through these frequencies discovering the joys of shortwave listening"

earphones, but reception is monaural only. Turning to the back we find a standard 50 ohm SO-239 coaxial cable jack, a terminal strip for wire antenna and earth ground connections. This arrangement allows either coaxial-fed dipoles or traditional longwire antennas to be used. It also allows for easy antenna experimentation. Finally there is a 5.5 mm O.D./2.1mm I.D. power jack with polarity markings to allow either the supplied AC transformer/adaptor or any other 12 Vdc source to be used with this rig. This set up allowed me to quickly wire the unit to a fused automobile accessory plug and take the SW1 along in my car. The unit is finished in a satin black that would look good in most any environment.

Other SW1 Features

The SW1 has the capability of storing up to 32 different frequencies. Since Drake intends this receiver partly for the beginners market, they've taken the time to preprogram these memories with a series of interesting and easy-to-hear shortwave broadcast stations. They also throw in CHU and WWV time signals.

Someone with no prior shortwave listening experience could plug this receiver in, hook up a short wire antenna and spend several evenings just tuning through these frequencies discovering the joys of shortwave listening. Reprogramming the memories to personally desirable frequencies is a simple matter of keypad entry. This is accomplished by way of the Memory Store keypad function. Once programmed, the Memory Recall function gives you access to the stored frequencies once again by either keypad, the tuning buttons or the tuning wheel. I found scanning through the memories quickly using the tuning wheel to be a great way to get a quick look at the evenings programming on my favorite frequencies. This points out other uses for this receiver. Of course it is ideal for the beginning shortwave listener. But it is also a lot of fun for casual listening for even a hardened shortwave veteran. Some night you may not feel like heading down to the shack and turning on one of the "big rigs."

The SW1 can sit at the desk while your doing a little paperwork. It can be in easy reach on an end table in the living room while you're reading this magazine. Or, as I said earlier, it can find itself on the night stand as you end your day. This radio is ideal for casual listening in any setting. During the time I had to study this

receiver, I often set it up in the common areas in my house. It served as a great foil to introduce shortwave listening to several neighbors. You would be surprised at how many people have no idea that broadcasts from other countries can be heard in the English language. So this receiver can also serve as a tool to introduce the uninitiated into the radio hobby.

The specifications list sensitivity at less than 2 microvolts. Selectivity is geared for broadcast program enjoyment at 5.5 kHz typical at -6 dB and less than 12 kHz at -60 dB. The receiver utilizes a

first IF of 45 kHz and a second IF of 455 kHz. Power requirements are 12 Vdc at a nominal 400 milliamps. The folks at Drake have designed this receiver for good armchair listening of worldwide shortwave broadcasters. The audio is pleasant and the audio output of 700 milliwatts is fine for most listening. Deeper digging into a signal is easily accomplished by connecting headphones. Absent from this design is CW and SSB capability, but the folks at R.L. Drake made it clear to me that the design is truly geared toward the shortwave broadcast-



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27.015	1.30	36
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ers who operate almost exclusively in the AM mode. Most beginners to the shortwave hobby find broadcast signals as the best place to start their explorations. Casual and occasional listeners are also most often drawn to shortwave broadcast signals, so the ability to listen to other modes may be lost, but this only further allows the costs to stay within the budget of many first-time buyers.

The SW1 comes with a concise and fairly non-technical user's manual. There is nothing in the brief manual that would scare away a first-time listener. There are even clear and simple instructions that most people would have no trouble following on preparing and connecting antennas. The SW1 comes with a one-year limited warranty. Drake has a long history of service and support for their equipment that remains almost legendary in the radio hobby. I've had occasion to use the Drake Customer Service Center several times in the past and I only have praise for their consistent and timely support.

The list price of \$299 needs to be brought into some perspective. If you have done any recent holiday shopping for home video game systems, a game unit and one or two games can easily push

the \$300 range. To take that nostalgia trip once again, that DX-150 listed for \$119.95 in 1967 dollars. From this point of view, the asking price for the SW1 is probably close to inflation-corrected for a good beginner's receiver (Hey, if I understood money I'd be writing for Forbes).

During its stay in my household, the SW1 became an almost-portable. I found myself taking it around the house with me as I worked or relaxed in different locations. Its small size and light weight made this easy. Most often I simply ran a 30-foot piece of wire from the appropriate antenna terminal and hung it wherever it was convenient. I reprogrammed the memories to pick up many of my favorite shortwave broadcast stations during the times of day I was most going to do my listening. The strong broadcasters that I normally listen to for in-depth news and information came in fine. Being able to move quickly through the memories remains this receiver's best feature. Hooked to my larger outside antennas allowed me to chase a good amount of DX in keeping with the current low sunspot cycle. Still, the most fun I had was mobiling. One of my vehicles is equipped with a good old fashioned 102-inch CB whip. The SW1 made for a lot of fun commutes reminiscent of the

Ten-Tec RX-325. But the best experiment of all was turning my eight-year-old loose with the SW1. Old Dad just gave him a bit of direction on what band segments were likely to yield signals at the time of day or night he was listening. You could almost see the little light going on over his head. He then spent many hours discovering shortwave radio. A receiver such as this makes for a great kid and parent-shared experience. I also showed the receiver to a nearby neighbor who is retired and on a somewhat limited budget.

He found using the receiver a great way to spend some time and he indicated that the low price was attractive. So the SW1 has some appeal for people whose budgets range from paper routes to pensions.

The Drake SW1 receiver is a watershed event in the shortwave radio hobby. At a time when some pundits are trying to convince people that the shortwave hobby is no longer of any interest, Drake has come forward with a radio specifically designed to introduce this fascinating hobby to an entire new generation of radio hobbyists. They should be applauded for both this and the excellent product they have produced. I'm sure the SW1 will turn up on a few holiday present lists this year and in the years to come. ■

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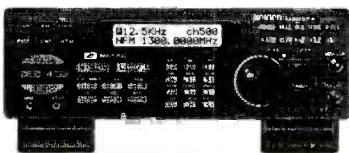
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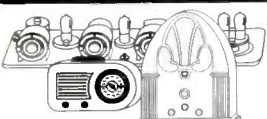
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28 CIRCLE 92 ON READER SERVICE CARD

How I Got Started

Meet Mary-Frances R. Bartels, K1ØDZ, from Denver, Colorado

Popular Communications invites readers to submit in about 150 words how they got started in the communications hobby. Entries should be typewritten, or otherwise easily readable. If possible, your photo (no Polaroids) should be included.

Each month we will select one entry and publish it here. Submit your entry only once; we'll keep it on file. All submissions become the property of *Popular Communications*, and none will be acknowledged or returned. Entries will be selected taking into consideration the story they relate, and if it is especially interesting, unusual or even humorous. We reserve the right to edit all submitted 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 North Broadway, Hicksville, NY 11801-2909, or e-mail to <popularcom@aol.com>. If you e-mail your entry, please let us know if you're sending a photo.

Our December Winner

Congratulations to Mary-Frances R. Bartels, from Denver, Colorado, our winner this month. She says, "In 1976 my father opened the wonderful world of radio to me. I remember him teaching me how to tune his Hammarlund HQ-100. The first stations received were RCI, WWV and HCJB. Years later I actually visited those organizations.

"My favorite QSL card is from W5LFL, the first 'ham in space.'"

While in college in the early '80s I received my radiotelephone operator's license and worked WRMU, the college radio station. I also started collecting QSL cards, doing most SWLing with a



Pictured with Mary-Frances are a Midland Emergency Weathermax CB, which she uses for car-to-car as well as emergency communications, a Sony ICF-2010 portable receiver and the mic to an Alinco DR-610T dual-band mobile transceiver.

Toshiba RT-S651 'boom box.' My favorite QSL card is from W5LFL, the first 'ham in space.'

While serving on the North American Shortwave Association's publishing committee in 1984 I was given a Morse oscillator which started me thinking about expanding my radio horizons. I broke with tradition of not making any New Year's resolutions in 1996 when I set a goal of getting my amateur radio license. I did this in March and went from no-code tech to advanced class in only four and a half months.

"... [I] went from no-code tech to advanced class in only four and a half months"

Popular Communications Reader Survey

December 1996

Our radio hobby includes a vast cross-section of casual and dedicated enthusiasts, from hobbyists who spend most of their free time at the dials, to those who listen only occasionally to high-powered international broadcasters. What are your radio interests? Shortwave, scanning, CB, pirates, or ham radio? Or do you specialize in one specific area of communications monitoring, such as RTTY? In order to give you the radio coverage you want in *Pop'Comm*, we'd like a clearer picture of your monitoring habits.

As this is written, your responses are being compiled from the October issue, and a winner in our random drawing will be announced soon! Like previous months, when answering the questions, circle the appropriate numbers (remember, you can circle more than one number in each category) on our attached Reader Service Card.

Remember, it's your magazine—so take the time today to answer our survey questions and mail the postage-paid card. You'll be automatically entered in our monthly drawing for a free one-year gift subscription (or one-year subscription extension) to *Popular Communications*.

Happy Holidays!

Using our *Reader Service Card*, please circle numbers that apply:

- | | |
|---|-----------|
| 1. I'd like to see more coverage of: | |
| Circle Number | |
| Shortwave broadcasters | 30 |
| Shortwave station frequency
schedules | 31 |
| Shortwave nostalgia | 32 |
| Shortwave propagation | 33 |
| Shortwave utilities | 34 |
| Shortwave pirates | 35 |
| Shortwave DXing | 36 |
| AM/FM pirates | 37 |
| Shortwave antenna construction/
theory | 38 |
| Shortwave clandestines | 39 |
| General scanning VHF/UHF | 40 |
| Scanning public safety | 41 |
| Scanning federal government | 42 |
| Scanning military | 43 |
| Scanning aircraft | 44 |
| Scanner frequencies | 45 |
| Satellites | 46 |
| QSL how-to info, including
station addresses | 47 |
| Construction projects | 48 |
| Product Spotlights/Reviews | 49 |
| Product News | 50 |
| Personal communications, GMRS,
FRS, telephones, beepers | 51 |
| General RTTY/digital comms | 52 |
| Receiver control, software,
computers | 53 |
| AM/FM Broadcast DXing | 54 |
| Ham radio | 55 |
| Citizens band | 56 |
| FCC and industry news | 57 |
| 2. I'd take part in QSL awards/coun-
tries verified contests | 58 |
| 3. I've been reading Popular Commu-
nications: | |
| Less than a year | 59 |
| One to two years | 60 |
| Two to four years | 61 |
| Four to eight years | 62 |
| Eight to 10 years | 63 |
| More than 10 years | 64 |
| 4. During the past three years, please
indicate how many hamfests you've
attended: | |
| One | 166 |
| Two | 167 |
| Three | 168 |
| Four to eight | 169 |
| More than 10 | 170 |
| I go to all local/regional hamfests | 171 |
| I only go to the annual
Dayton Hamvention | 172 |
| I've never been to a hamfest | 173 |

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Broadcast DXing

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

Canada Plans Move of AM and FM Stations to New Band

Canadian radio could be radically different by the turn of the century, thanks to rulings by that country's government to allow AM and FM stations to start digital broadcasting and move to a new broadcast band from 1452 to 1492 MHz.

Some four years in the making, the Digital Radio Broadcasting Allotment Plan is the first phase of a joint effort by the radio industry and the federal government to replace the current analog method of broadcasting with digital. The allocations also set the stage for the eventual migration of all AM and FM stations to the band.

At the heart of the decision to move stations to a new band is the overwhelming acceptance by Canadian broadcasters of Eureka-147, a digital audio broadcast system that's fast becoming the DAB standard throughout the world. Since Eureka's architecture is designed for the L band, it can't be used by stations in the existing AM and FM bands.

The plan has the strong support of Canada's broadcast industry, chiefly because the government adopted nearly all of its recommendations, such as giving existing stations first priority in channel allocations. Canadian radio has fallen on hard times in the last several years, with 52 percent of private stations losing money and industry losses of \$180 million, according to the Canadian Association of Broadcasters. The industry hopes the new technology, with its CD-quality audio and better resistance to reception gremlins like static crashes, will be a shot in the arm.

While going digital also will allow broadcasters to offer lucrative subscription services, such as pay audio, it's the ancillary data channel that may be radio's ticket back to prosperity. With it, broadcasters could offer additional subscription services, such as stock tickers, paging and navigational guidance systems for automobiles. Such applications would require a proliferation of "smart" radios with displays or data ports, or PCs with radio cards. With digital transmitters po-



The CBC's Edmonton, Alberta, facilities. (Courtesy Trevor Fletcher, Edmonton)

tentially running well over \$300,000, broadcasters will be looking to wring every bit of revenue they can out of the new technology.

Broadcasters are betting on the new technology as a means to give radio both a new image and a stake in the digital information age. In a July 1995 report, a coalition of industry and government representatives helping to develop the allotment plan concluded that "the service enhancements and new services afforded by digital radio technology are not only radio's entree to a competitive position on the Information Highway, but may in fact provide the necessary financial support for radio's continued service in many communities." The group also saw data services as an opportunity for broadcasters to lessen their dependence on what it described as "today's insufficient pool of advertising dollars."

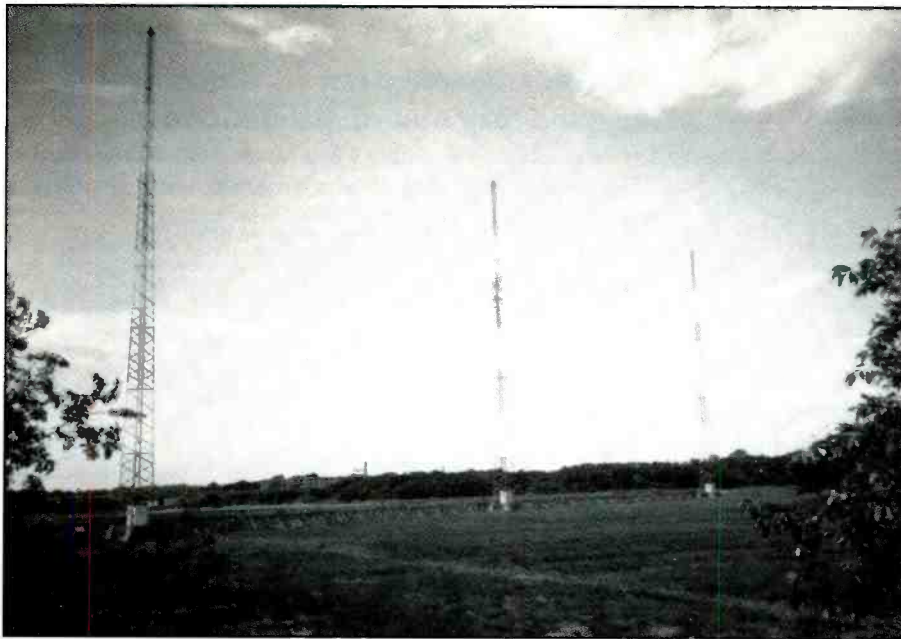
During the 1995 International DAB Conference, Michel Tremblay, President of the Canadian Association of Broadcasters, said DAB "will allow private radio to compete with other digital audio delivery sources, but also to outdistance them by the appeal of its local

programs, and by its capacity to deliver data to mobile radio receivers."

By adopting new technology in a radical break with the past, radio hopes to reinvent itself and offer more than just audio. "If radio does not move to digital technology," Tremblay said, "it will be condemned to the side roads of the Information Highway."

The New Band

Improved audio quality isn't the only difference between the DAB band and AM/FM. The new band is divided into 23, 1.5-MHz channels, spaced 208 kHz apart. Each channel can carry up to five separate audio services, plus ancillary data streams. Since each channel in a market is broadcast from a single transmitter "pod," competing stations potentially could be grouped together on the same transmitter. How the stations are actually grouped will be determined by the individual broadcasters, or they can simply adopt the groupings in the allocation plan. Grouping multiple stations on a single transmitter will also help defray the cost of the new technology, since up to five sta-



Boston's WEZE-AM uses these antennas, located on the banks of the Neponset River, in North Quincy, Mass. (Courtesy an anonymous reader)

tions will share the cost of a transmitter.

The groupings can also affect the coverage of each station. Low-power stations would have their coverage increased when they are grouped with high-power stations in order to keep variations to a minimum. The system can work in reverse, too. AM stations with a wide coverage area will have their range pulled back to that of the highest-powered FM in the market. The wide-reaching AM stations could apply for more coverage, but they would have to persuade the Canadian Radio-television and Telecommunications Commission that the increase wouldn't impinge on stations in neighboring communities.

The law of diminishing returns also will affect coverage, with broadcasters more likely to focus on their core markets before they begin investing in upgrades to reach a smaller number of listeners in outlying areas.

What's Next

The real test for DAB in Canada will come in the next few years. With an allocation plan in place, stations can begin simulcasting in the new band as soon as they are ready. A mass exodus to the DAB band isn't likely anytime soon, however, since the first digital receivers aimed at consumers aren't expected to hit store shelves until late next year. In the meantime, broadcasters and receiver manufacturers will have to scramble to launch a

major drive to educate the public about digital radio, while at the same time attempting to convince other industries to develop products and services that can use the ancillary data channels.

And Canadians needn't throw their AM/FM radios in the trash just yet. There will be a transition period of at least 10 years before AM and FM are phased out. Robert McCaughern, director general of Industry Canada's Spectrum Engineering Branch, said it's expected that AM and FM stations "will continue to be in demand and operate in parallel with digital for several years" until digital receivers become widespread.

Canada's decision to replace AM/FM with the L band isn't likely to prompt a similar switch in the United States. Eureka's L-band-only design has led U.S. broadcasters to endorse a completely different system that is in-band, on-channel, meaning stations can broadcast digitally in the *current bands*. If the U.S. radio industry holds firm on that position, DXers in the United States one day will have to pony up for new receivers in order to tune in Canadian stations.

A Dream Deferred?

While the U.S. has two stations broadcasting in the expanded AM band, Canada hasn't formulated an allocation plan for the 10 new channels from 1605 to 1705 kHz. A number of prospective applicants have shown their interest in us-

ing the band, but no licenses have been issued, and it doesn't appear that any stations are very willing to take the plunge. Officials at the Canadian Radio-television and Telecommunications Commission and Industry Canada told *Pop'Comm* the lack of receivers that can tune above 1610 kHz is an impediment to developing the expanded band. But it's more likely the opening of the L band and the go-ahead for DAB have eliminated the expanded band in the minds of AM broadcasters. "In our view, this represents a more attractive alternative for an AM broadcaster who is seeking to improve the transmission quality of its licensed service," said Wayne Charman, Broadcast Distribution and Technology Director-General for the CRTC.

Coming Not-So-Soon

New York City's WLIB this summer gave listeners a preview of its new nighttime service, but the required powering down of Fort Wayne, Ind.'s WOWO is still several months away. In a highly unusual move, the FCC granted WLIB a special operating authority through Sept. 2 to stay up past its usual bedtime of local sunset in order to cover the Republican and Democratic conventions and the Brooklyn Labor Day Carnival. The two stations shared 1190 kHz until 11 p.m. EST nightly.

WLIB sparked controversy in November 1994 when its parent company, Inner City Broadcasting, bought WOWO in order to power down the 50 kW station at night and start a 30 kW nighttime service for WLIB. A year later, the FCC gave Inner City the go-ahead to cut WOWO's nighttime power to 9.8 kW and expand WLIB to 24-hour service. But in spite of the special operating authority this summer, neither station is closer than several months to making the changes. WOWO must erect antenna towers for a new, directional nighttime antenna pattern that will divert its signal away from the Northeast and WLIB. Between the new pattern and lower power, WOWO's nighttime coverage will be reduced from 28 states to nine, according to WOWO general manager Tony Richards. WLIB also must modify its facilities, including building new antenna towers.

In Brief

Canada's second-oldest radio station has signed off for good. Fredericton, New

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A New Range of Low-Cost Antennas

Scanning Aerials: To improve your reception...

Watson Scanning Aerials have been designed to bring you the very best reception possible. High quality engineering and ergonomic design ensure that Watson Scanning Aerials are the natural replacement for those seeking to extend their receiver's range. All models cover 25MHz-1900MHz and are fitted with BNC connectors.



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AOR AR7030

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AR7030 is the result of a combined project between AOR and a UK designer. The AR7030 represents the very latest and best design, featuring exceptionally strong signal handling and bristling with enhanced features.



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The Professional Scanner 10kHz - 2600MHz*

AOR has advanced the frontiers of performance providing strong signal handling, high sensitivity and the widest coverage on the market. Advanced wideband front end design provides high sensitivity with auto tuning pre-selector from 500kHz to

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- Computer control up/down data load.
- Share your memory banks with a friend, load 1000 memory ch. in seconds.
- Modes: AM/NFM/WFM/USB/LSB/CW
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- Memories: 50ch x 20 banks=1000 total
- Size/Wt.: 6.1" x 2.6" x 1.5" inch. 12.2oz. w/ NiCad



AR8000 Heavy Duty, tough leather carry case. A-300



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LOWE HF150

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The Hugger

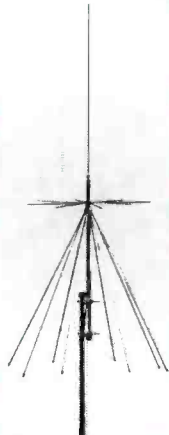
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Complete control of all functions supported by the radio through the standard manufacturer's interface.

