Radio–Homeland Security–Computers & Radio–Family & Hobby Comms

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POPULAR COMMUNICATIONS

AUGUST 2003

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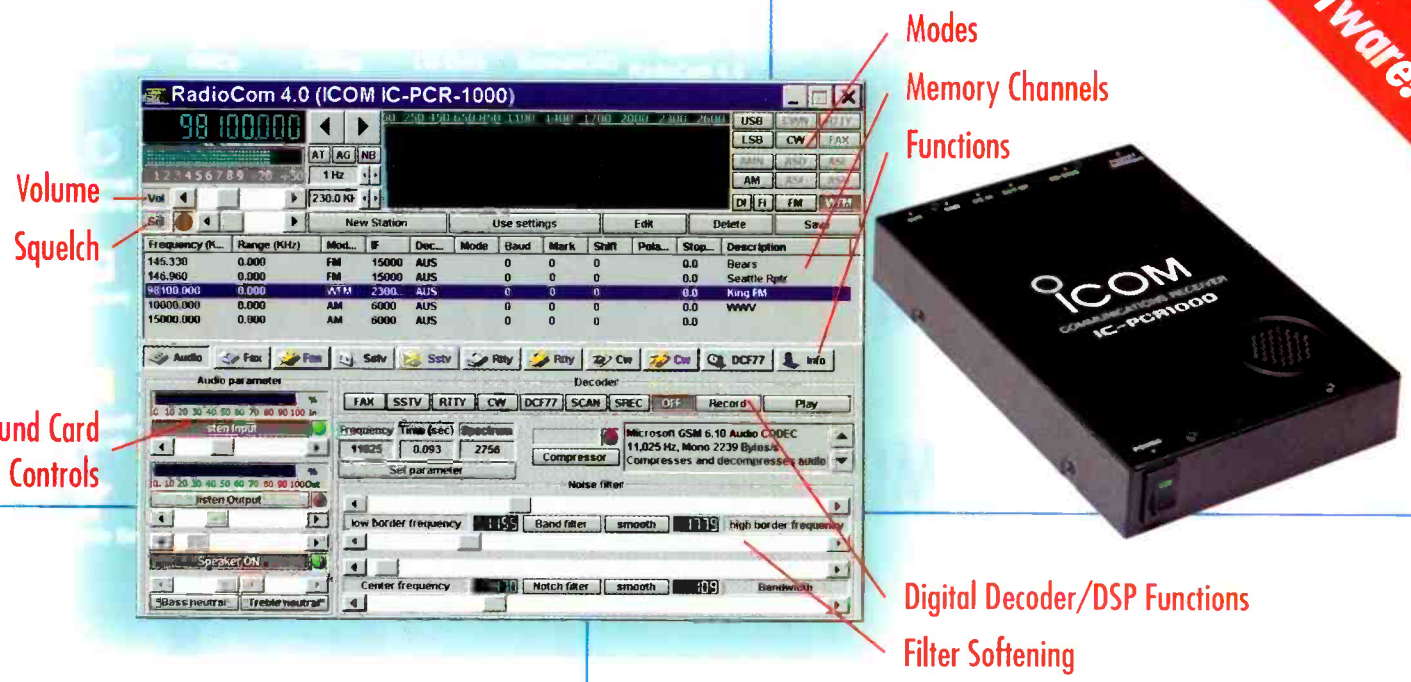

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On The Cover

On The Cover: Whether your cruise takes you past this gigantic TV tower in Shanghai, China, or you're cruising down the highway or riding the rails this summer, there's plenty to think about if you plan on taking your radios along. Get the latest travel information in Laura Quarantiello's article, "Traveling With Your Scanner In A Post 9/11 World, Part II—Trains, Cruise Ships and Highways" on page 6, and Ken Reiss' "Overheard" column on page 14. (Photo by Larry Mulvehill, WB2ZPI)

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tuning in

by Harold Ort, N2RLL, SSB-596

an editorial

Just What We Need: More Pollution!

The other day I was in my driveway trying to work a Florida ham on 40 meters with my QRP MFJ rig. I've done it before without really trying, but this time was different: there was an incessant electrical buzzing that nearly wiped out the fellow's weak signal. So much for that QSO.