SCANCAT allows you to:

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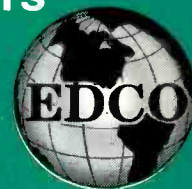
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AL	Lisman	107.7	
AR	Eudora	101.5	
AR	Fayetteville	89.3	1.5 kW
AZ	Mammoth	88.1	1.1 kW
CA	Alturas	106.5	
CA	Hydesville	94.1	
FL	Sebring	91.5	13.5 kW
GA	Folkston	89.3	16 kW
HI	Hilo	90.3	14 kW
IA	Ottumwa	91.1	2.3 kW
IL	Charleston	88.1	2.9 kW
IN	Hartford City	88.1	100 watts
IN	Jasper	91.7	3 kW
IN	Kentland	101.7	
KS	Colby	97.9	
KS	Independence	91.9	
KY	Wolfe	103.7	
MN	Sebeka	89.3	
MO	Knob Noster	89.7	5 kW
MO	Park Hills	91.1	10 kW
MS	Burnsville	91.9	18 kW
MS	Natchez	91.1	100 watts
ND	Buelah	97.9	
NE	Bridgeport	101.3	
NE	Hubbard	91.3	2.8 kW
NY	Liberty	88.1	
OK	Coal	105.5	
OK	Ponca City	89.7	100 watts
OK	Weatherford	90.5	
OR	Tillamook	94.1	
TN	Maynardsville	88.3	3 kW
TX	Blossom	92.7	
TX	Lamar	92.7	
TX	Portland	91.1	3 kW
UT	Park City	99.5	(KUTQ booster)
VI	Fredericksted	98.5	
WA	Shelton	94.5	

Seeking Permits to Construct New AM Stations

GA	Payne	1180 kHz	50/2.2 kW
MI	Petoskey	750 kHz	1 kW/330 watts

Granted Permits to Construct New FM Stations

CA	Gridley	101.5	141 watts
CA	Livermore	95.7	91 watts (KPIX-FM booster)
GA	Sparta	102.7	6 kW
IL	Farmington	96.5	6 kW
MN	Roseau	103.5	50 kW
MS	Houston	88.7	3 kW
MT	Missoula	89.9	1 kW
NC	Ocean Isle Beach	93.5	6 kW
NY	Rensselaerville	89.9	340 watts
OR	Ashland	107.5	5.25 kW
PA	Cambridge Springs	104.5	
WY	Sundance	103.1	25.2 kW

Canceled

(new)	Hawthorne, NV	93.5
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KAGP	Grants, NM	105.5	100 kW
KICC	International Falls, MN	Revoked	
KJCO	Yuma, CO	Revoked	
KLZK	Brownfield, TX	103.9	3 kW (ex-KKTC)
KPRI	Fagaitua, AS	103.1	30 kW
WAHX	Monticello, FL	91.9	6 kW
WLUA	Westwood, KY	91.7	3 kW

Seeking Changed AM Facilities

KDIA	Oakland, CA	1310 kHz	Seeks increase to 20 kW
KILM	Rochester, MN	1520 kHz	Seeks night drop to 8 kW
KOSE	Osceola, AR	860 kHz	Seeks move to Wilson, AR
KPXE	Liberty, TX	1050 kHz	Seeks move to Brookshire, TX
KTNS	Oakhurst, CA	1090 kHz	Seeks increase to 1 kW
KWNK	Simi Valley, CA	670 kHz	Seeks increase to 3 kW
WCJW	Warsaw, NY	1140 kHz	Seeks increase to 5 kW
WKNV	Fairlawn, VA	890 kHz	Seeks increase to 10 kW
WKPG	Pt. Gibson, MS	1320 kHz	Seeks 1020 kHz with 5 kW
WKZQ	Myrtle Beach, SC	1520 kHz	Seeks 1450 kHz with 1 kW
WMYQ	Newton, MS	1410 kHz	Seeks 1100 kHz with 1 kW/87 watts
WNQM	Nashville, TN	1300 kHz	Seeks 50 kW daytime
WPIN	Dublin, VA	810 kHz	Seeks increase to 4.2 kW
WWJQ	Zeeland, MI	1260 kHz	Seeks increase to 10 kW

Changed AM Facilities

KABN	Long Island, AK	840 Khz	Changed power
------	-----------------	---------	---------------

Seeking Changed FM Frequencies

WOGR-FM	Salisbury, NC	91.1 MHz	Seeks move to 93.3 MHz
---------	---------------	----------	------------------------

Changed FM Frequencies

KEPO	Eagle Point, OR	92.1 MHz	Moved to 92.9 MHz
KPOC-FM	Pocahontas, AR	103.9 MHz	Moved to 104.1 MHz with 6 kW
WGMT	Lyndon, VT	97.7 MHz	Moved to 98.3 MHz
WYMR	Sebring, FL	105.5 MHz	Changed frequency

Changed AM Call Letters

New	Old	
KDDZ	KSON	San Diego, CA
WIST	WHYM	Statesville, NC
WMJH	WISZ	Rockford, MI
WYSK	WFLS	Fredericksburg, VA

New FM Call Letters Issued

KFMJ	Ketchikan, AK
KFMR	Winslow, AZ
WAEF	Alherta, VA
WDPA	Toccoa Falls, GA
WGKR	Grand Gorge, NY
WIXO	Bartonville, IL
WNRZ	Dickson, TN

Rescinded Call Letters

KLKN Lincoln, NE

Pending FM Call Letter Change

New	Old	
WJES-FM	WJRQ	Saluda, SC

Changed FM Call Letters

New	Old	
KASR	KTOD-FM	Conway, AR
KFYF	KMAX	Arcadia, CA
KJAS	KNKI	Jasper, TX
KKBY-FM	KKBY	Eatonville, WA
KLTP	KRTX	Galveston, TX
KSON	KSON-FM	San Diego, CA
KTOZ-FM	KZBE	Pleasant Hope, MO
KURE	KUSR	Ames, IA
KVYY	KAXX	Ventura, CA
KZBE	KTOZ-FM	Marshfield, MO
WBHJ	WFFX	Tuscaloosa, AL
WBRK-FM	WRCZ	Pittsfield, MA
WBVE	WRQT	Beulah, MI
WHTR	WMJR	Hudson Falls, NY
WIRP	WFHQ	Pennsuko, FL
WKKN	WFGM	Fairmont, NY
WLPJ	WJCY	New Port Richey, FL
WPLL	WLVE	Miami Beach, FL
WQMF	WTZR	Nanticoke, PA
WRGO	WCQQ	Cedar Key, FL
WTMG	WFEZ	Williston, FL
WWHT	WHEN-FM	Syracuse, NY
WXVE	WAIU	Galeton, PA
WYSK-FM	WYSK	Spotsylvania, PA



Quincy, Mass. station WJDA-AM has its transmitter and antenna located in a salt marsh, which makes for good ground conductivity, but poor accessibility during high tide. (Courtesy an anonymous reader)



Portland, Maine's WCSO runs 16 kW into a 889-ft. antenna. (Courtesy Bob Gilbert, Portland)

Brunswick's CFNB, which first signed on in 1923, shuttered its 50 kW outlet on 550 kHz on June 24. Staff and programming have shifted to CIBX-FM, according to articles from the Bangor (Maine) Daily

News sent in by Maine readers Bob Gilbert of Portland and Don Hallenbeck of Pittsfield. CFNB is one of 35 AM stations in the last four years that has abandoned AM for FM.

Listeners of Carlsbad, Calif.'s KUPR-FM got the chance this summer to come up with new call letters and a slogan for the alternative-rock station. The "Name That Station" contest spawned suggestions that included, "KGLU, Music you can stick with," and "KELP, Cuz we're near the ocean," according to an ad sent in by Doug Meyer, of San Diego. No word yet on what the winner was or what the FCC thinks of the suggestions.

Lawrence Welk is part of a video commemorating the 75th anniversary of South Dakota's best-known radio station, WNAX. "A Diamond in the Plains" chronicles the history of the Yankton broadcaster, including Welk's nine-year association with the station. The video won the Award of Merit from the International Association of Business Communicators, according to an article from the Sioux Falls Argus Leader, sent in by Terry Jones of Plankinton, S. D. Copies are available for \$24.50 from WNAX. ■

27 MHz COMMUNICATIONS ACTIVITIES

Presents We Can Give Each Other

It's that time of year for holiday celebrations, decking the halls, and wrapping up goodies to give to each other. And what CBER in his or her right mind wouldn't be delighted to receive a brand new base station or mobile rig, a nice antenna, or one of those cool station accessories? (Personally, I hope Santa remembers to tuck one of those Night Eagle microphones in his sack).

But I can think of three presents that we CBERs can give each other that cost nothing, yet offer great potential to deliver a lot of pleasure when they are received.

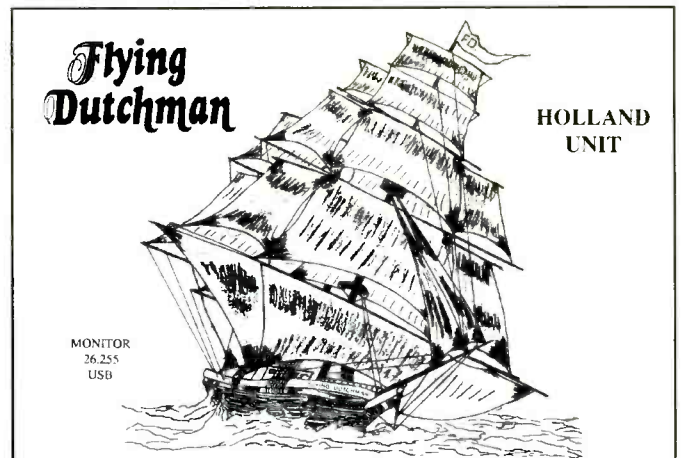
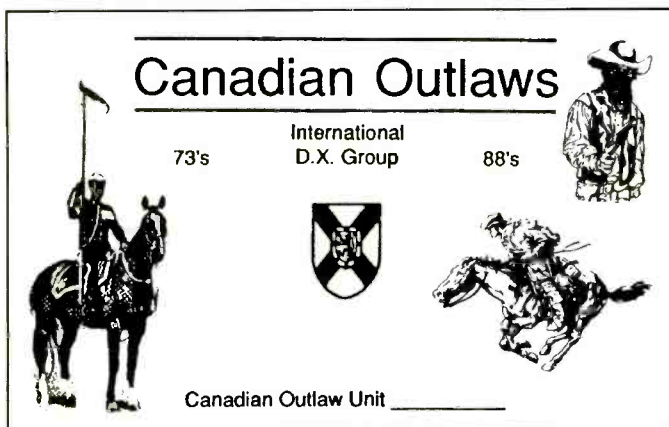
1. Good operating habits. There is a time-honored tradition among old-time CBERs. It's a simple thing, really; it's called "waiting on the key." All it means

is that, when you're rag-chewing with a bunch of other CBERs and one of them finishes what he was saying and releases his microphone switch, you wait for just a moment before you key up.

By "waiting on the key" for a second or two, you give the other fellow a chance to add a thought he may have forgotten; you offer the opportunity for someone with an urgent message to break in; you give that distant breaker who has something really interesting to say a chance to join in. Just pause for a moment or two—just long enough to mentally say "Pocahontas, Idaho," and if no one speaks, then go ahead and key up. Trust me on this: Waiting on the key works really well, and the folks you talk to will appreciate it.

2. A well-tuned rig. Every CBER who has been on the air for more than a few months is familiar with a phenomenon called "bleed." Bleed is the breaking through of signals from CBERs on adjacent channels. If you're operating on Channel 10, for example, and someone else nearby is operating on Channel 11, chances are, you are going to hear their signal as bleed. It doesn't mean there is anything wrong with either of your rigs,

"... what CBER in his or her right mind wouldn't be delighted to receive a brand new base station or mobile rig, a nice antenna, or one of those cool station accessories?"



Ray Raack sent these handsome QSL cards from around the world.

it simply means you've reached the physical limitations of the radios in rejecting adjacent channel signals.

A related example: My next-door neighbor and I are both ham radio operators. Even though we both have some of the best gear that money can buy, we can't operate on the same ham band at the same time, even at the lowest power levels—we bleed each other to death.

"... I can think of three presents that we CBers can give each other that cost nothing..."

But there is another phenomenon that we need to think about: **splatter**. Splatter happens when the modulation limiter on a rig has been cut, when the modulation has been set too high, or when an unmodified CB is operated with a badly adjusted power mic. When splatter happens, a CB transmits a much "wider" signal than it should. It's like a loud muffler on a car: it makes way too much noise, and it doesn't help performance.

You can give your fellow CBers a present by making sure your rig doesn't splatter. If you've cut the modulation limiter, get it fixed. If you've had your modulation pumped up, make sure it isn't higher than 100 percent. And above all—since this is the most frequent cause of splatter—if you are using a power mic, make sure it is adjusted properly.

There are two ways to make sure a power mic is properly adjusted. One is to take your rig and mic to a radio technician who has an oscilloscope. With it, you can actually see the level at which splatter starts to occur. The easier thing is to adjust the radio-mic combination on the air with the help of someone you trust. A hint: most power mics, when properly adjusted, will not sound raggedly LOUD. Instead, you'll get a rich fullness of sound from a well-tweaked power mic that is really pleasant to hear. It also shows that you are a radio operator who knows what you are doing.

3. A better attitude. The third present that we can give to each other is a more positive attitude, a willingness to cut the other fellow some slack, to not immediately jump down his throat because of some offense, real or imagined. Sometimes even when another CBer gives you a bad attitude, a kind word from you can turn things around.

A case in point: a few weekends ago, I was monitoring Channel 9 with the volume and squelch cranked up. I was in



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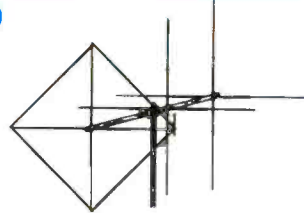
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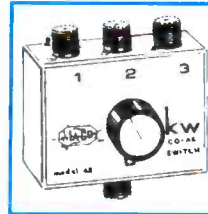
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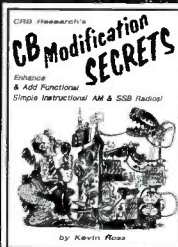
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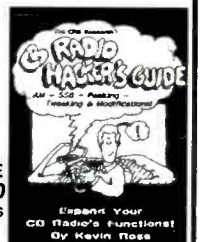
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"... I hope St. Nick puts something nice in your stocking ..."

another room of the house when I heard a signal break through. I walked into the radio room and keyed the microphone, "Breaker, this is Tri-County 56, an assistance station, can I help?"

"Screw you and your assistance station," came the reply (that's not exactly what he said, but it gets the point across). Now, naturally, I was angry and wanted to tell the guy off, but I thought I would try offering assistance just one more time—"This is Tri-County 56, do you need help or assistance in some way?"

This time the breaker said, "What are you doing on Channel 9?"

"There are a bunch of us on Channel 9 who provide assistance to motorists or anyone else who gets in trouble. The FCC has set aside Channel 9 as an emergency and traveler's assistance channel," I said.

"Oh," the breaker said, and I never heard from him again—although some-time later (and I can't be certain about this) I heard what might have been his voice offering assistance to someone on Channel 9. Apparently this fellow had never heard about Channel 9. It just goes to show that offering a positive attitude, even when you don't feel like it, can sometimes help. It's a Christmas gift we can give any time of the year, and the price is right.

From the Mailbag

Clifton Crews, a ham from Alabama, was re-reading an old issue of *Pop'Comm* when he noticed Trevor Fletcher's request for a source of vacuum tubes for an old tube-type CB. Here's the contact information he sent along to Trevor:

Electron Tube Enterprises

Box 8311
11 Linden Lane
Essex, Vermont
(802) 879-1844

The Radio Man

Dick Morgan
P.O. Box 461485
Garland, Texas 75046
(214) 276-5458

Don Diers

4276 North 50th Street, Dept. AB8
Milwaukee, Wisconsin 53216

A double thank you to Clifton Crews and Trevor Fletcher for that information.

Ray Raak wrote from Wisconsin, sending along a neat collection of QSL cards. Thanks, Ray, I particularly like the card from the Windriver Modulators.

Steve Wayland, one of the founding members of The Ozark Sidebanders Group, sent a note making me a lifetime member of the "Oscar Sierra Bravo" group. Thanks, Steve, I'm honored.

They are a very serious group of sideband operators. If you'd like to know more about them, write to OSB Headquarters, PO Box 235, Mountain Home, AR 72653.

Steve also expressed concern that the Citizens Radio Corps—an idea I proposed in this column—is intended to be a general "radio police," aimed at shutting down freeband operators.

And Steve, incidentally, is not the only person who has somehow gotten this idea. The short answer: absolutely not.

The Citizens Radio Corps (if, indeed it ever comes to pass) would concern itself solely with five frequencies: CB Channel 9, the aircraft distress frequency, the marine VHF emergency frequency, the GMRS travelers assistance frequency, and the ham 2-meter simplex calling frequency. The idea is to monitor those frequencies for emergency calls and protect those frequencies—and only those frequencies—from interference that prevents emergency communications from getting through.

If another CBER operating on a legal channel, or a freebander, or someone on the business band below CB, or even a ham on 10 meters was operating so poorly that it was causing interference to Channel 9, then the proposed CRC would seek to find out why. Otherwise, the CRC wouldn't be interested.

The REACT Team in Grand Island, Nebraska, has done a nice thing. They have donated four UHF radios (I presume GMRS radios)—a mobile and three hand-helds—to the local Salvation Army. This gives the Salvation Army there the ability to be on their own radio system as well as to tap into the local REACT radio system when needed. Well done! Grand Island REACT can be reached at P.O. Box 894, Grand Island, Nebraska 68802.

Well, I hope St. Nick puts something nice in your stocking, and I hope you share peace on earth, and good will toward all men on the CB airwaves. Until the next time, keep those QSL cards, letters, and shack photos coming to me here at *Pop'Comm*.



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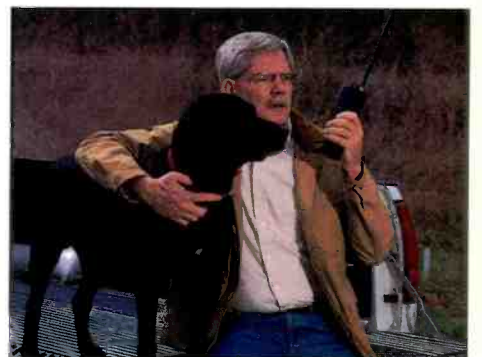
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CIRCLE 26 ON READER SERVICE CARD

The Computer Corner

BY BILL COLE and JOHN McCOLMAN

RECEIVER CONTROL, SOFTWARE AND MORE



Don't Get Rid of It, RAM It!

In the last column, we gave some ideas on how to recycle your 286, 386 and slower 486 computers. In this issue, we'll talk about a way to extend the life of your mid to high speed 486.

Do you remember last year's Windows 95™ commercials featuring the computer genie? The computer genie was the guy with the Boris Yeltsin accent who told you that Windows95 would run just fine on a 486 with 8 megabytes of RAM. I'll bet the computer genie never tried to print a high resolution color graphic using WordPerfect™. He would have had a hard time making this claim for Windows 3.1™ much less for '95.

Fortunately there is a way for those of us with 486 machines with CPUs of 66, 75, 80 and 100 MHz to run the latest operating system with a speed equal to or possibly better than that of the last generation operating system. It is no great secret that computer operations run faster in RAM than in virtual memory. (Virtual memory is just a section of your hard drive used to store code or data used by your programs.) Reading and writing code or data through the bus to and from the hard drive is time consuming in terms of computer operation. Storing this code or data in RAM (Random Access Memory) until needed may be 10 times, or more, faster. Increasing the computer genie's suggested 8 megabytes of RAM to 16 megabytes will do wonders for a Windows™ based system. There are even some DOS based applications that can benefit from this much memory.

Now for more good news, computer memory prices are at an all time low! There has never been a better time to buy additional RAM for your system. At a recent computer show (September), 1 megabyte single incline memory modules (Simms) were selling for less than \$5. Just more than three years ago these same Simms sold for \$55. Sixteen megabyte Simms were selling for \$79 at the same show. At these prices it becomes affordable to upgrade your mid to high speed 486 machine to 16, 24 or even 32 mega-

bytes of RAM. (I don't recommend taking 486 machines past 32 megabytes of RAM. This has to do with the size of the onboard cache and is beyond the scope of this article.) What would you do with 32 megabytes or RAM? If you work with high resolution graphics in conjunction with GOES and NOAA satellites or even WEFAX you can put that much memory to good use. If not, upgrading to 16 or 20 megabytes will be adequate for your needs. Just remember; you can perk up that 486 by RAMming it!

Computer Assisted Monitoring

(John McColman)

One of the purposes to which a computer can be employed in the shack is for controlling a receiver designed to interface with a computer. Typically, the receiver has an RS-232 port built in, such as the AOR AR-3000(A) or the Drake R-8(A). Some receivers can have an RS-232 port added as a user-installed option, such as the RadioShack PRO-2005, PRO-2006, PRO-2035 and PRO-2042 using the Optoelectronics OS-456 or OS-535 interface boards.

Why would one want to add computer-control functionality? Aside from having the latest gadget, there are some bonafide reasons for having computer control. By using the computer's strengths (ability to perform repetitious tasks, and unattended operations), one can easily perform tasks which prior to computer control of receivers at the consumer level was only a dream. Two uses that immediately come to mind are programming the receiver and unattended searching.

Programming the Receiver

With a scanner, it is often a Herculean task to face programming 200, 400 or even 1000 channels. For instance, the AOR AR-8000 can have five different parameters for an individual channel: fre-

“. . . extend the life of your mid to high speed 486.”

quency, mode, step, lockout and alphanumeric tag. This can involve dozens of key presses. If the user were to program all 1000 discrete channels, this can take hours. Enter the computer. By simply creating a file of channel information, you can upload the channel data to the receiver's memory in minutes, if not seconds.

A second benefit is to have different files for different scenarios. For example, the user may have a file for a favorite vacation destination. Rather than programming each channel, the user simply has to upload the file to the receiver and go. By extension, then, the 1000 channel receiver has become an unlimited storage receiver based on the ability to maintain different channel setups on the computer.

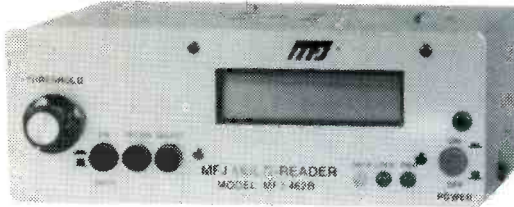
With a shortwave receiver, it is a similar situation. However, there is an even added benefit with a shortwave receiver. For example, in the area of listening to international broadcasters, it is not unusual for a broadcaster to employ different frequencies to provide choices for optimal receiving, based on propagation or interference. With computer control, if one frequency is unusable, one simply allows the computer to "tune" up the next frequency. No need to keep punching in frequencies or turning the dial; simply let the computer "remember" the frequency and tune it up.

Unattended Searching

One of the benefits of having a receiver that is programmable (either by its own internal microprocessor or an external computer) is the ability to search. Prior to computer-control, few receivers offered the ability to "search and store". Typically, one would have to sit with the receiver and either store the active frequencies manually, or note them as they were

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Pop'Comm's World Band Tuning Tips

December 1996

This listing is designed to help you hear more shortwave broadcasting stations. The list includes a variety of stations including international broadcasters beaming programs to North America, others to other parts of the world, as well as local and regional shortwave stations. Many of the transmissions listed here are not in English. Your ability to receive these stations will depend on time of day, time of year, your geographic location, highly variable propagation conditions and the receiving equipment used.

AA, FF, SS, GG, etc. are abbreviations for languages (Arabic, French, Spanish, German). Times given are in UTC, which is five hours ahead of EST, i.e. 0000 UT equals 7 pm EST, 6 pm CST, 4 pm PST.