It looks—and sounds—like there's another leaky arrestor on that pole in front of my neighbor's house for the power company to fix. Just the night, while trying to DX on the broadcast band, my efforts came to a grinding halt for about an hour because of low-pitched zapping noise across the low end of the band.

No doubt about it, we live in a time when noise on the radio is sometimes louder than Rap music in the car next to you at the traffic light. I remember trying to pull signals from my receiver through the intermittent noise from Dad's welder and grinder. Believe me, those *were* the good old days. Today, noise from computer monitors (far worse than the old-fashioned synch-buzz from early TVs), motion sensors, switching devices, vehicle systems, light dimmers, and a host of other electrical gadgets is enough to drive a radio enthusiast to a deserted island!

But, as they say on TV, wait, there's more. Much more. Yet another hair-brained scheme called Broadband Over Powerline (BPL, for short) would, I'm told, wreak more havoc on the shortwave spectrum (actually beyond 30 MHz, up to about 80 MHz) the likes of which are unimaginable. Here's what's going on. Back on April 23, the FCC (Fuming Compost Chorus) met and issued a Notice of Inquiry in ET Docket 03-104. BPL, otherwise known as Powerline Communication (PLC), would apply high-frequency RF to the power grid for the purpose of giving consumers a multitude of wireless everything in their homes. According to the ARRL, the so-called "access BPL" would "use medium-voltage (1-kV to 40-kV) power lines to deliver Internet and broadband applications." I can hear it now—almost literally!

I don't know about you, but I'm not thrilled about using the powerlines as a gigantic antenna! And it's no wonder the technical gurus at the ARRL are frosted at the idea of BPL. Ed Hare, W1RFI, ARRL Lab Supervisor, chairs the PLC Work Group of the IEEE C63 Accredited Standards Committee on Electromag-netic Compatibility. What that means simply is that Ed knows more than most of us on this topic. So I contacted him, and he said, "What amateur hasn't looked at those overhead power lines and thought what a wonderful longwire antenna that would make?" Trouble is, the FCC is serious! He continued, "This issue is obviously of extreme importance to amateurs." Longwire, indeed, Ed!

ARRL's President Jim Haynie, W5JBP, told me, "We're very concerned...a lot of the information about the interference side has not been disclosed, and we think from the ham standpoin...it needs to be investigated at the political level." Hats off to Haynie and the League for their untiring efforts that aren't always appreciated, but most radio enthusiasts recognize as vital in the final analysis!

Someone at the Fuming Compost Chorus is raring to move on BPL. I wasn't able to pinpoint a person, but collectively the Commission is saying BPL has the potential to "provide consumers with the freedom to access broadband services from any room in the house without adding or paying for additional connections." Paying? I can almost hear the money grabbers talking about BPL becoming the new dotcom industry. Gee, I wonder if Billy Tauzin knows about BPL. I'd bet my life that if he did he'd figure out a way to charge us for the service, and send the bill to radio enthusiasts. Come to think of it, don't we already have enough "interference" without swallowing more?

Meanwhile in Japan, similar concerns were expressed by radio operators, and it was then decided not to adopt the technology. Here in the USA the industry continues to BS the public about the interference issue, but there is help. Check out <http://www.arrl.org/bpl>, <http://www.arrl.org/news/stories/ 2003/04/30/2/> for the news story at the ARRL, and <http://www.arrl.org/tis/info/HTML/plc/> for detailed information about BPL. Also visit the FCC's official site at <http://hraunfoss.fcc.gov/ edocs_public/attachmatch/DOC-233537A1.doc> and <http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-03-100A1.doc> (CGC Communicator) for their side of the story.

Let's stop this one cold before it's too late. You can file comments at <http://www.fcc.gov/cgb/ecfs/>. The *deadline* for

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A publication of

CQ Communications, Inc.
25 Newbridge Road
Hicksville, NY 11801-2953 USA

Offices: 25 Newbridge Road, Hicksville, NY 11801. Telephone (516) 681-2922. FAX (516) 681-2926. Web Site:<http://www.popular-communications.com/> Popular Communications (ISSN-0733-3315) is published monthly by CQ Communications, Inc. Periodical class postage paid at Hicksville, NY and additional offices. Subscription prices (payable in U.S. dollars): Domestic—one year $28.95, two years $51.95, three years $74.95. Canada/Mexico—one year $38.95, two years $71.95, three years $104.95. Foreign Air Post—one year $48.95, two years $91.95, three years $134.95.