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0000	5850	WVHA, Maine		0200	9475	R. Cairo, Egypt	
0000	5995	Voice of America		0200	9735	R. Nacional Paraguay	SS
0000	6020	R. Netherlands via Bonaire		0200	11710	RAE, Argentina	
0000	7140	R. Maria, Italy	II	0250	9605	Vatican Radio	
0000	9580	R. Yugoslavia	EE	0300	3210	Radio Exterior de Espana via Costa Rica	SS
0000	9705	R. Mexico Int'l;	SS	0300	4920	R. Quito, Ecuador	SS
0027	6055	VOIRI, Iran	sign on	0300	4940	R. Amazonas, Venezuela	SS
0030	4960	R. Federacion, Ecuador	SS	0300	4970	R. Rumbos, Venezuela	SS
0030	4980	Ecos del Torbes, Venezuela	SS	0300	5981	Union Radio/AWR, Guatemala	
0030	5965	R. Havana Cuba	SS	0300	6050	VOIRI, Iran	EE
0030	6065	R. Sweden		0300	6725	R. Satellite, Peru	SS
0030	9540	Radio Exterior Espana, Spain		0300	7115	R. Sweden	
0030	11905	R. Thailand		0300	7325	BBC	
0045	6040	Deutsche Welle, Germany	SS	0300	9665	Voice of Turkey	
0100	4450	R. Frontera, Bolivia	SS	0330	4930	R. Internacional, Honduras	SS
0100	4805	R. Amazonas, Brazil	PP	0330	7200	Yakutsk Radio, Russia	RR
0100	4835	R. Tezulutlan, Guatemala	Quechua	0330	7520	R. Moldova Int'l via Russia	vern.
0100	4840	R. Andahuaylas, Peru	SS	0350	3396	Zimbabwe Broadcasting Corp	JJ
0100	6135	Swiss Radio Int'l		0400	3330	Christian Voice, Zambia	
0100	7250	V of Vietnam, via Russia		0400	3380	Malawi Broadcasting Corp.	vern.
0100	7345	R. Prauge, Czech Republic	EE	0400	4755	Trans World Radio, Swaziland	GG
0100	9560	R. Norway	EE Sun	0400	4890	Radio France Int'l, via Gabon	FF
0100	9695	UAE Radio, Abu Dhabi	AA	0400	4910	RTV Guineenne, Guinea	FF
0100	11785	R. Guaiba, Brazil	PP	0400	4915	R. Cora, Peru	SS
0100	17510	KWHR, Hawaii		0400	5955	Channel Africa, S. Africa	
0100	17605	CPBS, China	CC	0400	5975	BBC via Antigua	
0130	5960	R. Japan via Canada		0400	7180	Voice of America via Sao Tome	
0145	4885	R. Clube do Para, Brazil	PP	0400	7240	V of Russia	
0145	7160	R. Tirana, Albania		0400	9435	Kol Israel	
0145	7290	R. Sweden		0430	4770	R. Nigeria, Kaduna	sign on
0145	7355	Vatican Radio		0441	5965	R. Oranje, South Africa	sign on
0200	4790	R. Atlantida, Peru	SS	0457	7185	Channel Africa	PP, sign on
0200	4815	Radio Guatapuri, Colombia	SS	0500	4815	Radio Burkina, Burkina Faso	FF
0200	4830	R. Tachira, Venezuela	SS	0500	4990	Radio Nigeria, Lagos	
0200	4955	R. Nacional, Colombia	SS	0500	4996	R. Andina, Peru	SS
0200	5012	R. Pueblo, Dominican Republic	SS	0500	6185	R. Educacion, Mexico	SS/EE
0200	5077	Carocal, Colombia	SS	0500	6250	R. Malabo, Equatorial Guinea	SS
0200	5930	R. Prague, Czech Rep.		0500	7105	R. Bosnia-Hercegovina	
0200	6095	R. Portugal		0500	7465	V of Israel	
0200	6155	R. Romania Int'l	EE				

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0500	7480	R. Bulgaria		1300	15340	R. Norway Int'l	EE/Sun
0500	9590	Channel Africa, S. Africa		1300	17745	R. Romania Int'l	
0600	3316	Sierra Leone Broadcasting		1320	21520	RAI, Italy	sign on Sun.
0600	4870	ORTB, Benin	FF	1330	11650	R. Sweden	
0600	5055	TIFC, Costa Rica	SS	1330	15060	BSKSA, Saudi Arabia	AA
0600	6165	Swiss Radio Int'l		1330	15395	UAE Radio, Dubai	
0600	9425	Voice of Greece		1400	9355	Monitor Radio - KHBI, No. Marinas	
0600	9820	R. Havana Cuba		1400	11640	BBC via Russia	CC
0630	5047	RTT, Togo	FF	1400	11720	R. Norway	NN
0630	5985	R. Vlandaaeren, Belgium		1400	11800	Radio Australia	
0630	6015	R. Austria Int'l via Canada		1400	11895	R. Japan via Fr. Guiana	
0700	6070	CFRX relay CFRB, Canada		1400	12077	Kol Israel	
0800	6100	R. New Zealand Int'l		1420	9720	SLBC, Sri Lanka	
0800	7285	RTVM, Mali		1430	15325	R. Canada Int'l	
0800	9445	HCJB, Ecuador	EE	1500	6000	City Sounds, Singapore	CC/EE
0800	9525	V of Indonesia		1500	11580	KTWR, Guam	
0900	3290	V. of Guyana	EE	1630	17870	R. Exterior Espana via Costa Rica	SS
0900	6090	R. Esperanza, Chile	SS	1630	21700	R. Japan	JJ via Gabon
0900	6160	Deutsche Welle, Germany, via Antigua	GG	1700	15675	R. Copan Int'l, Honduras	SS/EE
0900	7115	Trans World Radio, Monaco		1700	21455	HCJB, Ecuador	
1000	3340	R. Altura, Peru	SS	1730	11970	R. Jordan	AA
1000	5030	Adventist World Radio, Costa Rica	SS	1800	11990	R. Kuwait	
1000	21605	UAE Radio, Dubai		1800	15185	R. Africa, Eq. Guinea	
1030	13645	Radio Finland		1800	15265	Radiobras, Brazil	
1100	3360	La Voz de Nahuala, Guatemala	SS	1800	15495	R. Kuwait	AA
1100	6175	Faro del Caribe, Costa Rica	SS	1900	8000	V of Sudan (clandestine)	AA
1100	6955	China Radio Int'l	CC	1930	19374	Voice of America	SSB feeder
1100	9580	R. Australia		2000	12085	Radio Damascus, Syria	
1100	11330	R. Pyongyang, North Korea	RR	2000	15150	R. Canada Int'l	
1100	11800	SLBC, Sri Lanka	local	2030	9965	Voice of Armenia	
1100	15470	R. Pakistan		2100	5925	R. Canada Int'l	
1130	6120	R. Japan via Canada		2100	6185	R. Yugoslavia	
1130	9650	R. Korea, S. Korea, via Canada		2100	6205	R. Democrat Int'l (anti-Nigeria)	S. Africa
1145	16330	R. Rossi, Russia	RR SSB feeder	2100	9550	R. Havana Cuba	
1200	3325	R. Bougainville, Papua New Guinea	Pidgin	2100	9910	All India Radio	
1200	4753	RRI Ujung Pandang, Sulawesi, Indonesia	II	2100	13715	R. Havana Cuba	
1200	7330	R. Atlantika, Russia	RR	2130	15415	R. Jamahiriya, Libya	AA
1200	9510	R. Australia		2145	11760	R. Havana Cuba	
1200	12005	HCJB, Ecuador		2200	9388	Kol Israel	Hebrew
1200	13635	Swiss Radio Int'l	II	2200	9570	R. Portugal	PP
1200	13790	R. Bulgaria		2200	9770	UAE Radio, Abu Dhabi	
1200	13800	Radio Norway		2200	9830	R. Havana Cuba	SS
1200	15260	VOIRI, Iran		2200	11880	R. Exterior de Espana	SS
1200	15400	R. Finland Int'l	Finnish	2200	11945	R. Canada Int'l	
1215	9670	R. Veritas Asia, Philippines		2200	11965	R. Record, Brazil	PP
1215	9680	RRI, Jakarta, Indonesia	II	2200	13740	R. Canada Int'l	
1215	15295	R. Tashkent, Uzbek		2230	6090	Radio Nigeria, Kaduna	Hausa
1230	9370	KSDA, Guam	CC	2230	6135	R. Aparecida, Brazil	PP
1230	9575	R. Mediterane, Morocco	FF	2230	7505	CPBS, China	CC
1230	11735	R. Finland Int'l		2230	9505	R. Havana Cuba	
1230	12085	R. Ulaan Bataar, Mongolia		2230	9605	UAE Radio, Abu Dhabi	
1230	17630	Africa No. One, Gabon		2230	9635	R. Portugal Int'l	
1245	9885	Radio Thailand		2230	9645	R. Bandeirantes, Brazil	PP
1245	15130	R. Republik Indonesia	II	2230	11600	R. Prauge, Czech Republic	
1300	9590	R. Norway	NN	2246	9900	R. Cairo, Egypt	AA, sign off
1300	11815	Polish Radio		2300	5100	Radio Liberia	EE/FF
1300	11850	R. Thailand	NN	2300	5954	R. Casino, Costa Rica	SS/EE
1300	11995	FEBC, Philippines		2300	11915	R. Gaucha, Brazil	PP
				2330	5770	R. Miskut, Nicaragua	SS
				2330	7125	Voice of Russia	
				2330	7215	RTVI, Ivory Coast	FF
				2355	9925	R. Vlaanderen Int'l, Belgium	GG

MS-DOS Prompt

```

(Index:Freq+Tone)
VIEW LOG
Frequency      Tone      Name      Hits      dln
0150.9950      082.5      Richmond LG      14      125
0150.9950      082.5      Richmond LG      256     125
0151.0400      082.5      Richmond LG      1       125
0151.0400      082.5      Richmond LG      1       125
0151.0700      082.5      Richmond LG      1       125
0151.0700      082.5      Richmond LG      49      125
0151.1300      082.5      Richmond LG      1       125
0151.1300      082.5      Richmond LG      1       125
0151.1600      107.2      input 159.375  3       125
0151.1600      114.8      input 159.375  4       125
0151.1600      123.0      input 159.375  8       125
0151.1600      131.8      input 159.375  3       125
0151.2050      131.8      input 159.435  2       125
0151.2050      131.8      input 159.435  2       125
0151.4300      114.8      input 159.435  1       125
0151.4300      123.0      input 159.435  3       125
0151.4300      131.8      input 159.435  9       125
0153.7700      131.8      input 154.130  ?       125

```

Delete Export Search Output Lock Alt Subset Alt Index
Escape=quit Spacebar=tag for export [+]=move columns [-]=adjust column

These products each offer a different method to achieve the same results. Let's look at the first one.

Probe 2.0 by Datafile

I had an opportunity to beta-test Probe 2.0, a software package designed specifically for the Optoscan 456 and the Optoscan 535 add-on boards for the RadioShack PRO-2005/6 and the PRO-2035 (and its successor, the PRO-2042). During beta-testing, I gave the software a thorough workout. Probe 2.0 is designed to take full advantage of the functionality in the Optoscan board and to really add to it. The strength of Probe is in its ease of use. Once you install Probe and set up the software, which only takes a few steps, scanning can begin. With Probe's logging features, it is very simple and quick to populate a frequency list with local channels, along with the CTCSS, or DCS and DTMF data. Probe is designed for set and forget, whether scanning or searching. The informative screens provide a lot of information, most of which can be directly imported from the Percon CD (see the October '96 column for more information.)

found. With computer-control, this is no longer necessary.

Attaching a computer to the scanner and using the appropriate software to perform the search, it is possible to allow the computer to search for hours unattended. As the computer searches, it can note the active frequencies and store them, count the number of hits, or even lock them out to improve the search speed. Using this method, it is possible to obtain a reasonably accurate profile of the active frequencies in an area in a matter of days.

With the log file in hand, one can simply look up the frequencies in a good reference, such as Police Call, a regional frequency directory, or a CD-ROM such as the Percon Spectrum, to identify the agency or licensee.

I plan to look at several software packages over the next few columns that will provide computer assisted monitoring. One product is designed to operate with a very specific radio product (the Optoscan) and the other is designed to work with a very wide selection of radios.

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Note: Std. COPYCAT Does Not Support Radio Interface

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- Supports ALL SCANCAT frequency file formats, or create your own!
- NEW, easier, "Plain English" MACRO language for control of all radio and TNC functions.
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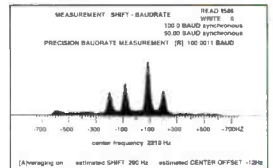
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- Autospec - Mk's I and II
- DUP-ARQ Artrac
- Twinplex
- ASCII *
- ARQ6-90/98
- S-ARQ/ARQ-S
- SWED-ARQ-ARQ-SWE
- ARQ-E/ARQ1000 Duplex Variant
- ARQ-N-ARQ1000 Duplex Variant
- ARQ-E3-CQIR519 Variant
- POL-ARQ 100 Baud
- Duplex ARQ
- TDM242/ARQ-M2/4-242
- TDM342/ARQ-M2/4
- FEC-A FEC100A/FEC101
- FEC-S • FEC1000 Simplex
- Sports info 300 baud ASCII
- Hellsreiber-Synch/Asynch *
- Sitor - RAW (Normal Sitor but without Synch.
- ARQ6-70
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One standout feature that Probe offers is "SmartScan". This function provides a means to link a bank of frequencies to a channel. For instance, a dispatch channel for a local fire department can be entered into the primary scan bank with all of the fireground and mutual aid frequencies in a separate bank called "SmartBank". This bank would be deselected, but once the dispatch channel became active, SmartScan would switch to the "SmartBank", allowing one to then monitor the busy frequencies.

Probe is designed to operate on almost any IBM compatible PC with minimal fuss. Simplicity is the key here. The folks at DataFile, who developed Probe, worked hard to make the package very efficient. It runs very well on 640 KB of RAM. This package lends itself well to laptops and older computers.

Previously, I had reviewed Probe 2.0 for the American Scannergram and I had noted that Probe 2.0 as a DOS program did not perform well under Windows. Let me update that. I have since used Probe 2.0 with Windows 95, where it works very well. It does require some tuning of the DOS window, particularly in the memory allocations, but it is possible to use Probe while running Windows 95. This

MS-DOS Prompt									
Index:Bank*Freq* Tone					Central Virginia				
Bk	Frequency	Tone	N	Name	D	L			
01	0046.3400	203.5	N	Chesterfield County PD	N	N			
01	0046.4600	203.5	N	Chesterfield County PD	N	N			
01	0154.8750	203.5	N	Chesterfield County Police	N	N			Y
01	0155.2650	203.5	N	Chesterfield County EMS Dispatch	N	N			
01	0155.7000	203.5	N	Chesterfield County Government	N	N			
02	0154.2500	141.3	N	Hopevell FD	N	N			
02	0154.8450	141.3	N	Hopevell Sheriff's Office	N	N			
02	0155.2950	141.3	N	Hopevell Rescue F-2/PD Surveillance	N	N			
02	0155.8650	141.3	N	Hopevell Public Works/PD 2	N	N			
02	0158.7750	141.3	N	Hopevell Police/Rescue Dispatch	N	N			
03	0154.8000	131.8	N	Prince George Co Sheriff	N	N			
03	0154.8900	131.8	N	Prince George County Police Surveillance	N	N			
03	0155.0550	131.8	N	Prince George County Admin (Police 3)	N	N			
03	0155.1150	131.8	N	Prince George County Fire (PD backup)	N	N			
03	0155.6550	131.8	N	Prince George County Police Command	N	N			
04	0154.3250	107.2	N	Colonial Heights FD	N	N			
04	0453.4750	127.3	N	Colonial Heights PD F-2 (Sheriff)	N	N			
04	0453.9500	127.3	N	Colonial Heights PD F-1	N	N			
05	0460.2500	131.8	N	Petersburg Police F-1	N	N			
05	0460.3750	131.8	N	Petersburg Police F-2	N	N			

allows the listener to use Probe while keeping a database or text file open for record checking or note taking. I have also tried Probe under Windows NT 4.0 Workstation with terrible results, but I am working on this. If you need the Windows operating system, my recommendation is to use Windows 95.

Overall, I am very impressed with Probe and I use it almost daily. For computer control of a scanner, it is hard to beat. It is dedicated exclusively to the Optoscan boards, which might be a drawback if one has different types of radio.

However, because of this singularity, the package takes advantage of what the Optoscan interfaces offer with no compromises. In particular, Probe takes advantage of Optoscan's unique "pipeline tuning" which greatly increases scanning speed; a feature most other software packages don't implement. Probe alone is reason enough to have an Optoscan configured scanner, whether it is the PRO-2005/6, PRO-2035 or the PRO-2042.

Perry Joseph from DataFile provides the following information about Probe:

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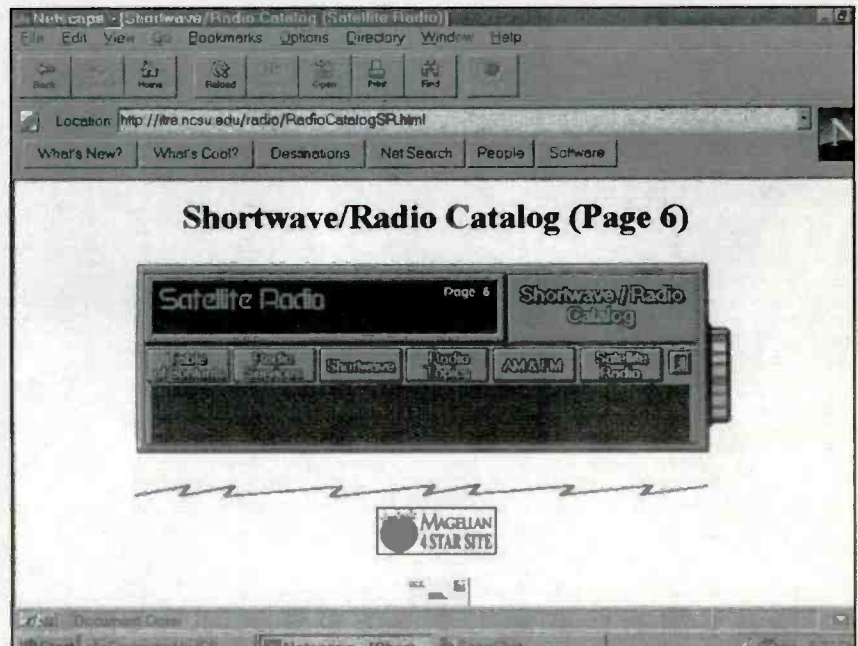
CIRCLE 93 ON READER SERVICE CARD

URL of the Month

By Bill Cole

The URL of the month for December is called the Shortwave/Radio Catalog and is found at <http://itre.ncsu.edu/radio/>. It is hosted by Pete Costello. Reader Jon Cohen suggested the Shortwave/Radio Catalog because, "Pete Costello's page is, I think, the most complete source for information available on the Web." The site consists of six sections or electronic pages, and when printed covers 62 letter-sized pages. As you read these pages you quickly agree with the appropriateness of the title, "Shortwave/ Radio Catalog."

The reason for the Shortwave/Radio Catalog's existence is clearly stated, "The purpose of this document is to provide the Shortwave and radio hobbyist with information and timely links to services and information related to Shortwave Listening (SWL), Satellite radio and other topics on or about Radio." Its owner describes it as, "an expanding set of World Wide Web links to documents, Web servers, ftp and gopher sites, telnet services, audio files, pictures, graphs, schedules, software and interactive on-line programs."



When you log into the "Catalog" you are greeted by a stylized radio with buttons to access each of the electronic pages; which include: Table of Contents, Basic SWL/Radio Related Services, Shortwave, Radio Topics, AM/ FM and Satellite Radio. Each electronic page contains links to radio broadcasters, clubs, and other pages of interest to radio enthusiasts. This is no mere list of links. As this is a catalog, each link has its own description. One lands you on a page with international shortwave station broadcast schedules and audio clips of the stations' interval signals! This brings up a point about your browser. In addition to linking you to pages supporting audio, the "Catalog" has a remote control feature that is Java™ based. To fully utilize the features of the Shortwave/Radio Catalog, it would be best to have one of the newer browser versions such as Netscape 3.0™.

If you are looking for shortwave radio related URLs and information the "Catalog" is the place to go. Why not pay a visit to <http://itre.ncsu.edu/radio/> and tell them *Pop'Comm* sent you?

"There has never been a better time to buy additional RAM for your system."

Probe Version 2.0 sells for \$129.95 (plus \$7.95 for shipping and handling). Credit card and money orders accepted. Orders or inquiries can be sent to DataFile, Inc., P.O.B. 20111, St. Louis, MO, 63123. DataFile, Inc. can also be contacted via the Internet at <DATAFILE@GENIE.COM>. Another source of information, screen shots and frequency files for Probe can be found on Steve Hancock's "Monitoring Post" Web page at: <<http://home.pd.net/~pro2006/probe.html>>.

Readers Write

Bill and I would like to thank everyone who has e-mailed us with their comments and suggestions. The ideas presented are all being studied for future columns. Keep those e-mails coming. You may contact either of us at: <jmccolman@richmond.infi.net> or <cole@net2.intserv.com> or you may write to us in care of *Popular Communications*. We really enjoy hearing from you.

One e-mail of note was from Joe Lynn in Illinois, who decried the folks who are bemoaning the use of computers and, by extension, the Internet and predicting these forces will be the end of the radio hobby. Personally, I think nothing could be further from the truth. While certainly the hobby is undergoing some changes, I think computers can really aid us in the pursuit of the hobby. Witness the explosion of Web pages devoted to frequency lists. I do believe the hobby is in a bit of a flat period at the moment, but I believe this is more an effect of low sunspots than computers/Internet. Sure, some folks are going to abandon radio as a hobby pursuit in favor of computers. All hobbies experience a certain amount of turnover. I believe with the expansion of computers and computer-controlled radios (and accessories), the hobby will benefit greatly. Thanks, Joe, for your support. Your encouragement means a lot to Bill and me.

"While certainly the hobby is undergoing some changes, I think computers can really aid us in the pursuit of the hobby."

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The Listening Post

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Add a New Country to Your Logs: Anguilla is on Shortwave!

Apparently it's for real this time. We should actually be hearing shortwave signals from the Caribbean Beacon on the island of Anguilla. The transmitter has been "armed and ready" since last November, but was delayed in getting on the air due to environmental concerns on the part of the local government. A couple of months ago there were some brief tests carried out on **6090** and **11775**, and word was that the station would be active soon. The transmitter will carry the University Network (that is to say, the wisdom of Dr. Gene Scott) beamed to the U.S. and Canada 24 hours a day. If there's no co-channel interference, this 100 kW signal should be an easy log, and a new country for many DX-ers as well!

Radio Republik Indonesia has put a number of new high power transmitters on the air recently, presumed to be 100 and/or 250 kW and apparently being used to carry the National Service, but at times is apparently airing the foreign service instead. The frequencies currently reported in use are **9525**, **8565**, **9630**, **9680**, **11750**, **11885**, **15125** and **15150** (some of these, of course, have been in use for some while). Most North American listeners will have the greatest success going after these during our local mornings, though it's not certain if all the frequencies are active during that prime listening period. Give it a try.

La Voz de Mosquitia in Honduras has been off the air for some time (though it may have returned by now). Unlike the powerhouse commercial religious broadcasters, this little station has to make do using a couple of old Viking ham transmitters, both of which have broken down and have been—or will be—sent back to the U.S. in the hope they can be fixed. The station has a third transmitter, a unit once used by the American military, but it, too, is inoperative. Keep an ear on 4910 and let's hope this nice station will get back on its feet.

Meantime, the temporarily inactive Radio Copan International on **15675** has returned. This station is owned by Radio

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Background

The Voice of Vietnam - a communication organ of the Vietnamese government - was established during the August 1945 Revolution under a directive from the Late President Ho Chi Minh.

At 18.00 h on September 7, 1945, a week after the proclamation of the country's independence, the first program of the Voice of Vietnam was officially on the air from Hanoi. The content of this program was the Declaration of Independence, a news bulletin and current affairs stories which were broadcast in Vietnamese and four other languages, English, French, Cantonese and Esperanto.

Since then, the Voice of Vietnam has continued to increase in both its airtime and the power of its transmitters, serving home and overseas listeners, including overseas Vietnamese.

Voice of Vietnam Domestic Service

From July 1, 1994, the Voice of Vietnam has been broadcasting simultaneously in four channels on the Domestic Service.

TNVN Domestic Schedule

Voice of Vietnam International Service

Voice of Vietnam's Overseas Service broadcasts over one medium wave (AM) and 8 short waves (SW) in 11 languages.

TNVN International Schedule

Management and Development

The Vietnamese Government also assigns the Voice of Vietnam the task of united management of all local radio stations including 53 provincial radio stations throughout the country in technical and professional aspects and for content guidance.

To develop radio broadcasting service along the correct line in good service of home and foreign listeners and overseas Vietnamese, the Vietnamese Government has approved a plan for national radio coverage in the 1995-2000 period and beyond the year 2000 with rich and diverse programs of high technical quality striving to achieve the target of a radio set per family by the end of the century.

Provided by Mrs Nguyen Thi Thu Hang (TNVN) and Ian Collard
Prepared by Vern Weitzel <vern@coombs.anu.edu.au>
[Australia Vietnam Science Technology Link](#)

Even the Voice of Vietnam is on the Internet! This information was recently downloaded from The Voice of Vietnam's Web page.

Miami International and carries a lot of block religious and other programming. It's on the air mostly during the local day-time hours.

Radio Lesotho has left shortwave. The ending of the station's shortwave broadcasts was the result of the termination of the agreement between Radio Lesotho

and the BBC, which actually operates the transmitting facility there. The BBC is discontinuing use of the two shortwave transmitters it owns at Lancer's Gap in Lesotho and, instead, is making additional use of the Meyerton transmitters in South Africa. That leaves Radio Lesotho up the proverbial creek. So why doesn't the BBC sell, lease or give those transmitters to Radio Lesotho, you ask? Maybe provide some technical training if needed? Good questions!

Ed Rausch in New Jersey reports a couple of nice regional stations of All India Radio this month. Such receptions, in the early evening in North America are, even more than most shortwave reception, very dependent on the current propagation situation, the time of year and the geographical location of the listening post. These are not easy logs no matter where you are in North America. Most everyone on this continent will have better luck chasing AIR regional stations during their during the local morning hours in the winter. And "morning" in this case, refers more to the hours around dawn than it does 4 a.m. or 11 a.m. Here's a list of the lower frequency AIR regionals and their morning (in North America) sign on times:

Freq. Regional Stn. Time

3223	Shimla	1300
3245	Lucknow	1415
3277	Srinagar	1130
3305	Ranchi	1130
3315	Bhopal	1200
3345	Jaipur	1430
3355	Kurseong	1130
3365	Delhi	1230
3945	Gorkkhpur	1330
4760	Port Blair	1030
4760	Leh	1130
4775	Imphal	1030
4790	Itanagar	1030
4800	Hyderabad	1145
4820	Calcutta	1230
4840	Mumbai	1230
4850	Kohima	0930
4860	Delhi	1230
4880	Lucknow	1130
4895	Kurseong	(no morning)
4910	Jaipur	1130
4920	Madras	1200
4940	Guwahati	1200
4970	Shillong	1045
4990	Madras	(no morning)
5010	Thiru	1145
5050	Aizwal	1200



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Pronunciamentos do Presidente da República

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Outros links

Cultura

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Plano Real - Ano II

Radiobras has been having some technical problems a couple of months ago, including off/air time and wandering frequencies.

If you catch Bulgarian Radio's home service "Horizon" relays on **7670** or **9850**, the address for reception reports is P.O. Box 900, BG 1000, Sofia C. Enclose one International Reply Coupon.

The Voice of the Mediterranean, once aired over the now defunct Deutsche Welle Malta relay, is back on the air. The service is now carried via a site in Russia. It's operating on **17590** from 0100 to 0400 Sundays airing programs in several different languages.

The U.S. government's Radio Free Asia, which was renamed the Asia-Pacific Network, may operate from a transmitter on Tinian island in the Marianas when it gets on the air. Originally, the idea was for the APN programming to be aired by the VOA relay sites in Thailand and the Philippines, but word is that the countries don't want to ruffle the political feathers of their neighbors and since the VOA's agreements don't cover American broadcasts other than those of the VOA the countries have an "out". So, shortwave transmitters are reportedly to be set up on Tinian, instead.

Anyone who writes a radio column, runs a radio club, hosts a DX program or publishes a magazine gets asked one question more than any other: "What receiver should I get?" The question is a very difficult one to answer and most people, including yours truly, take pains to make it known that we'd prefer not to influence your decision, other than to say something like "always get the best you can afford."

For years, Radio Netherland's Media Network has published a booklet on the subject. Now you can get receiver reviews from their "On Line Receiver Laboratory." There are reviews of more

than 40 receivers—portables and desktop models—available, from AORs to Yaesu. If you search the web, try: <<http://www.rnw.nl/en/pub/testlab/index.html>>.

Remember that we always welcome your logging reports. Please double-space your logs, list them by country and include your last name and state abbreviation after each. The logs are cut up for sorting and if there's no name on the slip we don't know who belongs to what after the cut and sort process.

We also welcome station QSL information, particularly details on the requirements a station sets before it will issue a QSL, as well as address changes, schedules, general station news, photographs of stations and your listening post. Spare QSL cards also make great illustrations. We appreciate your interest and continuing support for this column!

Here are this month's logs. All times are UTC, which is five hours ahead of EST, i.e. 0000 UTC equals 7 p.m. EST. Abbreviations such as FF, AA, GG, SS stand for French, Arabic, German, Spanish. If not specified, the language broadcast is assumed to be English.

ALBANIA—Radio Tirana, **7160** at 0230 with news. (Pellicciari, CT)

ANGOLA—Radio Nacional, **3374.9** at 0000 in PP with reggae and local music. ID as "Radio Nacional de Angola" in tandem by man and woman at 0017. (Rausch, NJ)

ASCENSION ISLAND—RAI, Italy relay on **15320** at 1700 in II. (Pellicciari, CT)

AUSTRALIA—Northern Territory SW Service on **5025** at 1130. (Johns, TX) VL8K in Katherine. (Editor)

VL8A, Alice Springs, **2310** at 0907 with rock, woman DJ. (Foss, AK)

Radio Australia, **5995** at 1235 and 9860 at

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

1220. (Northrup, MO). **6020** in Pidgin English at 1055. (Miller, WA) **9580//9860** at 1115 with news. (Pellicciari, CT) **9860** at 1356. (Jeffery, NY)
11800 heard at 1300 to fade at 1700. (Yohnicki, Ontario)
AUSTRIA—Radio Austria Int'l, **9655** at 0158 in GG with waltzes. (Miller, WA) **13730** at 1015 with classical music, GG. (Foss, AK) 1130 with news in EE. (Pellicciari, CT)
BELGIUM—Radio Vlaanderen Int'l, **9925** at 2300 with news in SS, 2330 news in EE. (Pellicciari, CT) 2330. (Johns, TX)
BRAZIL—Radiobras, **15268**, nominal 15265 at 1825 with music, financial news, sports news and ID. (Jeffery, NY) **15445** at 1200. (Pellicciari, CT)
Radio Educacao Rural, Campo Grande, **4775** at 0345 in PP with Brazilian pops. (Miller, WA)
Radio Nacional Amazonia, **11780** at 0027 in PP with request program "Amazonia Bra-

silia." (Miller, WA) 2300 in PP with ID, music. (Jeffery, NY)
BULGARIA—Radio Bulgaria, **11660** at 2300 in SS and 2100 in EE on 11720. (Pellicciari, CT)
CANADA—CBC Northern Quebec Service, **9625** at 1515 in FF. (Wallesen, IL)
CHU time station, **14670** at 1441 with FF announcements. (Wilden, IN)
Radio Canada Int'l, **5950** at 0201 with announcements, news. **11690** at 2010 with sports. RTTY QRM. (Wilden, IN) **6010//9535//11715** at 0215. (Pellicciari, CT) **9535** at 0241. (Miller, WA)
CHAD—Rdf. Nationale Tchadienne. **4904.5** at 0430 in FF. (Johns, TX)
CHILE—Radio Esperanza, **6090** at 0730 with EE religious program. (Johns, TX)
CHINA—BPM time station on **10000** at 1400 with ID in Morse, then voice ID in CC. As strong as WWV but had poor audio. (Miller, WA)
Central People's Broadcasting Station, **15390** at 1424 with man in CC, IS, news. (Jeffery, NY)
Voice of Pujiang, Shanghai, **3280** heard at 1219 with easy listening pop instrumentals. (Foss, AK)
China Radio Int'l, **9730** via French Guiana, 0435 in EE. (Pellicciari, CT) **11945** at 0933 in CC. (Foss, AK) **15115** at 2100 with news. (Yohnicki, Ontario) (via Mali, editor)
COLOMBIA—Armonias del Caqueta, **4915.3** at 1001 with man in SS, fast song in SS. (Foss, AK)
Caracol Colombia, **5077v** at 0350 in SS. (Pellicciari, CT)
COSTA RICA—RFPI, **7385** at 0600. (Foss, AK) 0735. Also on **15050** USB at 1915. (Pellicciari, CT)
Radio Exterior de Espana via Costa Rica, **11815** in SS at 1329. (Foss, AK)
CROATIA—Croatian Radio, **5895** at 0300 with five minute EE news. (Pellicciari, CT) **11635** at 2200 in EE. (Johns, TX). Via WHRI **7370** from 0000-0030 with 10 minutes of EE

news, then into Croatian. (Klingman, NY)
CUBA—Radio Havana Cuba, **6000** at 0420 with tourism feature. (Pellicciari, CT) **9820** at 0418 with mailbag show. (Foss, AK)
Radio Rebelde, **5025** at 0415 in SS. (Pellicciari, CT)
DENMARK—Radio Denmark, **9560** at 0247 in DD, via Norway. (Miller, WA)
ECUADOR—Radio Quito, **4919** at 0857 with music, SS ID at 0900. (Foss, AK) **4920** at 0440 with news in SS. (Pellicciari, CT)
HCJB, **15140** in SS at 2150 and **15540** at 1915 with "DX Party Line." (Pellicciari, CT)
EGYPT—Radio Cairo, **15255** at 1810 in EE with Arabic language lesson. (Jeffery, NY)
ENGLAND—BBC, **5875** at 2346 with man in EE, woman translating into SS. **5975** (via Antigua) at 0003 with news. (Wilden, IN) **15390** at 2115 with "Caribbean Report" and **15400** at 1800 with news. (Pellicciari, CT)
FINLAND—Radio Finland Int'l, **11900//15400** at 1130 with news. (Pellicciari, CT) **15400** at 1445 with ID, sports. **11900** not as good. (Miller, WA)
FRANCE—Radio France Int'l, **9790** at 2220 in FF. (Pellicciari, CT)
FRENCH GUIANA—RFI on **5920//9800** at 0500 in SS. (Pellicciari, CT)
GERMANY—Deutsche Welle, **6060//6145//9700//11865//15105** at 2300 with news in SS. (Pellicciari, CT) **9765** at 2215 in GG with news about Rwanda. (Miller, WA)
Radio Free Europe, **9725** at 1057 in Romanian. (Miller, WA)
GREECE—Voice of Greece, **9420** at 0226 with Greek pops. (Miller, WA) **9935** at 0130 with EE. (Johns, TX) **15175** at 1341 with news in EE. (Jeffery, NY)
GUAM—Trans World Radio/KTWR **11665** at 0927 in CC. (Foss, AK)
GUATEMALA—Radio Cultural, **3300** heard at 0450 in SS with religious music. (Pellicciari, CT)
Radio Tezulutlan, **4836v** at 0253 in SS. (Pellicciari, CT) 0314 with SS music, religious talk, partly in Quechua. (Miller, WA)
HAWAII—KWHR at **1228** with Japanese language program, EE ID, and EE religion. Poor. (Jeffery, NY)
HONDURAS—Radio Copan Int'l, **15675** at 1513 in SS with instrumental music and ID. (Jeffery, NY)
Radio Internacional, **4930** at 0440 in SS with phone calls. (Pellicciari, CT)
HUNGARY—Radio Budapest, **11870** at 0146 with talk about Hungarian music. (Miller, WA) 0200 in EE. (Johns, TX)
INDIA—All India Radio, Bhopal, **3315** at 0023 sign on with IS, ID, subcontinental music to ID at 0030, then news from Delhi. (Rausch, NJ); **AIR**, Jaipur, **3345** at 0023 sign on with IS, choral regional anthem, ID and frequencies by man, 5 time pips at 0030 with ID to news from Delhi. (Rausch, NJ); **AIR**, Bombay, **4840** at 0030 with time pips to Hindi ID, EE news. // **5010** at 0035. EE ID by woman at 0040. (Rausch, NJ); **AIR**, Delhi, **11620** at 2100 with news. (Pellicciari, CT) 1849. Also **12060** at 1650 in RR. (Miller, WA)
INDONESIA—Radio Republik Indonesia,



The listening post of Richard Klingman in Mt. Upton, NY, which includes a Heathkit HW-101 transceiver and lots of maps.

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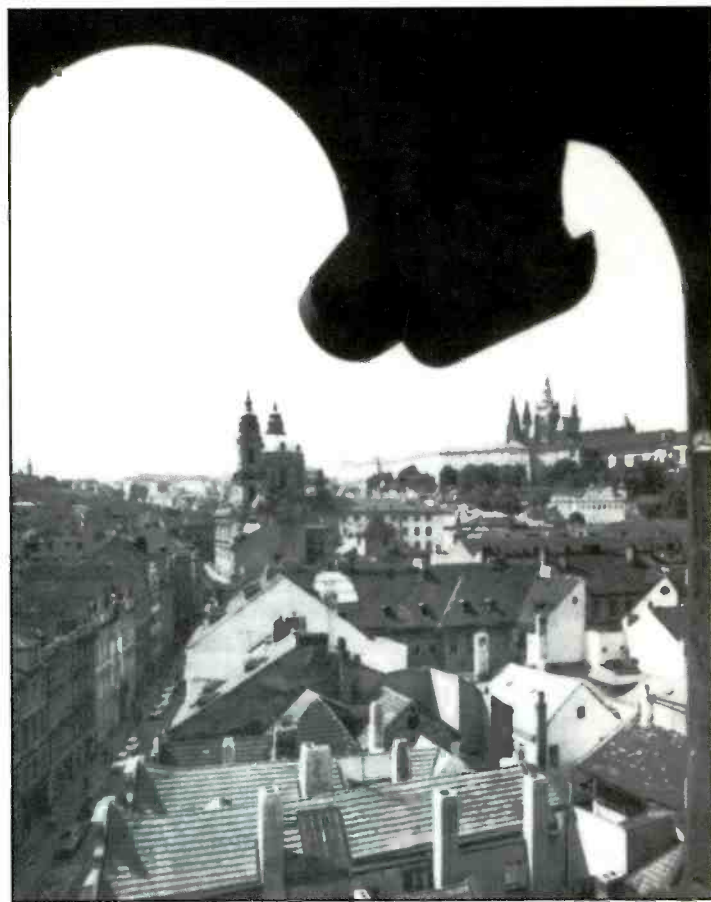


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Andy Johns of Texas got this Vatican Radio QSL which pictures the Leo XIII tower, where the station has some of its offices.



Andy John's QSL from then Radio Prague dates back to 1974!

Jakarta, **9525** at 1126 in JJ with music, news. **15150** at 1215 in JJ with music, ID, mention of Jakarta, radio drama, Song of the Coconut Islands and news. Fade by 1309. (Jeffery, NY)
RRI Bengkulu, Sumatera, **3265** at 1234 with chants, prayers by mail chorus. (Foss, AK)
RRI Manado, **3214.8** at 1242 in unidentified language. (Foss, AK)
IRAN—VOIRI, **15084** at 1650 with music, talks in Farsi. (Pellicciari, CT)
IRELAND—RTE via WWCR on **12160** at 1830 with news. (Pellicciari, CT)
ISRAEL—Reshet Bet service, **15615** at 1605 with music. (Pellicciari, CT) (Presume in Hebrew, editor)
ITALY—RAI, **6005//11800** at 0050 with news in EE. (Pellicciari, CT)
JAPAN—Radio Japan, **6120** via Canada at 1120. 9685 via French Guiana at 2215 in JJ. (Pellicciari, CT) **9535** at 1712. (Miller, WA)
BBC via Japan, **11765** at 0945 with news. (Foss, AK)
KUWAIT—Radio Kuwait, **11675** at 0200 in AA, 11900 in EE at 2000. (Johns, TX)
11990 at 2000 with "Ethics of Islam." Also **15505** at 2000 in AA. (Pellicciari, CT)
LEBANON—Voice of Hope, **9960** at 0200 with EE ID. (Johns, TX) 0243 in AA with Middle-Eastern music. (Jeffery, NY)
LIBERIA—Liberian Communications Network (aka Radio Liberia, editor) scheduled on

6100 from 0400-1700 and **5100** from 1700-0200. The address is P.O. Box 1103, Monrovia, Liberia. (Rausch, NJ)
LIBYA—Radio Jamahiriya, **15230** heard at 1350 in AA with Middle-Eastern music, men talking, mention of Jamahiriya. (Jeffery, NY) **152235//15415** heard at 2015 in AA. (Pellicciari, CT)
MADAGASCAR—Radio Madagasikara, **5010** at 0255 sign on with woman in Malgasy, apparently reading the news. (Klingman, NY)
MALAWI—Malawi Broadcasting Corporation, **3380** at 0405 with regional news in a local language. Jingle ID for MBC at 0410. (Rausch, NJ)
MALAYSIA—Radio Malaysia, **4895** at 1257 with instrumental music, news in Malaysian at 1300. (Foss, AK)
Radio 4 service on **7295** heard at 1100 in EE. (Johns, TX)
MEXICO—Radio Mexico Int'l, 9705 at **1235** in SS. (Northrup, MO) 1341 in SS with guitar and ID. (Jeffery, NY)
Radio Educacion, **6185** at 0442 in SS. (Miller, WA) 0444 in SS. (Foss, AK)
NETHERLANDS—Radio Netherlands, **9895** at 1330. (Northrup, MO) **9895//11715** at 2230 in SS. **11680//15315** at 2230 in SS. (Pellicciari, CT) **13700** at 1007 with rock, DD. (Foss, AK)
NETHERLANDS ANTILLES—Radio

Netherlands Bonaire relay, **6165** at 0006. (Wilden, IN) 0413 in SS with Happy Station ID: "La Estacion d'Alegria." (Miller, WA)
NEW ZEALAND—Radio New Zealand, **6100** at 1058 with news. (Miller, WA)
ZLXA Radio Reading Service, **3935** at 1010 with ID "Radio Reading Service, Levin," national news and weather. (Rausch, NJ)
NORTH KOREA—Pyongyang Broadcasting Station, **3320** at 1250 with long monologue in KK. (Foss, AK)
NORTHERN MARIANAS—Monitor Radio/KHBI, Saipan, **13840** at 1024. (Foss, AK)
PAKISTAN—Radio Pakistan, **11570** heard at 1719 song in Arabic translated into EE. (Miller, WA)
PAPUA NEW GUINEA—Radio New Ireland, **3905** at 0900 with NBC news. // **4890**, ID by woman at 0910, then back to parallel coverage of Parliament session. (Rausch, NJ)
Radio East Sepik, **3335** at 0916 with local music, unidentified language. Very weak. (Foss, AK)
NBC, **4890** at 0928 in Pidgin. (Miller, WA)
PARAGUAY—Radio Nacional, **9735** at 2200 with time pips, ID, promos, commercial for Coca Cola, telephone calls, music. All SS. (Pellicciari, CT) 0131 in SS with music. Sometimes has soccer coverage on weekends. (Miller, WA)
PERU—La Voz de la Selva, **4824** heard at

1015 in SS with Latin music, lots of congas. (Foss, AK)

Radio Union, 6115 heard at 0134 in SS with children's chorus, two men talking. (Klingman, NY)

Radio San Francisco Solano, 4750 at 0235 in SS. ID, lively guitars, trumpet fanfare to close ID and anthem at 0250. (Rausch, NJ)

Radio Trangacid (tentative) on **6746** heard at 0230 in SS. (Johns, TX) (I don't know of this one, Andy. Maybe **Radio San Ignacio**, San Ignacio, Maranon, last reported on **6747.2?** Editor)

Radio Cora, 4915 in SS at 0403. (Miller, WA)
Radio Quillabamba, 5025 at 0946 in SS. (Miller, WA)

PORTUGAL—Radio Portugal, **9570** at 0330 with news, DX program. **15200** at 1835 in PP. (Pellicciari, CT)

Radio Canada Int'l relay, 15325 at 1412 in FF. (Jeffery, NY)

ROMANIA—Radio Romania Int'l, **7195** at 2130. (Pellicciari, CT) **9510** at 0200 and 0400. (Johns, TX) **15250** at 1403 in AA with news, ID. (Jeffery, NY)

RUSSIA—Voice of Russia, **7125** at 2300 with news and views. **7250** at 2130, **11675** at 1820. (Pellicciari, CT) **11675** at 2008. (Wilden, IN) **13645** at 0435 with a Russian jazz group. (Foss, AK)

Golos Rossii, **15465** at 1451 in RR with man talking, ID. IS, Kremlin chimes, news. (Jeffery, NY)

Primorsk Radio, Vladivostok . **5015** at 0934 in RR with Russian rock. (Miller, WA) 1130 in RR. (Johns, TX)

Magadan Radio, **7320** at 0841 with music, RR. (Foss, AK)

SAUDI ARABIA—BSKSA, **9555/9870** at 2200 in AA. (Pellicciari, CT)

SINGAPORE—Radio Singapore Int'l, **6135** heard at 1345 in unidentified language. (Miller, WA)

BBC relay, **6195** at 1126 with "Newsdesk." (Jeffery, NY) **7135** at 1155 in EE, CC, EE. (Northrup, MO)

SOLOMON ISLANDS—Solomon Islands Broadcasting Corporation, **5020** at 0939 with music and news in Pidgin. (Miller, WA) **0957** with music, Solomon Islands news at 1000. (Foss, AK)

SOUTH AFRICA—Channel Africa, **6120** at 0452 with bird IS to sign on. (Miller, WA)

SOUTH KOREA—Radio Korea, **7275** at 0847 with several women in JJ. (Foss, AK)

SPAIN—Radio Exterior de Espana, **7275//11850//15110** at 2230 in SS. (Pellicciari, CT)

SRI LANKA—Sri Lanka Broadcasting Corp., **15425** at 0200 in EE. (Johns, TX) 1504 with news, music. (Miller, WA)

SUDAN—Radio Omdurman, **7200** at 0405 in AA with Sudanese music. (Pellicciari, CT)

SWAZILAND—Trans World Radio, **4775** heard at 0359 with hand bells IS, into AA/FF. (Miller, WA)

SWEDEN—Radio Sweden, **7115** at 0326. "60 Degrees North" at 0330. (Miller, WA)

15240 at 1135 with news. (Pellicciari, CT)

SWITZERLAND—**9985** at 0405 in EE.

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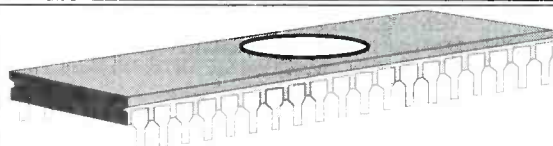
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9905 (via Fr. Guiana) at 0029 in GG. (Miller, WA) 9905 at 0427 with "Newsnet" program. (Foss, AK)

TAIWAN—Voice of Free China, 7130 at 1200 with ID and frequency schedule. (Northrup, MO) 11915 at 0936 in CC. (Foss, AK) 17845 via WYFR at 2343 in SS. (Wilden, IN)

TANZANIA—Radio Tanzania, 5050 at 0331 in EE. (Jeffery, NY)

TUNISIA—RTV Tunisienne, 7475 at 2135 in AA. (Pellicciari, CT) 0400 in AA. (Johns, TX) 15450 at 1442, mostly talk in AA. (Jeffery, NY)

TURKEY—Voice of Turkey, 9460 at 0254 in TT with rock, ID. (Jeffery, NY) 9655 in EE at 2200. (Pellicciari, CT)

UKRAINE—Radio Ukraine Int'l, 7150 at 0044 with DX program, music, ID, headlines. The DX program airs around 0045 on Fridays. (Jeffery, NY) 9550 at 0000. (Pellicciari, CT)

UNITED ARAB EMIRATES—UAE Radio, Dubai, 13675 at 1630 with news. (Pellicciari, CT)

UAE Radio, Abu Dhabi, 9605/9695/9770 at 2200 in EE, Koran reading, relay of Capital Radio. (Pellicciari, CT)

UNITED STATES—VOA, 6873 SSB feeder at 0445. (Pellicciari, CT)

VATICAN—Vatican Radio, 11625 at 2000 with news. (Pellicciari, CT)

VENEZUELA—Radio Tachira, 4830 at 1009 in SS with music. (Foss, AK) Ecos del Torbes, 4980 at 0300 in SS. Off at 0400. (Yohnicki, Ontario)



Here's a shot of one of the studios at the Voice of America in Washington.

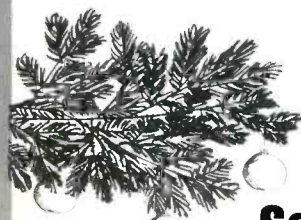
YEMEN—Republic of Yemen Radio, 9780 with bird IS at 0255, sign on at 0300 in AA. (Johns, TX)

YUGOSLAVIA—Radio Yugoslavia, 11870 at 0033. QRM from co-channel Budapest. (Miller, WA)

Nice work, folks! Sound the trumpets in salute to the following reporters this month: Steve Pellicciari, Norwalk, CT;

Elmer W. Wallesen, La Grange Park, IL; Sue Wilden, Columbus, IN; Ed Rausch, Cedar Grove, NJ; Marty Foss, Talkeetna, AK; Mark Northrup, Gladstone, MO; Michael J. Miller, Issaquah, WA; Michael Yohnicki, London, Ontario; Richard Klingman, Mt. Upton, NY; Andy Johns, Mansfield, TX and Dave Jeffery, Niagara Falls, NY. Thanks to each of you!

Until next month, good listening! ■



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Clandestine Communique



TUNING IN TO ANTI-GOVERNMENT RADIO

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The Voice of Palestine's **Voice of the Palestine Revolution** isn't often reported, so it's good to be able to confirm that this is still on the air. It's scheduled from 0400 to 0500 on **5955** and **9670**, 1200 to 1300 on **11745** and 1930 to 2030 on **6025**, 7190 and 9665.

The **Democratic Voice of Burma** continues to operate, broadcasting via Radio Norway, at 1100 on **15175**.

What is possibly some additional action on the Colombian scene is **Estacion Fariana**, operated by the FARC guerrillas in that country. It has been noted in South America on **6330** variable running to 2145 closing, an hour which makes reception in North America extremely unlikely, not to mention the fact that the broadcasts are very irregular. The other Colombian clandestine, **Radio Patria Libre**, operated by the ELN guerrillas, is reportedly scheduled at 1800 and 2200 on **6250**, which is quite a shift from their former broadcast times and a propagationally-unfortunate one at that.