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Printed in the United States of America.

Postmaster: Please send change of address to Popular Communications, 25 Newbridge Road, Hicksville, NY 11801.

our readers speak out

letters to the editor

Each month, we select representative reader letters for our "Our Readers Speak Out" 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 "Our Readers Speak Out." Address letters to: Harold Ort, N2RLL, SSB-596, Editor, Popular Communications, *25 Newbridge Road, Hicksville, NY 11801-2909, or send e-mail via the Internet to <popularcom @aol.com>.*

Tauzin Ulcers?

Dear Editor:

You haven't had anything to say about Billy Tauzin lately...is he still a thorn? Something has changed...did you shake hands and let bygones be bygones?

Martin Hawthorne
Wichita, Kansas

Dear Martin:

Yes he is and no I didn't. Time to get more Tums.

Midland 1 Listens!...To Your Ideas

Dear Editor:

All of us at Midland Radio are immensely proud of the response to our Midland 1 Listens! initiative by *Pop'Comm*, your writers, and your readers. We always thought of it as a public trust, much like the radio services it supports, but we realize now that we've struck quite a nerve in radioland, and we're very pleased we've done so.

We believe Rich Arland's suggestion to broaden the frequencies monitored in our Midland 1 effort, as suggested in his May article, "What 'Midland 1 Listens!' Means to You," is an excellent idea. We are seeing a growing interest in MURS transceivers, and, of course, amateur radio would be an obvious addition to the Midland 1 monitoring corps. Rich's nomination of "Five-Two" (146.520 MHz) sounds like a good candidate.

Wherever there's someone with a radio, they need to "have their ears on" to be available to offer assistance.

Responding to Steve Biro's May letter, we agree: other radio manufacturers should join this grassroots movement. We realize it will be difficult for them to endorse Midland 1 for competitive reasons, but their embracing Channel 1 as the new voluntary *consumer* calling channel could work just as well to spread the word. But I believe we all realize Midland 1 Listens! has the power to grow, whether or not it has additional support from other companies.

Answering "Jason's" letter in the same May issue, Channel 19 simply would not have served our or *your* purposes! Midland 1 Listens! is for the "rest of us"—those who aren't driving cross-country big rigs. As for Channel 9, please understand that Midland 1 is *not* an emergency channel; it is first and foremost a *calling* channel, a traveler's aid channel, a road information channel, and, whenever necessary, a motorist's emergency-assistance channel. It is not intended to supplant the work of REACT and/or other organizations that monitor Channel 9.

Thanks for the soapbox! We offer our sincere appreciation to all of you who have embraced Midland 1 Listens! and are brimming with suggestions about making it better. At Midland, we're listening!

Jesse Rotman, Marketing Director
Midland Radio Corporation
Kansas City, Missouri

A Big Vote For *Pop'Comm*

Dear Editor:

I've seen our radio hobby change over the past few years with more use of computers and the embracing of other radio services into the communications mix. I've also watched *Pop'Comm* evolve and grow since the mid-'90s into more than just a hobby radio magazine. The articles and columns are fresh and your editorials are relevant. Keep up the good work. Whenever I get the chance I always show my magazine to my students and friends.

Johnny Bentley
Los Angeles, California

Anyone From WCGR-WKOP Or WNYR Out There?

Dear Editor:

I recently purchased the February, 2003, issue of *Pop'Comm* and was very pleased to see the article on the RRN and the Northeast Radio Network. I was also very pleased to see the reference to Nelson Guyette.

I had the distinct pleasure of working with Nelson, known at that time as Don Nelson, at WNYR, 680 radio. Nelson and I became close friends at the station. I was a 17-year-old control board engineer during remote broadcasts. It was my job to play the songs that Nelson had set out before his shift and it became my job to know when he want certain commercials and when the records were to start.