The **Voice of the Tigray Revolution** is broadcasting from Mekele, the capital of Ethiopia's Tigray region, in the northern part of the country. The station broadcasts on behalf of the Ethiopian People's Revolutionary Democratic Front, the party which now governs Ethiopia. Technically, this isn't a clandestine but it once was. It is scheduled from 0330 to 0500 and 1500 to 1600 on **5500** and **7515**, although those times may be somewhat variable. The broadcasts are in the local Tigrigna language.

Ed Rausch in New Jersey heard this recently, opening at 0330 on **5500**, with nonstop local music until 0400 when a man gave a station identification, backed with a heavy echo effect.

The **Voice of Rebellious Iraq** is the station of the Supreme Assembly of the Islamic Revolution in Iraq (SAIRI), a Shi'ite group backed by Iran, and believed to broadcast from there. The schedule is variable and somewhat sporadic, but generally 1300-1500 between

6350 and **6650**. Another broadcast airs around 0230 to 0500, but this one may be only on medium wave. The broadcasts are in Arabic and Kurdish. The same group is also responsible for programming aired on the **Voice of the Islamic Revolution in Iraq**.

Nigerian clandestine **Radio Democrat International** continues to operate from 2100 to 2200 on **6205** and 7195. The transmitter location has been confirmed as the Meyerton, South Africa site. These 500 kW transmitters are the same ones used for Channel Africa.

Guatemalan clandestine **La Voz Popular** broadcasts only Tuesdays and Fridays at 2315 (2215 during the summer months), broadcasting from the Tajumulco volcano in western Guatemala's San Marcos department. The most recently used frequency is **7000**. We've heard from Jeremy Bigwood who points out that the Guatemalan insurgency has been going on for over 30 years straight—there's been no "off" time as we alluded to in a recent col-

Radio Democrat International Nigeria

QSL - Verification of Reception

This is to confirm that ED RAUSCH received *Radio Democrat International Nigeria* on:

Date: 16th/18th JUNE 1996

Time: 15⁰⁰ - 15³⁰ GMT

Frequency: 15120 / 11900 kHz Power: kW

Transmitter location:

SIGNATURE: R.D.I.NIG OFFICIAL SEAL:

Radio Democrat International sent this yellow card stock QSL to Ed Rausch in New Jersey for his reception on their former frequencies of 11900 and 15120.

umn. Jeremy says he used to listen to La Voz Popular when he was in Guatemala City and San Salvador from the late '80s to 1994. It was jammed by Army stations, says Jeremy, who also notes he could not hear Popular when he was in Chiapas, which is closer to the supposed site of the transmitter. Thanks for the info!

Two anti-Castro programs have appeared on the latest schedule from WRMI, Miami (9955). The first is **Mujer Cubana**, on Sundays from 2130 to 2200 and programmed by a group with the same name. Letters to this one go in care of WRMI, P.O. Box 526852, Miami, FL 33152.

The second is **Agenda Cuba**, also aired Sundays, from 2300 to 2300 on 9955. It can be reached at 7175 SW 9 Street, Suite 217, Miami, FL 33144

WRMI also carries the Cuban American National Foundation's **La Voz de Fundacion** Monday through Saturday from 1000 to 1300.

The North Korean clandestine **Voice of National Salvation** has been heard by Marty Foss in Alaska on 4557 at 1321 in Korean but suffering from what Marty indicates was "heavy jamming." (Parallel frequencies used by this station are 3480, 4120, 4400, 4450 and 6020. As far as we know no one has ever been able to find a way to QSL this station, which is operated by North Korea.

Steve Pellicciari in Connecticut logged the anti-Castro **La Voz del CID** on 6305 variable at 0450 in Spanish. This is one of the few—maybe the only?—anti-Castro broadcasters that still operates its own transmitters. The rest are all programs aired over another broadcaster's facilities. Not like the "good old days" when there were several "home brew" clandestines operating out of homes, garages and vans in southern Florida, mostly in the area between 7000 and 7100.

Steve also took a log on the U.S. gov't's anti-Castro voice, **Radio Marti**, which he heard at 1800 on 9825 and parallel 13820. He also had them on 7365 at 0200.

The **Voice of Southern Azarbayjan** is active between 1530 and 1630 on 12090. It's operated by the National and Independent Front of Southern Azaribayan, which is a province in Iran bordering on the republic of Azerbaijan. The station broadcasts in the Azeri language and opposes the government of Iran.

The **Voice of Free Tajikistan**, one of the ex-USSR republics, is on the air in the Tajik language from 0000 to 0040, 0300 to 0340, 0600 to 0640, 0900 to 0940, 1100 to 1140 all on 7080.

Radio Egypt of Arabism, is on the air

irregularly. It is hostile to the government of Egypt. These Arabic language broadcasts have been most recently noted on 11895 from 2030 to 2100. A couple of years ago these broadcasts were part of the schedule of Radio Baghdad.

Voice of the People of Kurdistan has been noted signing on at 0235 on 4105, 4300 and 6290 with broadcasts in Arabic and Kurdish.

The **Voice of Tibet**, aired over FEBA, the Far East Broadcasting Association station in the Seychelles Islands, currently on 15445 may change (or have changed) its frequency to 15480 because

of what it calls "interference/jamming." These programs, in Tibetan, air Monday through Friday at 1145 to 1200 and have, indeed, been jammed by China, in the form of a local FM broadcaster in Beijing.

Please let us have whatever information you receive each month relative to the clandestine broadcasting scene. This includes logs of any of the stations you might hear, information about the stations themselves, their addresses, and their backing organizations, transmitter locations and so on. Your input is always very much appreciated.


Until next month, good hunting! ■

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ACARS Decoders in Review

Confessions of an ACARS Junkie: Presently, I own five of the seven ACARS decoders currently available, and coincidentally, five scanner/receivers as well. (Mind you, not that I've ever had more than three units decoding at one time!) Nor was it ever my intention to become a collector, it just kind of insidiously happened.

In order of acquisition, they are: the Universal M-400, Universal ACT-1, Lowe Air Master, Hoka Code3-Gold and the AEA ACARS. My first introduction to ACARS was at an MT Convention in Knoxville over six years ago. A robust jovial gentleman in military fatigues was extolling the virtues of a "home-brew" decoder interface for the PC and the traffic it could capture. Armed with myriads of printouts, totally unintelligible to the uninitiated, this is no way dampened his enthusiasm. But some of us are slow to convince. Having forgotten all about ACARS, we were cajoled once again, by its exuberant advocate at the next convention the following year. Fortunately, for ACARS monitors, I wasn't the only new convert. Upon his return to Ohio, Fred Osterman of Universal Radio began the development of an ACARS decoder. The Universal M-400 was introduced in the spring of the following year. In case you haven't guessed it by now, that jovial gentleman and ACARS advocate was none other than Father Ed Flynn of California, a retired Army Chaplain and former pilot.

ACARS decoders are available in a variety of packages; some are stand-alone dedicated units, only decoding ACARS traffic. Others offer ACARS as simply another mode in addition to the plethora of others that they will decode. Some units are meant for base station operations and require an AC power supply, while others permit portable operations, through the use of a laptop or notebook computer, drawing their power from the computer's COM port.

Depending on the model you choose, you can expect to spend from \$99 to \$1399. Here then, is a breakdown of ACARS decoders.

1. The Universal M-400, the unit that started it all, is a stand-alone desktop decoder (requiring an external power supply) that features several popular digital shortwave modes as well as other VHF pager modes. The M-400 has a unique, two line, 20 character LCD display and an 8,000 character scrollable buffer that allows the user to review previous transmissions. Audio connections to your radio are made through a standard RCA cable. A parallel printer interface is provided on the back of the unit. For serious monitoring however, it is necessary to keep a printer running at all times. During its first year of use, I generated over 5,000 pages of decoded traffic. With the very future of Canadian forests at stake, I built a "home-brew" parallel to serial interface and ported the messages to my desktop computer. A simpler solution exists today. Universal now also markets the CI-400 Capture Interface which provides an easy and effective connection to a PC-type computer. My Universal M-400/ICOM R-7100 combination continues to remain the benchtop configuration used to evaluate all other contenders.

2. The Universal M-8000v7 desktop decoder is a top-of-the-line digital decoder designed for serious digital monitoring. Sporting several HF and VHF decoding modes, it is also the most costly decoder featured in this review. In addition to the decoder, you will require a VGA analog color monitor. A parallel printer port also supports laser printers. Audio connections are made through a cable with an RCA male at one and a quarter inch phone plug at the back of the decoder. A second audio input is available for shortwave radios. Computer Aided Technologies markets a program named "Copy Cat" that permits control of and data capture from the M-8000 from your PC. Although this unit is outstanding for ACARS decoding, obviously no one purchases it for that reason alone.

3. The Universal M-1200 Decoder Card is a plug-in circuit board that requires one full size slot in your PC. It offers the same decoding capabilities and

modes as the external M-400 unit, except that all data acquisition takes place within the confines of the computer. The M-1200 functions well with most brand name PC clones. Owners of the "El Cheapo" brands would do well to consider another alternative, as computer-generated RFI will seriously impact its decoding abilities.

4. The Universal ACT-1 is a portable, dedicated ACARS-only decoder requiring no external power. The Audio Input Converter hardware consists of an RS-232-sized 25 pin interface that plugs into a serial port. A cable from the interface terminates in a mini plug which connects to an audio-out source of your scanner/receiver. Another serial device (such as a mouse) may be daisy-chained through the back of the interface. The user-friendly software, runs under DOS only, and includes full mouse support. The interface must be plugged into your serial port in order to run the program. You can view, filter, print and save incoming messages as well as view, search and print previously logged files. A feature unique to this decoder is its ability to individually suppress the display of each of the message elements. Another unique feature provides the capability to filter messages for viewing, printing or saving. Each of these filters can be set to monitor one of the three following fields: Address/Registration, Flight Id/Number and Message Text. Up to 16 entries may be defined for each of the three fields and wildcard characters are supported. Only incoming text that does not match your previously defined excluded specifications will be displayed, printed or saved. Priced at just under \$100, the ACT-1 is one of the two units in this price range.

All Universal decoders are supplied with adequate set-up and user documentation and a complimentary copy of Ed Flynn's book "Understanding ACARS" is also included.

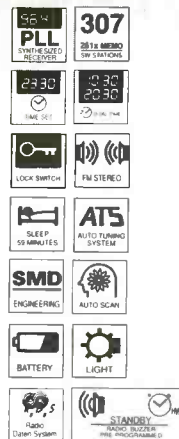
5. The Lowe Air Master is also a portable, dedicated ACARS-only decoder requiring no external power. Terminating in a 25 pin plug, the decoder interface

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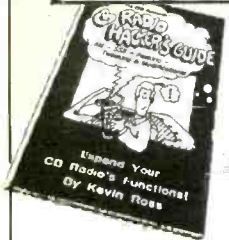
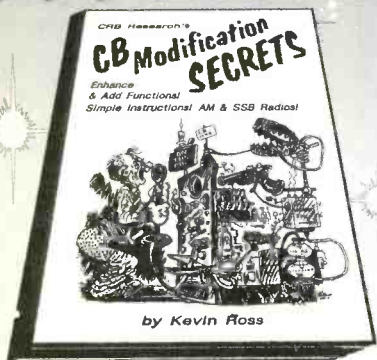


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Hoka Code3-Gold Decoder \$595	Computer Aided Technologies

4. The cable from the interface also terminates with a mini plug connector. Again the interface must be present for the software to run. The program is designed to run under DOS and no mouse support is provided. Lowe has just released the Version 3.0 software for this very popular decoder, with many enhancements over previous versions. Perhaps the most unique feature of this decoder (and that of the AEA ACARS unit that shares its common heritage) is its ability to optionally suppress messages with bad parity. By the very nature of their small size, all portable interface units lack the sophisticated audio/digital conversion processing circuits of their desktop counterparts. Although the software attempts to compensate for this shortcoming, it is not always successful. The end result may be a screenful of messages containing garbled unintelligible text (even more unintelligible than

some real ACARS messages). Should you elect to display messages with bad parity, the Air Master will even display the garbled portion of the message in a different color than that of the correctly received text. My personal preference is to keep this feature enabled at all times. You actually will not lose much traffic and your frustration level will be kept to a minimum. As with most portable decoders, messages are displayed and saved with message element headers. While this makes message content easier to read, it also means larger file sizes, since individual messages now comprise several lines. A new feature in the Version 3.0 software allows you to turn off all message headers. This bodes well for mobile operations at local airports. Ground-to-Air uplink messages usually contain Aircraft Registrations, not Flight Numbers.

Decoders that display message headers tend to erroneously place the first few

characters of the actual uplink message text in the Message Number and Flight Id/Number fields. The Air Master's new software permits you to optionally turn off all header information, thereby also providing a more compact display, even for downlinks. Although no mouse support is provided, a series of "hot keys" mimics the functions of the pull-down menus. The display of message contents can also be suppressed, a feature especially suited to aircraft "Spotters". Up to six character strings of alert text can be specified. If any of this text appears in an incoming message, the computer will beep to alert the user. This feature is designed to help in spotting particular registrations or flight numbers. Display of repeat messages can be suppressed so that details of the last 50 messages received are kept in memory and any incoming messages are checked against them. In addition to scrolling back through the current session's logs, previously saved logs may be called up for review. Set-up and user documentation were provided by the third-party design and development team. A 23-page chapter on Understanding ACARS provides only a skeletal introduction, notwithstanding that it is a direct

copy of the introductory ACARS chapter from my last book, example messages and all. (To add insult to injury, the Further Reading section lists my book title with author UNKNOWN—Ian Tompkins, please take note.)

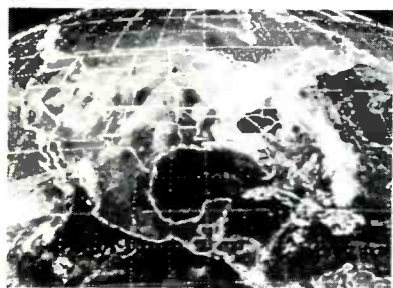
6. The AEA ACARS decoder is virtually identical in every respect to Version 1 of the Lowe Air Master. This is no mere coincidence, inasmuch as the third-party UK-based development team that designed the Air Master also developed the AEA unit. Like the Air Master, its most significant feature, in my opinion, is the ability to suppress messages with bad parity. It may be purchased as an ACARS only decoder or as a bundled product with other popular AEA decoders. Current owners of the AEA FAX III, DSP-232 and PK-900 demodulators may purchase software-only versions designed to provide full ACARS capabilities. Although AEA originally provided a demo unit for this evaluation, I ended up purchasing it for my own use. At a suggested list price of \$99, you can't go wrong in making this your first ACARS decoder. Not satisfied with the documentation supplied by its original designers, AEA has produced an exceptional 132-page manual excelling

in message types and interpretation. It is obvious that the authors of this document spent many hours actually monitoring and interpreting ACARS traffic.

7. The Hoka Code3-Gold is also a portable decoder that plugs into your computer's COM port and requires no external power. The interface is designed with a 25 pin plug on one end and a 9 pin plug on the other. Simply plug the appropriate configuration into your computer. Similar to the Universal M-8000, the Hoka supports a myriad of digital modes (over 30 to be exact). When used to decode ACARS, this unit is unique in that it is capable of distinguishing between Uplink and Downlink messages as well as message status (ACK or NAK). I was surprised to discover that it also identifies "Squitter" transmissions (random transmissions from the ground that alert aircraft that a ground station is available to receive traffic).

With exception of a paragraph on what type of antenna to use, there is absolutely no documentation on ACARS reception or even an illustration of the ACARS data screen. Nowhere is the abbreviation "AGCS-D", that appears at the start of every message, explained. Nor do they

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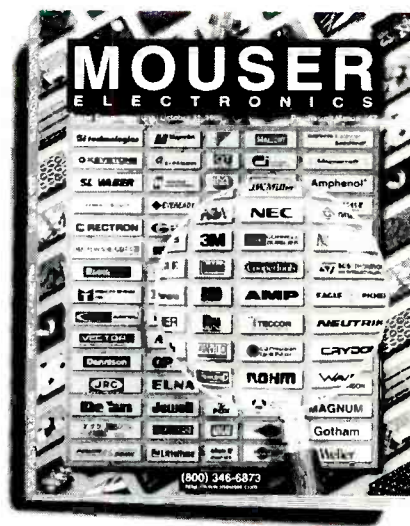
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CIRCLE 87 ON READER SERVICE CARD

THE MONITORING MAGAZINE

CIRCLE 79 ON READER SERVICE CARD

December 1996 / POPULAR COMMUNICATIONS / 65

Universal M-400/M-1200/M-8000

.N601DL 805
47483C01 POSWX 1908/20 KCVG/KBOS .N601DL
/POS JHW /OVR 1549/ALT 370/FOB 0138/SAT 53 /WND
349030/MCH 803/TRB LIGHT /SKY SCATTERED

Universal ACT-1

0692 20/08/96 11:46:00 2 DL1908 80 5 4748 AA1105 OS ORD /ALT30101552 DL19083C01
POSWX 1908/20 KCVG/KBOS .N601DL /POS JHW /OVR 1549/ALT 370/FOB 0138/SAT 53
/WND 349030/MCH 803/TRB LIGHT /SKY SCATTERED

Low Air Master Version 2 and AEA ACARS

[20/08/1996 11:46]
ACARS mode: 2 Aircraft reg: .N601DL
Message label: 80 Block id: 5 Msg. no: 4748
Flight id: DL1908
Message content:-
3C01 POSWX 1908/20 KCVG/KBOS .N601DL
/POS JHW /OVR 1549/ALT 370/FOB 0138/SAT 53
/WND 349030/MCH 803/TRB LIGHT /SKY SCATTERED

Low AirMaster Version 3—Messages Headers Displayed

ACARS mode: 2 Aircraft reg: .N601DL
Message label: 80 Block id: 5 Msg. no: 4748
Flight id: DL1908
Message content:-
3C01 POSWX 1908/20 KCVG/KBOS .N601DL
/POS JHW /OVR 1549/ALT 370/FOB 0138/SAT 53
/WND 349030/MCH 803/TRB LIGHT/ SKY SCATTERED

-----[20/08/1996 11:46]

Low AirMaster Version 3—Messages Headers Suppressed

2 .N601DL 80 5 4748 DL1908
3C01 POSWX 1908/20 KCVG/KBOS .N601DL/POS JHW /OVR 1549/ALT 370/FOB 0138/SAT
53/WND 349030/MCH 803/TRB LIGHT/ SKY SCATTERED

-----[20/08/1996 11:46]

Hoka Code3-Gold—ACARS Mode

AGCS-D DOWNLINK AIRCRAFT: .N601DL
NAK LABEL: 80 BLOCK IDENTIFIER: 5
TEXT FOLLOWS
DL19083C01 POSWX 1908/20 KCVG/KBOS .N601DL
/POS JHW /OVR 1549/ALT 370/FOB 0138/SAT 53
/WND 349030/MCH 803/TRB LIGHT /SKY SCATTERED
END OF TEXT

explain how they derive their ACK and NAK message status.

Screen Formatting

The following examples illustrate how each of the decoders display ACARS data

to your computer/monitor screen. The Air Master and AEA units permit you to define separate colors for the messages headers, text and date/time. One quirk of the Hoka you will notice is that it does not capture date or time.

Message content is as follows: The air-

crew of Delta Flight 1908 (aircraft registration .N601DL) have initiated an Air-crew Addressed Downlink message (Label 80) with a Block Id of 5 (signifying that this was the 5th transmission attempt for this message. The message was sent at 47 minutes, 48 seconds past the hour.

Message type is 3C01 (a Hexadecimal code specifying message content is a Position/Weather Report) which is further confirmed by the POSWX label. The flight number (minus the DL prefix), a slash (/) and the actual day of the flight appears next (20 for 20th day of the month). This is followed by the flight origin airport four-letter IATA Code (KCVG—Covington, Kentucky—the International airport of Cincinnati—just across the border from Ohio). The destination airport is KBOS—Boston, Mass. The aircraft registration is repeated once again. Present position of the aircraft is over the VOR beacon at JHW (Jamestown NY). Time over the beacon was 1549 local. The aircraft is flying at 37,000 feet altitude, fuel on board is 13.8 (x 100) pounds, the Static Air Temperature (temperature outside the aircraft) is minus 53 degrees, the wind is blowing from a direction of 349 degrees at a speed of 30 knots. The aircraft is traveling at a speed of Mach .083 (459 knots, relative to this altitude), turbulence is light and sky conditions indicate scattered clouds.

(As a side note, this transmission was received using the Lowe Air Master connected to a NEC laptop with audio from a Yaesu FRG 9600 with a magnetic-mount antenna placed on the inside window ledge of my 7th floor apartment. JHW is over 200 miles from my QTH.)

The Bottom Line

OK, which decoder is best? Before I can answer that question, there are a few questions that YOU must ask yourself.

1. Are you only interested in decoding ACARS or are there other digital modes that interest you as well?
2. Do you own a computer? Is it a desktop or laptop model?
3. How much "real-estate" (space) do you have in your computer/radio shack to accommodate a larger outboard unit?
4. If you own a desktop computer, do you have a free full-size slot in your PC?
5. Do you see yourself setting up for portable operations at your local airport?
6. And last, but not least, how much money are you prepared to spend?

Armed with this information, you should be able to make a reasonable choice. Remember, that even though so called "portable" units have the advantage of mobility, when used in combination with a desktop computer, they virtually take up no space. Also remember that

these units don't possess the electronics to filter out garbled text. You would do well to consider units that suppress data parity errors. For me, the perfect ACARS decoder does not exist—if it did, it would incorporate all the unique features of each unit now available.

Another anomaly lies in the fact that no two decoders "see" all the same messages. When operating several decoders simultaneously, messages will be captured by some and not by the others. This fact has been borne out by other sources and shouldn't concern you as you make your choice.

All of the above decoders will perform equally well whether attached to VHF desktop receiver or a good brand-name handheld scanner. The secret is that the squelch circuit must be left *completely open at all times*.

So, once you've saved the thousands of ACARS messages to your hard disk, now what? Wouldn't it be nice if there was a program that could catalog and index Flight Numbers and Aircraft Registrations, alerting you to new entries; a program that could summarize all the

messages of a flight, look up databases and identify the air carrier and aircraft type, as well as determine flight origin and destination? And wouldn't it be nice if this whole process was user-maintainable? Well such a program does exist for the PC, its called "DACARS" and you don't need Pentium power to run it. At a \$15 U.S. shareware fee, it's a steal. The sole caveat—it only works with the Lowe Air Master v2/3 and the AEA ACARS units.

Where to Get ACARS Units

You will find that the majority of these suppliers advertise in *Pop'Comm*. Refer to their ads for information on how to contact them. If you live within VHF range of a major airport, there is one more piece of equipment that is invaluable for ACARS monitoring. Surprisingly enough, it's another scanner/receiver to listen to arrival and departure *voice* traffic. These two modes (digital and voice) often complement each other, more than you may imagine. Until next year . . . ■

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Scanning The Globe

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

Scanning: What's It All About?

After somewhat of a hiatus from this column, I am returning! Thanks to the graciousness of J.T. Ward, who penned this column during my tenure as editor of *Pop'Comm*, he offered to let me return to the scanning scene here. So, without further interjection, we'll pick up where J.T. left off without missing a beat. I welcome all of our scanner hobbyists to participate in this forum. I'd love to hear from you!

Scanning primer

While I recognize that many of this column's readers are scanner hobbyists, one of the best things about *Pop'Comm* is that you can learn so much about other aspects of the radio and communications hobby by reading through the other columns. For instance, you may be a scanner listener, but by reading the Communications Confidential column, you may find that HF utility signals may be interesting to tune in, and you fire up your shortwave receiver and try intercepting some of these signals. Exposure and learning are what these columns are all about.

For the benefit of those readers who may not be familiar with the scanning hobby, I'd like to take some space here to acquaint you with the subject. For those who already scan, this column may serve two purposes: 1) you may learn something new (imagine that!), or, 2) you may want to show this column to a friend or someone involved in another aspect of the radio hobby (a ham or CBER, for instance), and acquaint them with some of what you like to do with your communications equipment.

The scanning hobby itself has been around since the advent of scanning receivers in the late 1960s, however, VHF and UHF monitoring takes its roots back in perhaps the 1930s when police calls were broadcast at the top end of the AM broadcast band and listeners nationwide would delight in emergency calls at night from Michigan, California, and other places around the country. A hobby was born, and DXers chased the long-haul emergency alarms.



This sign on Highway 2 between Red Deer and Edmonton, Alberta, Canada, shows the local weather broadcast frequency on VHF. Thanks to Trevor Fletcher for sending it along.

When police and fire communications started gravitating to the VHF low and high bands, tunable receivers allowed listeners to scan the 30–50 and 150–174 MHz bands for emergency alerts, and newfound two-way communications. A lot could be heard, however, receivers needed to be locked on one specific frequency at a time as the tuner was slid up and down the dial in search of signals.

Later, those tunable receivers also came with crystal sockets so you could monitor a specific frequency by simply plugging in a crystal pretuned to your favorite agency's frequency. For me, that allowed me to have a tunable receiver to search out signals, but also allowed me to install a crystal to monitor local signals on a regular basis. It was a good idea.

Crystal scanners were the first scanners on the market. The first such scanners usually came in four, eight, and 10-channel versions, and you were required to purchase a similar number of crystals (usually at a cost of around \$5 each) to monitor local signals. The crystal scanners would scan through each of the crystal frequencies and stop on a given channel when it sensed a signal in progress. The scanner would remain locked on the channel until the communications in progress ended. It then returned to scanning

the rest of the frequencies over and over.

The first programmable scanners made available were cumbersome and had unusual techniques to synthesize frequencies, thus eliminating the need for a box of crystals to monitor local frequencies. Some of these first programmable scanners had techniques such as thumbwheel tuning, metal combs and dipswitches. They all accomplished the same thing—to allow the user to program in a desired frequency without using crystals.

Programmable scanners really opened up VHF/UHF monitoring as a hobby. Until then, most scanner owners seemed to have the receivers primarily because they were fire fighters, police officers, or just plain nosy. But programmable scanners opened the hobby to the growth of technology. When cordless phones went on the market, programmable scanners allowed users to listen in (until, of course, that activity was regulated!).

Whereas crystal scanners often just had crystals to monitor public safety communications in their community, programmable scanners allowed for experimentation. With crystal scanners, you had to purchase a crystal for EVERY frequency you wanted to monitor. If you liked to listen to mobile telephones in the 152 MHz band, you had to have a crys-

"Exposure and learning are what these columns are all about."

tal for every mobile telephone channel active in your area (I remember those days!). However, with a programmable scanner, you can search for the active mobile telephone channels in your area and program in any of the frequencies you desire for monitoring.

In addition, programmable scanners let the user experiment by finding new frequencies and tuning in those for other radio services. It probably would not make sense to purchase a crystal for these new "finds." Perhaps you've programmed in frequencies for a fast-food drive-through window crew. But would you really spend \$5 for a crystal to listen to such chatter?

"You can tune in on all kinds of communications and services that operate on the VHF and UHF bands . . ."

That's the beauty of today's programmable scanners and the point of this column. You can tune in on all kinds of communications and services that operate on the VHF and UHF bands, from as low as 25 MHz to as high as 2.3 GHz and higher. It all depends on the capability of the scanner you are using. You're not restricted to listening to police and fire calls, the staple of scanner monitoring by the masses. You can "stumble" across cordless telephone chatter, find the FBI's frequencies, hear pilots in the air, follow dog catchers on their rounds, overhear teen chatter at fast-food drive-through windows, or monitor mall security forces during busy holiday shopping times.

While two-way radio systems used by some communities may seem high-tech and unmanageable in monitoring, don't let that scare you from getting in to the hobby head first. A lot of potential scanner hobbyists are scared off when they find out that an agency they want to monitor on a primary basis is using what is called a trunked 800 MHz radio system. Without getting into the specifics of what it all means, it shouldn't keep you from learning what's out there. Yes, listening to a trunked radio system may present a challenge, but it can be done. Usually, you

scan all the channels of the trunked system and lock out the data channel when it comes buzzing in on your scanner during the day (the one in my community conveniently changes at 12:39 a.m.!).

When you start out scanner listening, start out easy. Find the local police, fire and EMS frequencies used in your community, and monitor them on a daily basis. The more you monitor a system, the more you become acquainted with radio codes, unit numbers used to identify radio users and voices, or the actual public servants. Those who monitor public safety communications in their community have a keener sense of what's actually going on in their town. You appreciate their services, and how your tax dollars are spent.

" . . . there are all kinds of interesting frequencies to monitor, and each type of user has best times to listen."

After you master the public safety frequencies in town, you can branch out to frequencies used to support local government operations, such as street crews, parks and utilities. Once you have most of the important frequencies figured out for your community, you then can tackle more complex challenges such as business and federal government users, something that usually requires more searching than anything else to locate. But there are all kinds of interesting frequencies to monitor, and each type of user has best times to listen. For instance, you can bet mall security operations are best to monitor on weekends or during the holiday shopping season when there are many more people in malls. Likewise, school buses are best monitored during the morning and afternoon, when they are transporting students to and from school. Use your judgment and you'll find plenty to hear.

Mailbag

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 the Globe, *Popular Communications*, 76 N. Broadway, Hicksville, N.Y. 11801-2909, or e-mail me at POPCOMM@aol.com via the Internet. ■

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YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Mystery Stations, Numbers and More Utility Intrigue

Al Hemmalin, RI indicated that he was using his standby communications receiver, a Drake R8, Grove TUN-4 antenna tuner and a random wire running East and West at right angles to the power lines. It is not as sensitive as the active antenna, but the signal-to-noise ratio is better, he reports.

Mark Redfox, WA uses a Yaesu FRG-7 with a 30-foot longwire which is mounted on the roof of his apartment building. "I've been into monitoring with a shortwave receiver for only a couple of years and enjoy it very much."

Wes Linscott, ME wrote, "Most of my utility listening has been CW. I have utilized an old Navy surplus R-390A and then more recently a RadioShack DX-390. This past winter I got involved in logging LF beacon stations, putting 68 of them in the log with the DX-390 and a random wire antenna. I hope to get something better put up for an LF antenna."

Tom Severt, KS reports he found a couple of new skeds for the suspected Russian MFA network. At 0045 on 11523 kHz for GMN, and heard again at 2000 on 16217 for HZW.

Tom also copied the mystery station on 16303 kHz. He stated he was convinced the transmitter was the same regardless of the call sign used. A study of the material he has forwarded certainly makes it appear that this is a training activity. The transmissions seem to simulate various network operations, so I can't help but wonder if this is an intercept operator training activity.

Takashi Yamaguchi from Japan, forwarded a copy of the April/May 1996 issue of "Beyond," a monthly publication of the Japanese Association of Utility DXers. I can't read the articles, which are in Japanese, but the logging section is in English. It was interesting to see the scope of signals being logged by the Japanese utility buffs.

Rick Baker, OH sent in a list of NIGHT WATCH "Zulu" channel designators compiled from the utility loggings of WUN members:

**Z110 3134?, Z120 3925?, Z125 4495?,
Z130 4472, Z135 4745, Z145 5705,
Z150 5800, Z160 6715, Z165 6757,
Z170 7831, Z175 9016, Z180 9057,**

**Z185 9809, Z190 10204, Z200 11181,
Z205 11494, Z210 11229, Z215 13242,
Z220 13245, Z240 15046**

Our special thanks to the WUN monitors for the information.

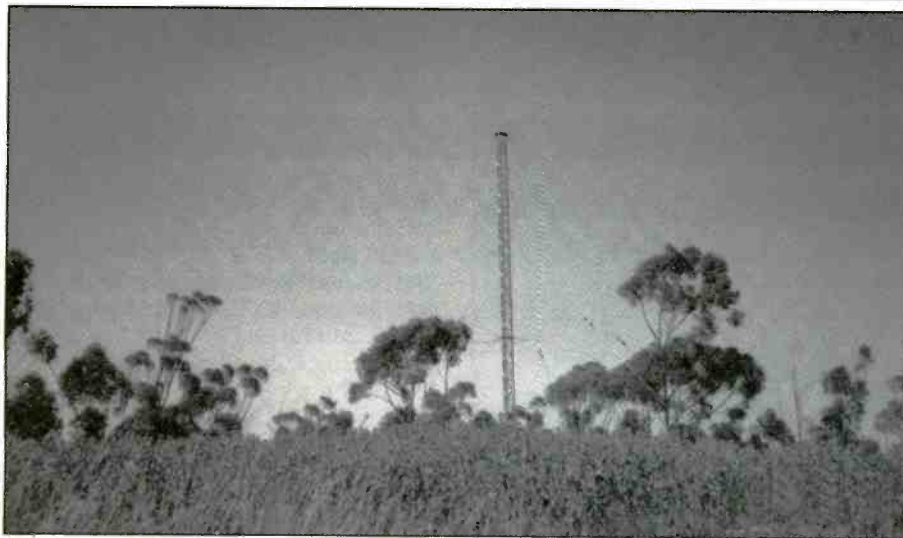
The next letter out of the mailbag is from James Callaway, Jr., NV who reported schedule details for the Canadian Forces Forecast Centre COMOX, Lazo, BC, Canada. This station sends RTTY broadcasts on 2752.1 kHz continuously daily and on 4266.1, 6454.1, 12751.1 kHz 0000Z-2400Z.

During this past summer, readers may have observed various communications in connection with some military exercise. An AP press item briefly described several of these. "Intrinsic Action 96-3"—1,200 Army soldiers were rushed to Kuwait from Ft. McPherson, GA and Ft. Hood, TX to demonstrate quick deployment of the armored tanks and weaponry stored in Kuwait. "Airpower Expeditionary Force Qatar"—Involved the deployment of 1,000 Air Force personnel with 34 fighter and support aircraft. The aircraft included F-15 fighters from Seymour Johnson AFB, NC; and KC-135 tankers from Grand Forks, ND. "Rugged Nautilus"—This was primarily a naval exercise involving some 2,000 personnel. The purpose was testing ability to quickly organize U.S. military forces in the area. Also to be tested were "electronic warfare capabilities."

Eleven years ago (see June 1985 column), photos from Dave Carlson, CA showed a mystery communications site he had stumbled upon while hiking in the "outbacks of San Diego." This past July he was again hiking in the nearby area and took some more pictures of the site. Since his 1985 visit, the tower with a log periodic antenna had been repainted as had a small building. While the front gate to the compound is locked, a rear gate was wide open, allowing unobstructed camera views into the compound. There were



View of mystery site from road which leads to locked gate. Tower on left has been painted since 1985 visit.



There were about six of this type antenna spread over an area of approximately 10 acres.

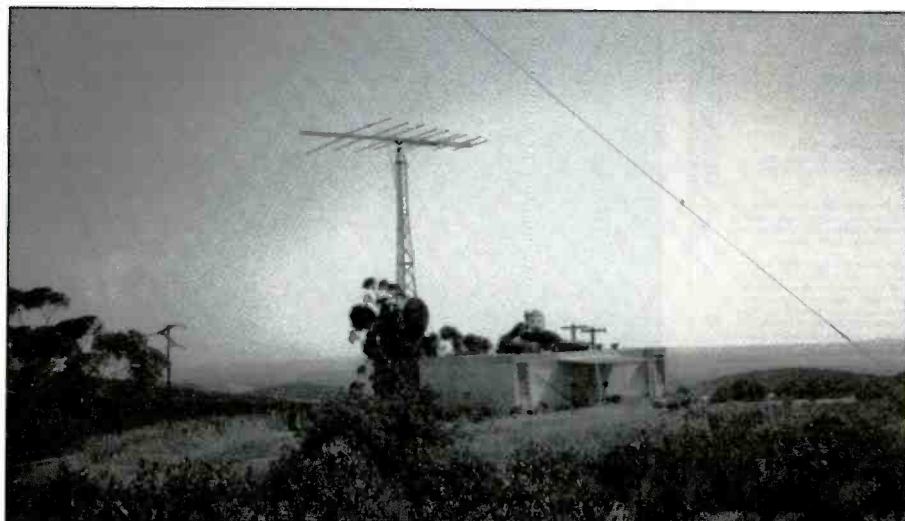
no vehicles in the compound and no noise from the building. The ventilation system was not operating, so perhaps it just comes on when the transmitters are being keyed. Does anyone recognize the installation? Who can tell us where the control point is for this apparently remotely-controlled communications site?

Here is a summary of details from retired FAA employee Ralph Craig, OH regarding some other mystery communications sites. Readers are referred to the June 1994, June 1995 and August 1995 columns. The buildings in each of those photos have blast-proof doors and a multi-story underground construction with dormitory living spaces and kitchen facilities. The latter suggests around-the-clock manning of the site with rotating watch crews. The buildings are not typical FAA, nor are the antennas.

Equipment and material left (punch cards, console, racks, etc.) indicates rather "old" technology of the 1950s-'60s. It is possible these sites were used by the military to communicate with USAF planes during the "cold war." Perhaps the sites were part of a global communications system used by the military?

The sign at the entrance gate in one of the photos was an old Civil Aeronautics Administration sign. The CAA was superseded by the FAA in 1955-56. I suspect the CAA sign may have simply been for cover purposes initially and was not replaced with an FAA sign when the latter organization came into being.

Ralph also submitted some beacon loggings made during this past summer while he was on vacation in New Hampshire. He took along his ICOMR-71A and preamplifier, and put up a 25-foot anten-



View of block house. The beam points to the west as do the microwave dishes. Wires seen in photo are guy wires of a large beam. Notice how high this site is!

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)

na about 15-foot high and attempted to monitor the beacon band. "Was I ever disappointed. The noise level was terrible. However, one night it rained and apparently cleaned off the power line insulator as the noise level decreased."

Raply said he was able to copy some beacon signals and he also heard some FSK signals at a number of points in the 286-322 kHz range. These were probably DGPS signals.

In the following item note the continued use of the Joint Task Force 4 designator even though the same source reported it had been changed to JIATF (East) in September 1944?? "Homeported in Mayport, Florida, Joint Task Group 4.1 is composed of Navy ships and Coast Guard cutters. An important mission is drug interdiction. Additional support to narcotics operations will be provided by the formation of a reserve E-2 squadron.

USCG Law Enforcement Detachments (LEDETs) must be on board the Task Group vessels to conduct the actual boardings. Operation Caribe Venture (replaces Operation Caribe Storm) which includes U.S., Dutch, British and many islands operating jointly under a single flag ship, has disrupted a number of attempted surface and air drug transfers." Source: July 1996 PROCEEDINGS.

I want to wish readers a joyous holiday season and a very Happy New Year. Thanks to everyone who has contributed to the column in the past. I'm looking forward to seeing what the mailbag brings in the coming year.

UTE Loggings SSB/CW/RTTY/SITOR/etc. All times in UTC

194: Beacon TUK, Nantucket, MA heard at 0140. (RC)

198: Beacon DIW, Dixon, NC heard at 0654, 587m. (AH)




Close-up view of block house and the two microwave dishes.


- 201: Beacon JB, Lumberton, NC heard at 0050. (WP)
 208: Beacon YSK, Sanikilauq, NWT, Canada at 0658, 1094m. (AH)
 215: Beacon CWV, Claxton, GA heard at 0240. (WP)
 216: Beacon YFA, Ft. Albany, Ont., Canada at 0711, 884m. (AH)
 218: Beacon YUY, Dayon, Que., Canada at 0145. (RC)
 235: Beacon CN, Cochrane, Ont., Canada at 0556, 700m. (AH)
 239: Beacon VO, Val-D'or, Que., Canada at 0146. (RC)
 245: Beacon YZE, Gore Bay, Ont., Canada at 0546, 640m. (AH)
 263: Beacon QY, Sydney, NS, Canada at 0204, 954m. (AH)
 270: Beacon EZM, Eastman, GA heard at 0245. (WP)
 273: Beacon ZV, Septiles, Que., Canada at 0148. (RC)
 278: Beacon EOE, Newberry, SC heard at 0333. (WP)
 288: Beacon HH, Hoek van light, Holland at 2140. (AB)
 296: Beacon GR, Goerre light, Holland at 2220. (AB)
 299: Beacon AD, Ameland light, Holland at 2143. (AB)
 303.5: Beacon VL, Vlieland light, Holland at 1651. (AB)
 304: Beacon YPP, Parent, Que., Canada at 0135. (RC)
 309: Beacon EEX, Swainsboro, GA heard at 1247. (WP)
 312: Beacon OE, Oostende light, Belgium at 2137. (AB)
 316: Locator PH, Lindhoven, Holland heard at 0740. (AB)
 317: Locator VS, Valenciennes/Denain, France at 0746. (AB)
 325: Beacon UWP, Argentinia, Nfld., Canada at 0139. (RC)
 326: Beacon BHF, Freeport, Grand Bahamas at 0727, 1116m. (AH)
 327: Locator MVC, Merville, France heard at 2150. (AB)
 331: Beacon YFM, La Grande, Que., Canada at 0121. (RC)
 338: Beacon CYR, Cairo, GA at 0310. (WP)
 341: Beacon YYU, Kaparkasing, Ont., Canada at 0120. (RC)
 346: Beacon PCM, Plant City, FL heard at 1205. (WP)
 350: Beacon DF, Deer Lake, Nfld., Canada at 0117. (RC)
 352.5: Locator DD, Oostende, Belgium at 0735. (AB)
 353: Beacon LLX, Lyndonville, VT at 0622, 208m; Beacon QG, Windsor, Ont., Canada at 0742, 597m. (AH)
 357: Beacon EYA, Jacksonville, FL heard at 1200. (WP)
 360: Beacon PN, Port Menier, Que., Canada at 0116. (RC); Bacon BFI, Beef Island, Virgin Islands at 0801, 1640m; Beacon KIN, Kingston, Jamaica at 0804, 1662m. (AH)
 360.5: Beacon MAK, Mackel, Belgium at 0733. (AB)
 362: Beacon SB, Sudbury, Ont., Canada at 0114. (RC)
 366: Beacon YMW, Maniwaki, Ont., Canada at 0113. (RC)
 375: Locator OO, Oostende, Belgium heard at 0731. (AB)
 378: Beacon RJ, Roberbal, Que., Canada at 0211. (RC)
 379: Beacon TL, Tallahassee, FL at 0903, 1063m. (AH); Beacon CM, Point Aux Basque, Nfld., Canada at 0213. (RC)
 385: Beacon NA, Natashquan, Que., Canada at 0210. (RC)
 387: Beacon GE, Grand Manon, NS, Canada at 0214. (RC)

United States of America
Army Broadcasting Service
 Verification Certificate

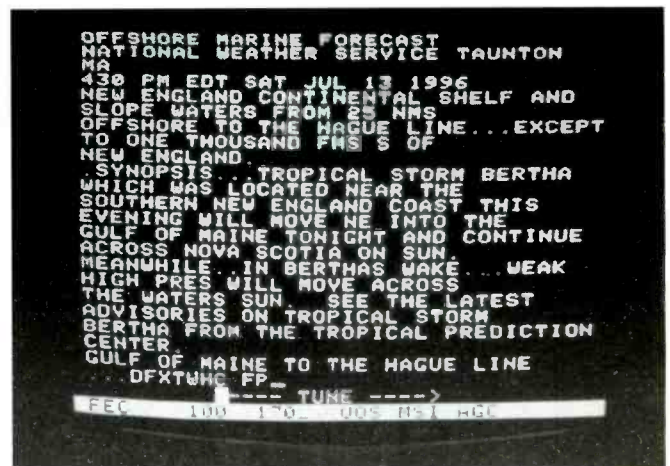
This is to certify Rick "RD" Baker heard and reported reception of the U. S. government test broadcast facility; Tactical Call Sign(s): K8o-Tango-Romeo-Kilo, KTRK, K-Truck (47 USC Section 305(e)); International Registry Call Letters: AARS, abbreviated "ABS" (DPR Art. 6 Para 34); Transmitting Frequency: 1.478 MHz; Transmitter Power Output: 5,000 Watts (505 MW).

Classification: Temporary Flood	Antenna Facility: LBA Technology TUP-3 fixed 120 foot steel
Designator: 20K00A3P (47 CFR Section 1.201 & 2.202)	semi-folded monopole; frequency agile 1,000-1,705
Coordinates: N 39° 33' 34"	MHz; non-directional radiation pattern; 120 radials of
W 76° 55' 55"	fixed 150 foot length with 3 degree spacing.
Period of Operation: 5-8 February 1996	Studio Equipment: Pacific Research & Engrg BMYL-II-18
Official Sign-on: 1146 EST (1146 UTC) 5 Feb 96	audio control mixer; Deane DN 951FA CD players;
Official Sign-off: 1654 EST (1654 UTC) 8 Feb 96	SONY PCM-7010 DAT recorders; Ewulde BD 980
Transmitting Facility: Main: Harris GATES FIVE FA	digital delay and H3000B harmonizer; Orban 6428
Alternate: Harris GATES FIVE FA	equalizer and T5A synthesizer; Henry Engrg Dig-
(Both Frequency Agile: 530-1,705 MHz)	Recorder RAM recorders; ITC Delta III cartridge
Modulation Monitor: TET 753755	players with Delta IV record amps; Tacam 122 Mk
Frequency Monitor: Belar AMM-4	III cassette recorders and Tacam 121 Mk II airlock
Spurious Monitor: Delta Electronics SM-1	editors; BEYOX PR99 Mk III reel recorders; and
Processing: Orban 9100R/1 (with NRSC-1 Disabled)	Apex Computer 320A audio processing.


 MR. DONALD S. BROWNE
 Project Manager


 COLONEL THOMAS A. HANSEN
 Director, Army Broadcasting Service

Rick Baker, Ohio shares this QSL with readers. The transmission was made from a temporary ABS trailer located at the motor pool of Ft. Meade, Maryland prior to deployment to Bosnia.



August Stellweg, New York took this picture of his monitor showing part of a NAVTEX transmission on 518 kHz from the Boston, MA station. He used a Kenwood R-5000 receiver, INFO-TECH M-6000 decoder and 100-foot longwire.



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- External ant. & spkr. jacks for added flexibility



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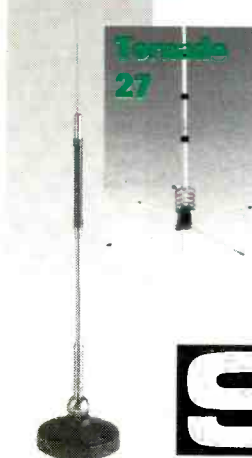
22-480



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Tornado 27

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- TB3000PL**
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- Vector**

- 26-28, 5/8 wave 1000W
- 27-28MHz
- 27-28MHz 4-5dB PL259
- 27-28MHz 5dB 3000W
- 27-28MHz Mag Mt PL259
- 27-28MHz Sleek Eurolook
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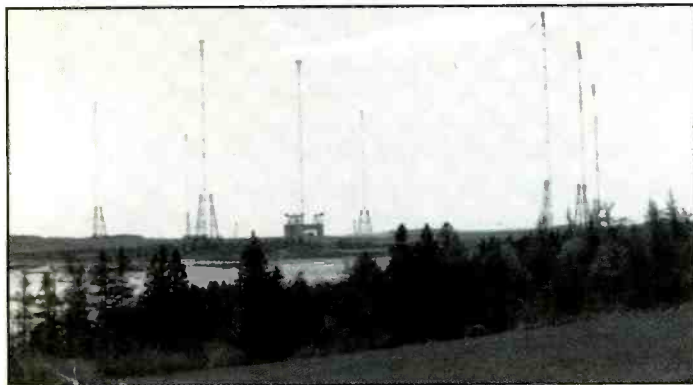


<h1>OM</h1>		<h1>320</h1>
BEACON		KHZ
This will verify your		reception of our beacon.
Date: <u>January 10, 1995</u>	Verified By: <u>Tommy Nishino</u>	
Freq: <u>320 KHz</u>	Title: <u>SFC MANAGER</u>	
Time: <u>0439 UTC</u>	Date: <u>2/4/95</u>	
Elevation: <u>987 feet</u>	Remarks:	
Power: <u>50 Watts</u>		
Location: <u>41°22'N 95°57'W</u>		
Antenna Type: <u>134'</u> SELF SUPPORTED STEEL TOWER		
<u>Omaha</u>	<u>Nebraska</u>	

Allen Renner, Pennsylvania prepared this PFC for his monitoring of a Nebraska beacon.