Over the few years I worked with him the two of us became very in tune. We actually needed no further communications. I also used many of his mannerisms when I became a disc jockey at a small radio station in Binghamton, New York, WKOP. I later went on to WCGR/WFLC in Canandaigua, New York. I learned of Nelson's appointment to WSAY in Rochester and approached him for a job. Fortunately he talked me out of it.

Sorry to say that Nelson passed away several years ago. He had great insight. Even as a young man—20 something—I often listened to the Northeast Radio Network, WMIV, in Bristol. I think the photo of Andy Anderson was taken when he was actually broadcasting for the NERN. Thanks again for the history and the great story by Shannon Huniwell. I would love to hear from folks that worked at WCGR-WKOP or WNYR.

Dave Diegert

Traveling With Your Radios In A Post-9/11 World

Part II—Trains, Cruise Ships, And Highways

by Laura Quarantiello

When the world changed on September 11, 2001, security tightened perceptibly at airports, bus stations, train depots, ports, bridges, and interstates all across the country as the nation prepared for further incidents. This climate of increased security has persisted, and now, as we approach the second anniversary of that horrible day, heightened security measures have become commonplace. It's taken for granted that we will be scrutinized, searched, and possibly questioned before we board an airplane, travel on a train, or take a cruise. This is the price we pay for a safer country.

For radio hobbyists, increased security means that we have to be aware of the laws regarding scanner and amateur radio equipment use, especially when we choose to take our gear with us when we travel. If you're an armchair radio hobbyist, chances are you probably don't think much about the legality of carrying your scanner or ham radio with you on trips. But, if you do venture beyond the La-Z-Boy with your radios, you should be aware of the laws that may affect your listening.

Last month, in Part I of this article we looked at the regulations covering scanner and ham radios at airports and aboard commercial airliners. In Part II, we'll examine the rules affecting other forms of transportation, such as trains and cruise ships, and relate some of the problems hobbyists have encountered. We'll also look at regulations affecting radio use while driving.

The information is this article is not legal advice and is provided for informational purposes only. Laws are subject to change. Before traveling with your radio gear aboard any airline, train, ship, or other conveyance, please check with the company regarding current regulations and read state and local laws concerning radio use.

Make sure you're "legal" before hitting the road.

Riding The Rails

The name Richard Whitenight is well known among railfans. The Texan was detained while watching trains at a railroad junction in Fort Worth, Texas, and spent five hours being questioned by police. His notebook, which contained details about trains, was seized and his car photographed. He was finally released after signing a form agreeing never to return to his trainspotting location at the Tower 55 rail junction. Richard's case is a sore reminder of how things have changed since September 11.

The Washington Post reports that a "growing minority of railfans have been questioned and sometimes searched," ever since the FBI announced credible reports that al Qaeda might be targeting railroads for terrorist attacks. Law enforcement and train crews have been told to be aware of people asking questions about railroad operations, taking notes, and photographing trains. A source recently reported that CSX Transportation Railroad sent a message in late February to all users of the Operation Respond Emergency Information System (OREIS) with guidelines for security. Part of the message stated: "We value and appreciate rail hobbyists, or 'railfans' as a welcome source of community-based support for the railroad industry and our employees...We have found that most railfans take steps to observe train operations in a safe and appropriate manner, and CSXT strongly encourages railfans to pursue their hobby without trespassing or potentially interfering with train operations..."

Though the threat is very real, trainspotters and scanner listeners alike have been on the receiving end of the increased security posture around the rails, and this has caused concern among hobbyists engaged in innocent activities.

Laura Quarantiello is a long-time scanner listener and author of the book *Air-Ways: The Insider's Guide to Air Travel* (www.tiare.com/airways.htm)

There appear to be no specific rules against using a scanner or ham radio at a rail station or on a passenger train; however, the increased security posture may well cause train personnel to take a second look at anyone with a radio. Peggy Neitzel, who traveled up the west coast on AMTRAK recently, said that her husband's yellow scanner caused security to ask what it was, but reported no further trouble. Eric Burris, who rode Amtrak from Washington, Missouri, to Kansas City Union Station, said:

I had about four radios onboard, and a camcorder. I had a scanner, two ham radios, and an FRS radio. I only had two out at a time—one to listen to the trains (VX-150), and my Alinco DJv5TH to make ham radio contacts on the repeaters. The conductor or brakeman didn't seem to mind, nor did the passengers.

AMTRAK, Los Angeles' Metro Lines, San Francisco's BART, and New York City's Metropolitan Transit District all make reference to using radios and tape players on board, stating that they must be used with headphones. Common sense says that this applies to scanner and ham radios as well. Beware: in late-May, AMTRAK announced that it will introduce "Quiet Cars" on its Boston to Washington run, where mobile phones are prohibited on the first coach car. Several hobbyists who recently traveled with their radios by rail said that the key to a trouble-free ride is to keep your radio low profile and quiet. This includes using a headset and keeping the radio on your belt, or in a purse or bag. Don't be afraid to show your radios to security or train personnel if they ask, and always be prepared to demonstrate them if requested.

Take A Sea Cruise

Both terrorism and the war in Iraq have had an impact on cruise ship bookings, according to the Cruise Line International Association. Cruise ships, however, are considered more secure than other forms of transportation because they are a controlled environment with limited access. CLIA reports that in light of recent events, they have strengthened their security programs. Passengers may notice additional security measures, such as increased inspections of luggage and carry-on articles, additional security personnel and controls, and the use of canine inspections. At cruise terminals in the United States, security includes screening procedures similar to those found at airports. Metal detectors are used on embarking passengers and photo identification is required for all guests, crew members, and visitors who board.

Traditionally, taking your radios aboard a cruise ship has never been a problem. Scanners, world band radios, and ham equipment are natural "must-haves" for hobbyists aboard ship. You may even be surprised how many passengers are carrying FRS radios these days! Though security checks have been upgraded at many ports, with x-ray machines in use, boarding with your radios shouldn't be any more difficult than at airports. Just be prepared to demonstrate that the radios work and to explain that you're a radio hobbyist.

No specific rules seem to exist restricting scanners or ham radios aboard cruise lines. In fact, Carnival Cruise Lines only makes one mention of radios in their Frequently Asked Questions section: "You are welcome to bring radios and cassette players for your private enjoyment." The key word here is "private." As with trains, you should always use a headset with your radios, even in the privacy of

While you're cruising the high seas a scanner can bring in all sorts of action. Be sure to use headphones so you don't disturb other passengers. (Photo courtesy Bob Anderson, Ames, Iowa)

your cabin. It's only polite and will save you lots of potential trouble.

Remember that other counties have different rules regarding scanners and ham radios, so if you're planning on going ashore somewhere other than the United States, check out the local regulations regarding radios first.

Road Warriors: Traveling By Car

We love our cars. From Hondas to Jeeps, motor vehicles are the most popular form of transportation in the United States, with 129,748,708 privately owned vehicles registered in this country as of 1997. Whether we're commuting to work, heading to the store, or traveling to visit friends and family, most of us get there by car.

If you're a radio hobbyist, chances are you like to take your radio with you when you hit the highway. Unfortunately, many states have enacted laws restricting the use of scanners while behind the wheel. So much for the freedom of the open road.

Seven states have laws on the books that make scanning while driving illegal, while many other states make it illegal to use a scanner if you're a convicted criminal, to evade arrest, interfere with police communications, or to aid in the commission of a crime. The states with outright prohibitions on using scanners in vehicles are listed below. This information is condensed with permission from www.afn.org/~afn09444/scanlaws/, a superb website run by Todd L. Sherman, KB4MHH. Todd has done a great deal of work and I'm grateful for the opportunity to use his information here.

Bear in mind that these are state-level laws and that I've only listed the ones that prohibit scanner use in a vehicle. If you hold an amateur radio operator's license, most states allow you to carry a scanner in your car. Visit Todd's site for information on laws in other states. Local jurisdictions may also enact laws restricting scanner use in vehicles; check your local legislation for details.

In **Florida** scanner use is illegal if the scanner is installed in a vehicle, unless you are a) licensed alarm system contractor, b) member of the press on assignment, c) licensed amateur radio operator, or d) a citizen with written permission from the Chief of Police or Sheriff of your city.

Indiana's law is similar to Florida's.