Hiroshi Saito, Japan received this QSL from station NOJ. →

Portion of VLF antenna array at the Naval Communications Unit, Cutler, Maine. Photo by Wes Linscott, Maine. ↓



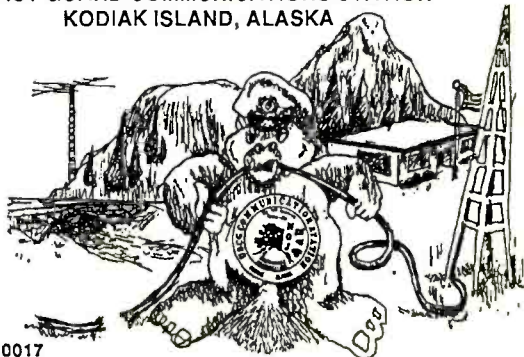
SWL VERIFICATION

SWL (NAME)- HIROSHI SAITO
 DATE- 21 OCTOBER 1993
 TIME- 0556 - 0630 UTC
 FREQUENCY- 8628.5
 MODE- CW / A1A

VERIFYING OFFICIAL- John B. Tracy

COAST GUARD COMMUNICATIONS STATION
KODIAK ISLAND, ALASKA

**N
O
J**



P.O. BOX 190017
KODIAK, ALASKA
99619-0017

"HOME OF THE CABLE EATING BEARS"

- 387.5: Beacon ING, St. Inglevert, France at 0853. (AB)
- 393: Beacon DEN, Dender, Belgium heard at 0854. (AB)
- 395: Beacon XEN, Xenia, OH heard at 0832, 676m. (AH)
- 397: Beacon JC, Bigolet, Nfld., Canada at 0200. (RC); Beacon EHN, Eindhoven, Holland at 2146. (AB)
- 401.5: Beacon BET, Rhein/Bentlange (German Army), Germany at 0725. (AB)
- 402: Beacon IFJ, Winnfield, LA at 0440. (WP)
- 404.5: Beacon RR, Rotterdam, Holland at 2158. (AB)
- 407: Beacon RZZ, Roanoke Rapids, NC at 0648, 493m. (AH)
- 409: Beacon RM, Tifton, GA at 0250. (WP)
- 417: Beacon EOG, Greensboro, AL at 0907, 1091m. (AH)
- 421: Beacon BUR, Burnham, Great Britain at 0640. (AB)
- 431: Beacon ONT, Kleine-Brogel (Belgian Air Force) at 0645. (AB)
- 432: Beacon IZN, Lincolnton, NC at 0834, 672m. (AH)
- 435: Beacon ILY, Washington, GA heard at 0200. (WP)
- 518: NAVTEX in Sitor-B at 1220 w/report on Hurricane Bertha. (JR)

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CIRCLE 11 ON READER SERVICE CARD

526: Beacon ZLS, Stella Maris, Bahamas at 0219, 1262m. (AH)
530: Beacon F9, Chatham, NB, Canada at 0711, 476m. (AH)
1630: Pennsylvania Turnpike low-power broadcast of weather and traffic conditions. 2310 in AM. (R/J)
1890: PCH, Scheveningen, Holland in USB t 2142 w/wx. (AB)
2154: Royal Navy Hyper-Fix stations Lewis? w/pulses at 2203. (AB)
2520: PDKF, MV Christina ZZ4 in USB at 1803 w/kg Scheveningen Radio. (AB)
2643: SPS, Witowo, Poland in CW at 2244 w/mkr. (AB)
2872: Shanwick, IRE (NAT-C MWARA) at 0245 in USB w/kg Speedbird 292 (BAW) w/posrep, selcal ck BG-KQ. (RB)
3116: DHJ59, Wilhelmshaven Naval, Germany at 0308 in USBS w/kg u/i German Navy vsl w/RTTY coordination. (RB)
3615.7: GKY1, Portishead, England at 0410 in Sitor-A w/Sitor free signal, CW ID. Note change from Stonehaven Radio. (RB)
4028/7528: 5F CW cut No. stn at 0300. Sending diff msgs on each freq. (TS)
4131: 3ETG9, M/S Royal Majesty at 0201 in USB, Majesty Cruise Lines cruiseship clg/ wkg WOM for R/T tfc. (RB)
4135: U/i stn at 0605 in CW. Heading is JULI-ET SIETE ROMEO VICTOR SIETE SIERRA rptd then GR 92 IMI GR 92 BT. First grp was DOS DOS OCHO TRES SEIS rptd and then into 5L groups. At end of msg, stn called

MTQ several times, but no apparent answer. (TS) See 6301.7 kHz item. (Ed.)
4216.5: WOM, AT&T High Seas, Ft. Lauderdale, FL in Sitor-B w/freq and sked info at 1340. (JR)
4343: WLO, Mobile, AL in Sitor-B at 1435 w/tfc list. (JR)
4366: FFL21, St. Lys, France at 0002 in USB w/voice mkr, notes from melody "Haute Garonne" played on a concertina? (hand squeezer) and OM/FF "Ici St. Lys radiotelephonique avec les navires en mer. Cette transmission est effectue au niveau normal de parole pelmettre le reglage des re recepteurs a bord (this is St. Lys radio radiotelephone service for vessels at sea. This transmission is made at normal speech levels to allow adjustment of ships' receivers). Rpts announcement. Hrd for years on St. Lys freqs. (RB)
4509: CAP stn IA0043 wkg NE0021 in 300 baud packet at 0533. (TS)
4585: HILLCAP 49, West Virginia CAP at 2142 in USB as NCS, closing "West Virginia directed CAPNet". Note change from "Mountaineer" for WV CAP. (RB)
4900: U/i stn in USB at 2205 w/msg re truck parts/gas delivery. (R/J)
4930.5: SPW, Warsaw, Poland in Sitor-A, 100 baud at 2102 w/tfc list. (AB)
5065: CW stn at 2305 w/mkr of V's and DE 9MB12/16/19. Penang Naval, Malaysia. (SM)
5277: PANTHER, DEA, Nassau, Bahamas at 0229 in USB w/kg 34C re status t 0354 60A clg PANTHER, no joy. At 0358 w/kg 33C re

negative sighting of target vsl, is RTB. DEA "ALPHA" channel. (RB)
5417: At 0700 YL/SS w/Atencion 61067, then into 5F grps. (SM)
5418: OM/EE at 2020 w/5F grps. Big clicking noise between certain nbrs. (SM)
5430: CGD206, Alma, Quebec, Canada heard at 2348 in USB w/RT calls to bush phones in FF. (RB)
5443: Speech inversion scrambling in USB at 0324. (TS)
5460: Jammer at 1915. Hops to 5472 kHz and back. (AB)
5680: Kinloss Rescue, England in USB at 1002 w/kg Navy 177. (AB)
5696: NCRG, USCGC Courageous (WMEC-622) at 0315 in USB clg the M/V Jacksonville who was coordinating w/CG re SAR w/unid vsl they were responding to. At 0410, Rescue 1501, USCG HC-130, wkg "3Q" u/i naval vsl enroute to area of SAR, relaying ETA of 4 1/2 hours to Rescue 1503. At 0415 SITREP given reporting M/V Ursa Major alongside life raft. Later report confirmed rescue of two persons from 40-foot sloop Javelin, which had capsized. (RB)
5812: Surfboard (YL), Smoky Valley (OM), Dean (OM), and Bob (OM) w/lots of radio cks. YL had California "Valley Girl" accent, OMs had New York or Boston accents. Hrd 2200-2210. (RK)
6223.3: Noble Drilling, u/i rig at 0254 w/well development status report for "rig 4", after sending selcal QCCK (Port Harcourt). At 0446,

The Revolution Continues...

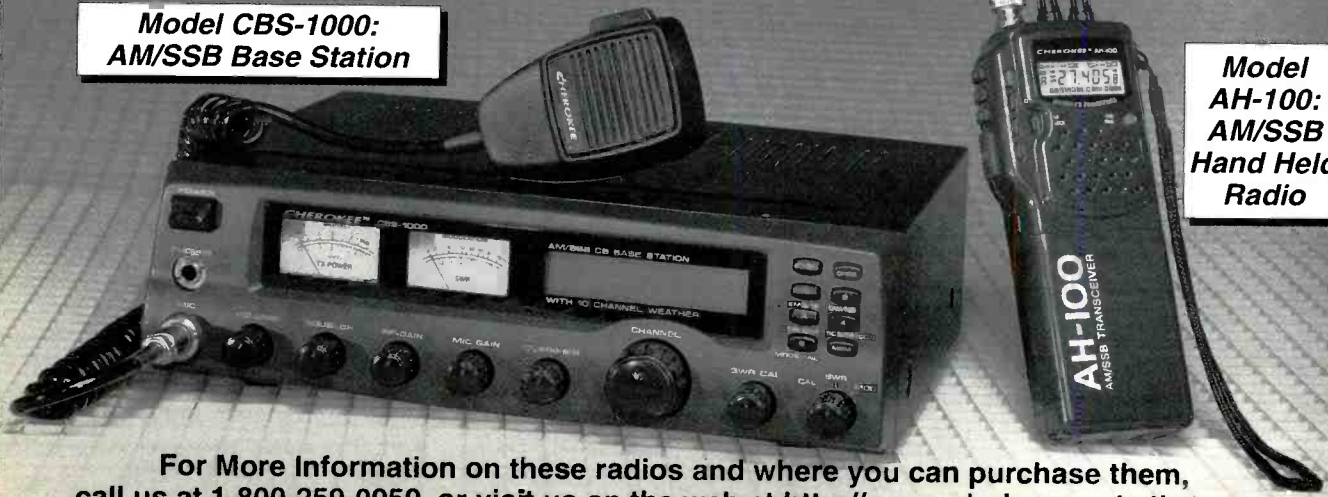
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New CAP Ground Callsigns (10 June 96)

GROUND TACTICAL CALLSIGNS CAPflight is still required for Aircraft Use

National Headquarters	HEADCAP
National Headquarters Special Use	AVENGING SPIRIT
Northeast Region	CAP STONE
Connecticut	CHARTER OAK
Maine	DOWN EAST
Massachusetts	PATRIOT
New Hampshire	ABENAKI
New Jersey	RED DRAGON
New York	WHITE PEAK
Pennsylvania	PENN CAP
Rhode Island	NARRAGANSETT
Vermont	VERMONT CAP
Middle East Region	MIDDLE EAST
Delaware	DIAMOND FLIGHT
National Capital	NAT CAP
South Carolina	SAND LAPPER
Maryland	FREE STATE
North Carolina	CAP KITTY HAWK
Virginia	JEFFERSON
West Virginia	HILL CAP
Great Lakes Region	CAP GREAT LAKES
Illinois	RED FOX
Indiana	RED FIRE
Kentucky	JET PILOT
Michigan	RED ROBIN
Ohio	RED THUNDER
Wisconsin	BLUE MOUND
Southeast Region	SOUTHEAST CAP
Alabama	ALABAMA CAP
Florida	FLORIDA CAP
Georgia	GEORGIA CAP
Mississippi	MISSISSIPPI CAP
Puerto Rico	PUERTO RICO CAP
Tennessee	TENNESSEE CAP
North Central Region	NORTH CENTRAL
Kansas	YELLOW BRICK
Minnesota	STAR FISH
Missouri	(Delayed in Processing)
Nebraska	RED CLOUD
North Dakota	PEACE GARDEN
South Dakota	GRASSLANDS
Iowa	IOWA CAP
Southwest Region	CAP WEST
Arizona	RED ROCK
Arkansas	WILD WOOD
Louisiana	CAJUN CAP
New Mexico	SHIP ROCK
Oklahoma	OIL WELL
Texas	TEXAS CAP
Rocky Mountain Region	ASPEN GOLD
Colorado	BLUE MESA
Idaho	STAR GARNET
Montana	BLACK GRANITE
Utah	UNCLE MIKE
Wyoming	HIGH PLAINS
Pacific Region	WESTERN
Alaska	SOURDOUGH
California	YOSEMITE
Hawaii	FIREBRAND
Nevada	SILVER STATE
Oregon	BEAVER FOX
Washington	SPOTTED OWL

Rick Baker, Ohio obtained this list from the CAP worldwide Web site.

Rig Tommy Craighead (Noble Drilling" w/company report after sending same selcal. Both in Sitor-A. (RB)

6262.5: U.S. Naval Academy, Annapolis, MD at 0547 in 300 bd packet w/training boat (YP's) comms incl YP-690, DNTLES ('Dauntless') and others. These boats don't carry a "USS" salutation. (RB)

6301.7: U/i stn at 0410 in 50/850 RTTY

w/urgente tfc for MLD, MTQ, MTI and NRO, also 'centro area" ship tracking info in what appears to be South American navy exercise? (RB) (See 4135 item)

6495.5: CFH, Halifax, canada at 0510 w/wx FAX 120/576. (JC)

6586: Miami Radio wkg Speedbird 292 who had reported a distress signal off the tip of Cuba at 2106. (RK)

6690: RCC England wkg Rescue 107 on USB at 0253. Poor reception but comms mentioned Rescue 314 and salvage of boat and the captain was asking for wx for next few days. He was reluctant to leave ship. (MR)

6781: YL/EE in AM on WED at 0325 w/3+2F grps. Rpts and "end" at 0340. (KM)

6796: YL/SS at 0500 THU announces "Atencion", calls 16547 foll by 150 grps and three finales. Two weeks later on THU 0500 sked call was 16509 w/intermittent "MAX HEADROOM" stuttering and finishing w/150 grps and two finales. (TM)

6802: YL/SS in AM TUE at 0315 w/3+2F grps. Ended then foll by "repite grupo" and test rptd at 0322. "Fin" at 0333. (KM)

7535: SESEF Norfolk w/tests: NDVW, USS Nashville (LPD-13) at 1337; NGGD, USS Mississippi (CGN-40) at 1450; NNKP, USS Kearsarge (LHD-3) at 1743. Primary mode USB. (RB)

7746.5: YL/EE w/1-0 count and 071 from 2000 to 2010. Then 10 tones, "Count 76" and into 3/2F grps. (SM)

7916: DGG91L2, PIAB, Bonn, Germany at 1520 in FEC-A 96bd w/nx in GG. (TY)

8127: MOSSAD YL rptng Charlie India Oscar Two at 2157, also on 4665/6745 kHz. (SM)

8176: WAW4789, Ocean Star at 0149 in USB wkg the Treasure/Gem exploration vsl R/V Treasure Box-1, WBN-4290. (RB)

8188: CW stn at 0700 sending 555 555 555 661 661 661, then 423 41 and into rapid 5F grps. (SM)

8297: ADMW, USAV Malvern Hill (LCU-2025) at 2331 in USB clg/wkg AAC2, Harbormaster at Ft. Eustis, VA for rdo ck on Ch. 5. (RB)

8300: YL/CC "New Star" 4F No. stn in AM at 1200. (TS)

8335.5: DRAZ, FGS Norwind (Y-384) at 0420 in USB, German Navy sailing ketch used for training. Clg/wkg DHJ-59 for encrypted RTTY tfc. (RB)

8380.5: Esmeraldo (BE-43) at 0005 in Sitor-A, Chilean Navy for-masted training schooner wkg CBV, Valparaiso, Chile w/military for-matted msg tfc, 5L grps, login 19006 ESMI, c/s unk. (RB) Call sign poss CCES. (Ed.)

8402.5: EKNB, TR Izumrudnyj Bereg at 0311 in RTTY 50/170 w/crew TG's. (RB)

8455: U/i stn in USB at 0152 w/aero tfc. (R/J)

8488: Music box playing Swedish Rhapsode" at 1200. Plays tune for five mins foll by TL/GG w/5F grps. (SM)

8495: SLHFM's "F", "K" and "C" in CW at 1459. First time I've hrd three SLHFM's on same freq. (TY)

8572: CLA, Havana, Cuba heard bdcst at 0125 in CW w/mkr CQ DE CLA C/69368/62552 TX 8573/7512/6873 QSW ANDUWRIGMT K. (RK)

8764: CAMSLANT Chesapeake, VA in contact w/cutter Dallas w/pp to Comsta New Orleans re search near Bimini for missing yacht "Hawkwind II". Aiding in search were 6001, 6039 and 6030 (all were CG Sea Stallion choppers). Hrd 2300-0115 (RK)

8767: DAM, Norddeich, Germany hrd at 2146

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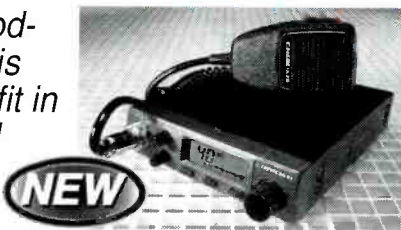


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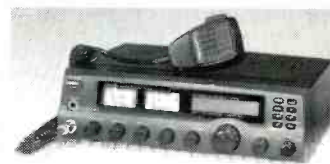


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- in USB w/tfc list. Opr was OM/EE. (RK)
- 8788:** SPC42, Gdynia, Poland at 0100 in USB w/tfc list, then in EE "all ships, this is Gdynia radio listening 824 please." (RB)
- 8933:** Cedar Rapids LDOC, IA (NA-CC-LDOC) at 0021 in USB wkg United 990 w/selcal ck AG-CS (767 N644UA); at 0302 wkg United 997 flying Miami to Santiago w/selcal ck AG-ES (767 N648UA). (RB)
- 9034.7:** RKUKGK, Egyptian Embassy, Havana, Cuba at 2250 in Sitor-A, 100/425, w/circular t/c to various embassies in ATU-80. (RB)
- 9223:** YL/SS in AM on TUE at 0138 w/3+2F grps. (KM)
- 9325:** At 2100 YL/GG rptng Golf Kilo til 2105. Then 856 856 31 gruppen und 43 gruppen. 571 571 71 gruppen. Then into lengthy 5F grps. (SM)
- 9925:** YL/S in AM at 0205 TUE w/5F grps. Speech was faster than usual best. "Final" at 0209. "Atencion" at 0210 foll by more 5F grps. (KM)
- 10151:** AAAOUSA in 300 bd packet heard at 0113 wkg AAT9TAZ, AAA9ISC, and AAR9LI. (TS)
- 10204:** NIGHTWATCH at 2318 in USB wkg BIRDNEST on "Z190" re data to send. (RB)
- 10277:** YL/GG w/ex-Stasi voice at 0840 rptng 522 522 522 1. At 0845 "Achtung" 738 103 738 103 and into 5F grps. Ended w/000 000 Ende. (SM)
- 10410:** At 1555 DSB carrier on freq w/CW stn in LSB sending "LN2A" and a data burst. At 1600 CW stn sent 425 425 425 00000. (SM)
- 10536:** CFH, Halifax Naval, Canada in RTTY 75/800 at 0104 w/wx. (TS)
- 10548:** GFL23, Bracknell, England at 0059 in RTTY 75/425 w/coded wx. (TS)
- 10686:** 9DM17, Teheran Meteo, Iran at 1445 in 50bd RTTY w/wx code (TY)
- 10860:** Scrambled speech in USB at 0044. This is same scrambled type hrd in Europe, not speech-inversion scrambling. (TS)
- 10865:** NAM, Norfolk, VA at 2000 w/WEFAX satellite photo of Hurricane Bertha. (TS)
- 10872:** SLHFMS "C" and "S" heard at 1520 in CW. (TY)
- 10940:** OTH radar at 0021. (TS)
- 11043.3:** RFTJD, French Forces, Libreville, Gabon heard at 0125 in ARQ-E3 192/425, idling. (RB)
- 11072:** YL/EE at 1800 w/1-0 count and 769 from 1800-1810. Then "Count 104" and into 3/2F grps. (SM)
- 11080:** SAN, Damascus, Syria at 1515 in RTTY 50bd w/msg in A. (TY)
- 11130:** OM/RR rptng 284, then 631 631 84 84 and into 5F grps. Hrd 0810-0815. (SM)
- 11176:** Offutt AFB, YL opr at 0133 in USB w/msg to MAINSAIL. (MR)
- 11230:** AEA26, U.S. Army, Heidelberg, Germany in LSB at 2340 wkg WLO, Mobile, AL re wx and time check. (R/J)
- 11416:** OLX, MOI Prague, Czech. at 2356 in USB (CW) w/V's and DE mkr. (RB)
- 11476:** HMF52, Pyongyang, North Korea in RTTY 50/170 at 2130 w/news. (TS)
- 11540:** OM/EE w/5F grps at 1010. Ended w/00000. (SM)
- 11904:** OTH radar w/CW "O" id. (TS)
- 12450:** PEGMAN (USCG?) in USB at 1033 wkg u/i stn on scene of TWA FL-800 crash, found strange tube three feet high and 12 inches diameter. (R/J)
- 12480.5:** UWKX, Ukrainian tanker M/T Kapitän Ostashevskiy at 2218 in Sitor-A w/tlx to Proship re problem w/cooling pump. (RB)
- 12490:** NZAU, USNS Sumner (T-AGS-61) heard at 2002 in Sitor-A w/unclass BBXX wx obs to NAVLANTMETOCEN Norfolk via NMN. (RB)
- 12585.5:** KPH, San Francisco, CA in FEC at 0100 w/tfc list. (TS)
- 12601:** ZSC, Cape Town, South Africa at 1805 in CW w/mkr. (TY)
- 12701.3:** CKN, Esquimalt, BC, Canada at 0703 in RTTY w/freq list. (JC)
- 12876:** VAI, Canadian CG, Vancouver, BC in CW at 0633 w/wx and nav wngs. (JC)
- 12916.5:** KLB, Seattle, WA in CW at 0627 w/mkr. (JC)
- 13042.5:** PJC, Curacao Radio, Netherlands Antilles at 0115 in CW w/CW-QSX mkr. (RB)
- 13054:** UIW, Kaliningrad, Russia at 1543 in RTTY 50bd w/msg in RR. (TY)
- 13356:** Kingston Dispatch (CAR-LDOC) at 2240 in USB wkg Air Jamaica 11 w/ETA to Kennedy of 0020, selcal ck KS-DH (A310, reg N839AD). (RB)
- 13775:** YL/GG on SAT at 1730 w/"Whiskey Lima" foll by 5F grps for 522 of 79 grps in length. Rptd next day at 1000 on 12092 kHz and foll TUE on 14622 kHz at 1900 and THU on 13890 kHz at 1930. (SM)
- 13875:** UTS70, Russian allocation, in CW at 1300, weak sigs. (R/J)
- 13890:** Every SUN at 0900 YL rptng "Mike Delta" w/electronic tones. At 0900 "Message for 241 241 40 groups, Attention, 241 241 40 groups" and into 5F groups. (SM)
- 14268:** 4UI, UN Disaster Net at 1845 in USB wkg ham stns from Barrier Islands, SC and Bahamas w/info re Hurricane Bertha. (RB)
- 14421:** YL/EE at 1416 FRI in AM w/3+2F grps. Rptd at 1416. Ended before 1430. (KM)
- 14441.5:** NNNCHS, USS Vincennes (CG-49) at 0121 wkg NNNONXY. At 0123, NNNOCST USCGC Decisive (WMEC-629) clg any MARS station stateside, NNNOBMV answers, QSY to wkg freq 14383.5 kHz for pp t/c. (RB)
- 14784:** U/i stn at 1320 in 100 bd POL-ARQ idling. (TY)
- 14890:** OM/RR at 1100 rptng 615 615 615 11111 11111 66806 66806 til 1110. (SM)
- 14925.7:** RFHJ, French Forces, Papeete, Tahiti at 0355 in ARQ-E3 100 bd idling. (TY)
- 15091:** U/i stn heard at 1133 in FEC w/5L2F grps. (R/J)
- 15822:** At 1200 YL/EE w/1-0 count and 011. At 1210 "Count 108" and into 3/2F grps. Also on 13874 kHz. (SM)
- 15990:** November Quebec callup by OM/GG in AM at 1200 foll by 5F grps. (R/J)
- 16091.7:** Egyptian Embassy, Washington, D.C. heard at 1425 in Sitor-A w/ATU-80 t/c fm ambassador, poss relaying for another embassy. (RB)
- 16303:** OTH radar w/CW ID of "O" heard at 2204. (TS)
- 16355:** CLP, MFA Havana, Cuba in RTTY 50/425 at 2040 sending 5F msgs. Later on CW passed 5F (cut nbr) grps to u/i stn. (TS)
- 16720:** U/i "UNCLE SAM/AKLANBOY" at 0935 in Sitor-B w/msg in EE. (TY)
- 16802:** J8LU6, TKH Vitaliy Federov heard at 1812 in RTTY 50/170 w/crew TG's, listed as a trawler owned by Hafest Marine LTD by ITU. (RB)
- 16808:** SPA81, Gdynia, Poland at 1655 in Sitor-B w/tfc list. (TY)
- 16916.5:** WSC, Tuckerton, NJ at 2020 in CW w/tfc list. (RB)
- 17590:** HZN49, Jeddah Meteo, Saudi Arabia at 1435 in RTTY 100 bd w/coded wx. (TY)
- 17762:** OTH radar at 2202 w/CW ID "O". (TS)
- 18000:** Heard at 1100 YL w/Baker Edward Charlie call up foll by Queen Robert Union (QRU). (SM)
- 18102.5:** WIAW, ARRL Newington, CT in RTTY 50/425 at 1500. Shifted to Sitor-B at 1520. Passing info of interest to hams. (JR)
- 18580:** HMF36, KCNA, Pyongyang, North Korea heard at 1215 in RTTY 50 bd w/nx in FF. (TY)
- 19362.2:** AFS, Offutt AFB, NE heard at 0407 w/fax meteo chart from USAF Air Weather Service. (JC)
- 20048:** SLHFMS "F" at 0510 in CW. (TY)
- 20072:** U/i stn at 0755 in DUP-ARQ 125 bd w/encrypted msg, then into RTTY 50 bd. Unable to decode. (TY)
- 20083:** ISX20 ANSA, Rome, Italy at 1215 in 50 bd RTTY w/nx in EE. (TY)
- 20600:** MKK, Royal Air Force, London, UK at 1200 in 50 bd RTTY w/R/Y's and ID test tape (quick brown fox). (TY)
- 20810.9:** SAM, MFA, Stockholm, Sweden at 1346 in 100 bd SWED-ARQ w/encrypted msg. (TY)
- 22389.5:** NMN, USCG CAMSLANT Chesapeake, VA at 1457 in Sitor-A w/sitor free signal, CW ID "NMN". (RB)
- 22420:** XSQ, Guangzhou, China at 0210 in Sitor-B w/tfc list. (TY)
- 22575.5:** PKX, Jakarta, Indonesia in CW at 0847 w/CQ mkr. (TY)
- 27990:** U/i in RTTY 50/75 heard at 0920 w/R/Y's. (R/J)

Contributors this month were:

AB—Ary Boender, Netherlands; RB—Rick Baker, Ohio; DC—Dave Carlson, California; JC—James Callaway, Jr., Nevada; RC—Ralph Craig (while on vacation in New Hampshire); Ah—Al Hemmalin, Rhode Island; R/J—Russ and Julio (no last name given), New York; KM—Ken McWatters, Texas; SM—Simon Mason, England; TM—Tom Mazanec, Ohio; WP—Walt Petersen, Florida; JR—Joseph Richard, Florida; MR—Mark Redfox, Washington; TS—Tom Sevart, Kansas; TY—Takashi Yamaguchi, Japan. ■

Dumpty law preventing casual, hobby-type listening to our airwaves! It's seems odd to me that the Communications Act of 1934—yes, 1934—which prohibits divulging to third parties the contents of communications not intended for our ears, worked very well until our lawmakers were lobbied into passing the ECPA in the mid-'80s.

Free Flow of Ideas?

Dear Editor:

I must respond to M.C.'s letter in the March issue regarding telephone fraud. If you and M.C. do not think it is wrong for someone to use telephone service that belongs to someone else, whatever the cost (because "otherwise the lines would have been inactive"), please let me charge all my calls to you and M.C. whenever your lines are not being used.

R.A. Gove, Ph. D.,
Clarksville, MD

R.A.:

Pop'Comm has always been an open forum for the free flow of relevant information, opinions, and ideas. We can't guarantee that each and every letter printed is going to meet with universal approval. If a reader expresses thoughts that we feel are interesting, we may run the letter. In the March issue, we commented that M.C.'s letter made an interesting point. It is not necessary that each and every reader opinion be endorsed by us in order to achieve publication.

REACT's 30th

Thank you for the good wishes *Popular Communications* sent to REACT Teams worldwide (CB Scene, June issue) as we celebrate our 30th year. We realize that we must help CB operators use their radios correctly in emergencies. We could assist up to ten times as many callers if only they knew what to do. We can hear them, but they can't hear us. They fail to transmit any vital details that would enable us to take action. It is agonizing to listen helplessly to such calls, some obviously very serious situations. Sadly, thousands of CB operators mistakenly believe that their radios "guarantee" them help. Unless they learn the simple method of using CB Emergency Channel 9 correctly in an emergency, they are likely to be disappointed. Not knowing can cost lives. In skilled hands, these radios could bring help fast. Support for REACT's efforts is

growing in various sectors. With help like yours, CB can someday reach its real potential for safety.

Ron McCracken, President,
REACT International, Inc.,
Wichita, Kansas

Caught in a Net

I have been told that there are 2-meter ham nets dedicated to exchanging scanner frequency information. These networks would be of interest to those who have ham licenses, and also persons who only listen. *Pop'Comm* should run a listing of these.

L.M. Corrado,
Nutley, N.J.

We'd be pleased to run this information, and welcome any data on such networks sent to us for publication. Readers knowing of such networks are invited to pass along the city, repeater frequency, day and hour, and the name and callsign of the person running the network.

Overwhelming Response

I wrote to *Pop'Comm* a while ago and you ran my name and address in Mailbag. Hundreds of very kind and thoughtful letters came in, along with QSL's, stickers, and photos from readers. I am trying to reply to all, but it is slow going. Yet I did want to let everyone know via your pages that I am very appreciative. Some badly needed radio equipment was also provided, including a Realistic DX-390, and an SSB CB transceiver. Special thanks to David Sage, Duncan Kremer, and Errol Urbelis for sending selections of QSL cards from all over the world. Your readers are the greatest. So is your magazine.

John Ormsby, N0PTB, Registered
Monitor KTX5IX,
3610 Shirley Drive,
Bryan, TX 77803

Stop the Stereotyping!

Dear Editor:

Imagine for a minute that you are not, and never were, a radio hobbyist. What would you think about those of us that are? Would you like us and keep an open mind about our hobby? Would you even show a modest interest in it? If you are like most people I've met, I doubt it.

Try telling anyone today that you are a CB enthusiast. Chances are, if they've even heard of CB radio, they will laugh at you and recite the long gone, "Breaker,

Breaker, 19," nonsense and follow it with a series of strange looks. Next thing you know, anyone else in the room that happened to hear your conversation will eagerly join in, and blow the joke way out of proportion.

Next, mention you are a ham operator. Picture them imagining you spending countless hours preparing for disasters . . . they will probably respect you a little more, since there are no "goodbuddy" stereotypes in existence for amateur radio and they can't find anything to laugh at.

Finally, tell them you have a scanner. If they look at you funny, say "police scanner" or "cop monitor" and then watch their reaction. Chances are, if they are new acquaintances, you won't be hearing from them again. They'll say goodbye and avoid you, the eavesdropping neighbor. If they live near you, they will be come paranoid of you, constantly worrying about protecting their privacy from the nosy neighbor.

The point of all this is that it is our job as radio hobbyists to put a stop to all the stereotyping. Perhaps one day, neighbors will stop blaming "that guy with the huge antenna" every time their TV screen gets fuzzy. Maybe more people will realize that scanning is just another harmless hobby, the same as building model airplanes, and that we are not a bunch of idiots that sit around tuning in people's lives and chasing ambulances. But, in order for this to happen, we must change as well. There will always be a person who listens to cordless phones or causes unintentional interference to a neighbor's TV set, but that's the price paid for a free society. If you meet someone and mention your hobby, try to eliminate the stereotype from their minds. If possible, invite them over to your station and let them see you in action and meet some of your on-air friends. Even though you may change only one mind, it's a start. Who knows? Maybe they'll join our ranks.

Brian "Ace of Spades"
New Jersey

Calling Those Interested in African DX

I read *Pop'Comm* in Braille every month and enjoy it very much. I'm an avid shortwave junkie and would very much like to hear from others who are especially interested in African DX'ing. I use a Kenwood R-2000.

Carol Siegel,
6839 Parsons Avenue,
Baltimore, MD 21207-6423

The Pirate's Den

FOCUS ON FREE RADIO BROADCASTING

Wellsville Mail Drop Replaced

There's a nice list of loggings to pass along again this month. But first, in case you haven't heard yet, let me pass along the news that the Wellsville mail drop address has been closed. It is being replaced by: Post Office Box 1, Belfast, NY 14711. Any stations using the Wellsville address are now using this one. Apparently, mail to the Wellsville address will be forwarded for a year, which is standard practice for the USPS.

KAOS—heard by Benton Owsley in California on **6955 USB** at 0200 with sign on, ID and rock, with a skit about the postal service. Wellsville/Belfast drop. He had them another time from 0204 to 0245 sign off with music from 2001 and ID, into rock. The announcer, Joe Mama, gave the new Belfast maildrop address at the end of the program

Radio Free Euphoria, on **6951.57** at 0350 with a series of cat cries, man announcer. Rock and reggae. ID at 0418 says Owsley.

Rock-It Radio, 9955 at 1937, relayed by WRMI, 50s rock, ID at 1940 Another time at 1900 with rockabilly and doo-wop. (Owsley)

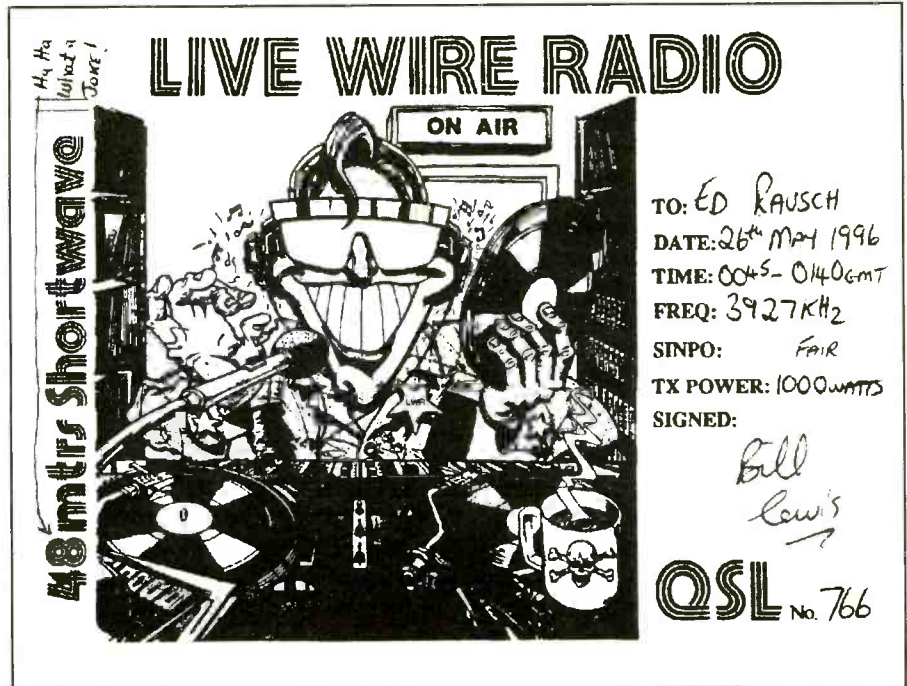
Unidentified, perhaps **WGAR, 6955 USB** at 0200 to 0255 (sign on to sign off) with Brooker T and the MGs, ID, King of the Road. A blend of Oldies, later rock and country says Owsley.

WRRN (World Republican Radio Network) **6955 USB** was heard by Jerry Coatsworth in Ontario at 0135. The announcer was Fred the Elephant, the engineer Senator Watt, producer Phil A. Buster (get it? Ed).

Live Wire Radio, England, logged by Ed Rausch in New Jersey on **3927** at 0000 with reggae and pop, greetings to listeners and Tour de France commentary.

Holland's **Free Radio Service** was heard by Rausch on **6287** at 0030 with 70s rock, ID and e-mail, world wide web and postal addresses.

Rausch had **Free Radio London** (England) on **3945** at 0040 with a special



Ed Rausch in NJ got this card from Live Wire Radio, England, operating on 3927 kHz.

anniversary program featuring a history of the station, pop music, and ID.

Radio Blauwe Ster (Blue Star) from Germany was heard by Rausch on **6302** at 2230 with German drinking songs and 50s country. ID and address in Holland.

Radio Free Speech was heard by Hugh A. Hornstein in Michigan on **6955 USB** at 0038 to 0043 with a long discourse on rights. "See Ya," the announcer singing "Happy Birthday to Me." Closed with a parody of the National Anthem. (Keep reporting, Hugh!)

Voice of the Runaway Maharishi was heard by Richard Klingman in New York on **6955** to sign off at 0145. "All false reports shall have a curse put on them." Maniacal laughter and off. Heard by Bill Flemming in New York from 0144 to 0213

CITH was bagged by Klingman on **6955** at 0000-0030 with a broadcast of the old "Cat in a Hat" cartoon and "13453—that's the box to write to me, in Prov-

idencetown." Promised a Cat in the Hat QSL to all who wrote.

K-200, 6955, heard by Richard at 0030-0100 with lots of nasty remarks about NASWA and one of its members. Off suddenly at 0100.

WMOM was another Klingman catch, **6955** at 2300 with songs and skits about moms, screaming baby IS. YL announcer sounded like Roseanne.

Dick Pearce in Vermont had **Radio Zebulon** on **6995.05 USB** at 2200 with their first broadcast, hosted by Ozzie and Mordechai, talk about marijuana. A rapish tune called "The Pirate Song." Also talk about radio with a woman screaming in the background and something about a helicopter.

VOID Radio was heard by Dick at 2000 on **6955** with a Morse ID, one song, mention of the Merlin and Pittsburgh addresses and sign off.

Radio EXP, also heard by Pearce, on

6955 at 2010 with a half hour of "spiffy" music and x-rated humor with Dr. Blue and Dick Corrosion.

WPN, 6955.55 LSB was heard by Pearce at 2320 with ID and a couple of songs and talk about a kid who took a gun to school and, when asked why, replied "I don't like Mondays." Apologized for falling behind in sending out QSLs.

WARR, 6955 USB was heard, but weak, by Pearce at 2340. Flemming had them at 0101 to 0144.

WLTR, tentative, 6955.30 LSB at 0003—heard only what sounded like "This is WLTR" says Pearce.

Radio Two, 6955 USB was another Pearce log, at 0100 with "this is Yababadoo, operator of Radio Two from the junk room of our four bedroom house in Suburbia, USA" Program was dedicated to Neil Wolfish and included oldies by Canadian groups.

Voice of the Blue and the Grey was heard by Flemming on **6955 USB** from 2140 to 2200, with Louis Kent. (Welcome, Bill! Can you include some program details, too?)

Radio Xanex, 6955 LSB heard at 1440 to 1459, with Louis Kent, was also heard by Flemming.

Radio Chicken S****, Radio Ontario Barnyard with John Barnyard was heard by Bill Flemming from 0002 to 0021 on **6956 USB**

Radio USA, was heard by Flemming on **6955 USB** at 0110 to 0142.

Flemming also had Scotland's **Weekend Music Radio** on **6955 USB** from 0050 to 0106.

Mystery Radio was logged twice by Benton Owsley **6955 USB** at 0430 using a heavy echo and synthesized instrumental music. Also around 0245 sign on with synthesized jazz music and ID.

Owsley noted **Variety 92.9 Worldwide** via WRMI, **9955** at 2000-2030 with a relay of this Dutch broadcast, which included Dutch pop and rock. Address given as Variety 92.9, P.O. Box 805595, Lieden, Netherlands.

Do you think we should include "pirate" program relays carried over licensed stations? Let me know—it's your call. Contact me at *Pop'Comm*, 76 North Broadway, Hicksville, NY 11801, Attn: Ed Teach.

That covers things for this time. Keep tunin', keep loggin' and keep sending me the results! ■

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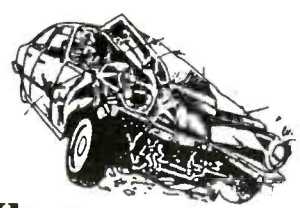
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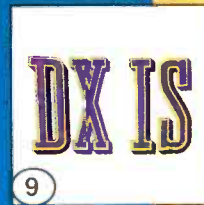
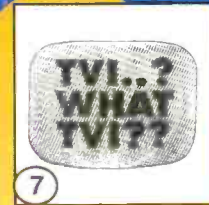
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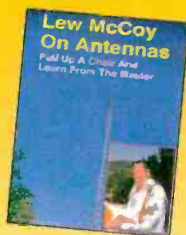
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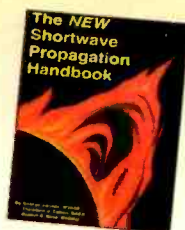


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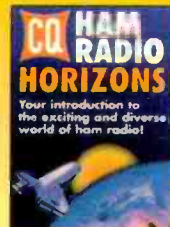
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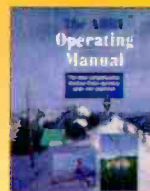
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The Loose Connection

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RADIO COMMUNICATIONS HUMOR

Great (?) Moments In Radio—Batwings, Equalizers and Love Letters

A writer who used the pseudonym “Howard Itwork” wrote for an early CB radio publication when I arrived at Coast Guard Radio school in Groton, CT, he published plans for a revolutionary CB antenna called the “Batwing.” I know some of you are reaching for your phone to call and tell me you remember it, but I live in another time zone and I’m probably asleep now, but we’d love to receive your letters. The Batwing required a person to carefully cut a batwing-shaped figure (like shirt-collar-cardboard) out of clear plastic, fasten a 5 watt, 50 Ohm resistor to it, and connect the resistor to the center and braid of a piece of coaxial cable. The article was cleverly worded, never said much about radiating, but said an awful lot about the batwing being a “perfect 50 ohm load.”

Before we ever got to antenna theory at school, my dad and I built a Batwing, following the directions carefully. While Howard probably guffawed all through April (as in April fool!), our little Batwing gave us performance almost as good as the ground-plane fastened to our chimney. We heard dozens of Cbers who were mad as hell ’cause they couldn’t get their Batwings to work—and ours was doing a bang-up job. We were still using it when the May issue came out and admitted the whole thing was a bad practical joke. I’ve talked to antenna design engineers with 20 years of experience who haven’t got a clue how one particular version of this “dummy’s dummy-load” could have worked, yet ours did, much to the annoyance of our fellow Cbers. After working several years in the antenna industry surrounded by some really smart people, I still don’t know how it could have radiated more than a few feet, but I remember an A-B test with our quarter-wave ground plane, and there wasn’t more than 3dB difference!

Our batwing might still be in the home-stead attic; it’d be fun to send it for an afternoon on a network analyzer to see if

we used a magic resistor, or a secret length of coax, but I’d rather write it off as magic.



We go now to an AM broadcast station, also 20+ years ago—a small station with a program director who existed only to find a way to “pump” the sound of his rock station to give it the over-compressed sound used by many FM rock stations today to catch the 18–25 year-old market, where all income is disposable.

The station’s chief engineer had obtained a graphic equalizer. It was mono, but it was still a pretty advanced piece of gear in its day. It was mounted in a studio rack, and its little sliders begged to be adjusted.

The program director knew just the sound he wanted, and got permission from the general manager so that *he alone* would adjust the EQ. He spent an entire day tweaking, listening, and tweaking, and off-and-on for a week he bumped the controls ever so slightly until he announced to the studio engineer that he had achieved the balance he was looking for and the time had come to “seal” the controls. The engineer did so, and two weeks passed until the *chief* engineer noticed the cover. The program director overheard him asking why it was there, and told him he’d spent so much time adjusting it and the cover was only to be removed at his instruction, to which the chief replied, “Fine—but after I mounted this thing in the rack I got called out to pick up my daughter at school. I’ve been on vacation for three weeks and just came back this morning. “That’s OK,” the program director told him. “The function of that equalizer is to bring us listeners, and it’s to remain set up the way I set it,” his chin rising higher with each word.

“Oh—I have no quarrel with that,” the chief engineer told him. “I just thought

you’d want to know that I left without ever connecting it. It’s not, as you folks say, *hooked up*.”



Finally, there was the Coast Guard Cutter Dallas—a 378-foot beauty upon which I served for a year or so in the late ’60s. On that ship was one second-class radioman—let’s call him Tim Niller (not his real name—but you knew that). Two of us third-class radiomen were eavesdropping on Tim one night and caught him calling a friendly Canadian station way up in Labrador where there is very little to do around midnight. Tim asked them to copy a message and mail it to his girlfriend back in the states. Clever fellows that we were, we copied the whole letter, word for word, and drafted a suitable response. After barely containing ourselves for the appropriate number of days necessary for her to have received the mail and placed a phone call to the Canadian station, we placed ourselves in the ship’s electronics shop with a tiny, tiny transmitter which we loosely coupled to Tim’s receiver. Imagine his surprise when the “friendly Canadian station” called our ship, shifted Tim to 468 kHz and advised that it had an “off-the-books” message for an operator whose initials were TN. “*I’m TN*,” he responded in excited Morse code. What a coincidence. My cohort was most of the way through sending the message when I decided to wander in to the shack and see what was going on. Niller tried to conceal what he was doing, but when the signal began to fade, and “TN” was desperately trying to tune his receiver, I said, “Don’t worry, Tim—I have a clean copy of the message right here,” and handed it to him. He was not amused.

Hey, Tim—it’s been 29 years. You can stop hating us. It was just a joke. Honest. Mucci didn’t mean it either. Really. ■

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Advertisers Index

A.M.C. Sales, Inc.....	31
AOR, LTD.....	Cov II
A.R.R.L.....	19
Ace Communications.....	Cov III
Advanced Specialties, Inc.....	39
Antenna Supermarket.....	55
Antique Radio Classified.....	28
Atlantic Ham Radio.....	61
Byron Hill Publishing.....	69
C. Crane Company.....	85
CQ Magazine.....	86
CQ VHF Magazine.....	40
CRB Research.....	64,74
Cellular Security Group.....	11
Communications Electronics, Inc.....	27
Computer Aided Technologies.....	46,47
DataFile, Inc.....	48
Delta Research.....	26
Drake, R.L. Company.....	13
Durham Radio Sales & Service, Inc.....	61
EDCO.....	7,34,35,73
Electronic Equipment Bank.....	1,77
GENie Radio & Elec. RoundTable.....	67
Gilfer Shortwave.....	49
JPS Communications, Inc.....	56
Jo Gunn Enterprises.....	49
K & L Technology.....	69
Lentini Communications, Inc.....	21
MACO Mfg. Div./Majestic Comm.....	39
MFJ Enterprises, Inc.....	43
Marvel Communications Co., Inc.....	40
Maxon America, Inc.....	41
Metrosoft Corporation.....	26
Microcraft Corporation.....	69
MoTron Electronics.....	67
Mouser Electronics.....	65
OFS WeatherFAX.....	81
Optoelectronics, Inc.....	5,88,Cov IV
Passport to World Band Radio.....	9
Phillips-Tech Electronics.....	61
Popular Communications Merchandise.....	82,83
Quement Communications.....	48
R.C. Distributing.....	28,48
REACT International, Inc.....	81
RadioShack.....	53
Sangean America, Inc.....	63
Scanner Master.....	31
Scrambling News.....	48
SIRIO antenne S.r.l.....	23
Signal Engineering, Inc.....	10
Software Systems Consulting.....	65
TAH Enterprises.....	67
Tucker Electronics.....	15
Universal Radio, Inc.....	3
Viking International.....	61
Visual Communications, Inc.....	55
Wilson Antenna, Inc.....	25
Wireless Marketing Corp.....	75
Xandi Electronics, Inc.....	28
Yaesu U.S.A.....	17

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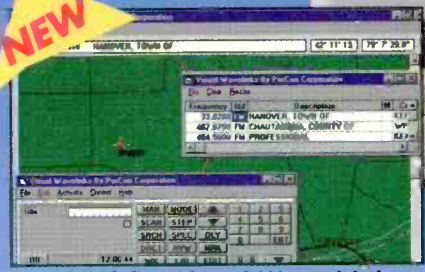
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