Scanner use while mobile in **Kentucky** is illegal unless you are licensed by the FCC. There are exemptions for retailers/wholesalers, commercial or educational uses, as well as TV stations at place of business, individual at his place of residence, tow trucks, reporters, amateur radio operators, etc.

In **Michigan** it's illegal to operate a scanner in a vehicle unless the user is an amateur radio operator with a Technician class license or above or can show written permission.

Minnesota makes scanner use in a vehicle illegal except for police and FCC-licensed amateur radio operators or with the permission of the Superintendent of the Bureau of Criminal Apprehension.

In **New York** it is illegal to posses a scanner without a permit.

Rhode Island makes it illegal to use a scanner while mobile if you're a convicted criminal.

It's easy to get into trouble if you live in a state that prohibits mobile scanner use. A simple traffic stop could end up causing you to lose your radios and possibly face criminal charges. Most states with mobile scanning prohibitions issue permits that will allow you to take your radio along. Some even make it easy by putting the applications form online. For example, Minnesota's Bureau of Criminal Apprehension has an online form that you can download, print out, and send in to receive an Individual Monitor Permit (visit www.dps.state.mn.us/bca/invest/documents/Page-02-003.html). The Michigan State Police website has an Application for Short Wave Permit in a Vehicle to Monitor Police Frequencies at www.michigan.gov/documents/com-022_8561_7.pdf.

Do you need a permit? Can't you just keep your scanner out of sight and hope for the best? It's important for the reputation of the hobby (and your own reputation!) that we stay legal, so if you live in a state that requires a permit for mobile monitoring, get one. Don't try to subvert the law and risk losing your radio equipment and incurring a fine.

If you plan on traveling any distance by car, be sure you explore the laws of the states and local jurisdictions you plan on passing through. Just because you're a visitor doesn't mean you can't be cited for violating mobile scanner laws.

Going Mobile

Whether you travel by plane, train, cruise ship, or automobile, taking your scanners along is all part of the fun of being a radio hobbyist. Though the rules have tightened in response to increased security threats, scanners and ham radios are still welcomed almost everywhere you go. The key to traveling with your radios is to stay low profile, don't disturb other travelers, and follow the rules. With these basic caveats in mind, get out there and enjoy traveling with your radios! ■

washington beat

Capitol Hill and FCC actions affecting communications

by Laura Quarantiello <lauraq@cts.com>

FCC Facilitates Digital, And More

FCC Makes It Easier To Go Digital

The FCC has streamlined its application process for stations wishing to broadcast in digital. AM and FM stations may now transmit a digital signal without first applying for and receiving special temporary authority from the FCC. The Commission only requires a letter from the station detailing the specifics of its digital operation within 10 days of beginning to transmit a digital signal.

The notification letter should include the date interim operation began; a certification that the IBOC facilities conform to the Ibiquity hybrid specifications; the name and telephone number of an engineer the FCC can contact in case of an interference complaint; transmitter power output and, if separate analog and digital transmitters are used, the power output for each unit; a certification that analog effective radiated power remains as authorized. The station must also certify that the interim operation would not cause human exposure to levels of RF radiation above what is allowed.

A sample notification letter is available at the FCC's website at <www.fcc.gov/mb/ad/digital>. A copy of the notification letter must be posted next to the station license and a copy retained in the station's public file. Notifications should be sent to Digital Radio Notification, 445 12th St., S.W., Room 2-B450, Washington, D.C. 20554.

H.R. 1320 Passes House Subcommittee

The House Subcommittee on Telecommunications and the Internet has voted to approve H.R. 1320, the Commercial Spectrum Enhancement Act. Sponsored by subcommittee chairman Rep. Fred Upton (R-MI), this legislation creates a Spectrum Relocation Fund to cover the costs incurred by federal agencies to move from 45 MHz of spectrum that will be reallocated to commercial use. The funding will come from auctioning the spectrum to wireless carriers.

"When this legislation becomes law, it will ensure a smooth transition for both the wireless industry and government spectrum users including the Department of Defense—guaranteeing new spectrum for wireless consumers and a simple method of migration and reimbursement for incumbents," said Steve Berry, senior vice president for government affairs at CTIA (Cellular Telecommunications & Internet Association). "This is a win for consumers, a win for government and a win for the wireless industry. We now have a pathway to growth for the next generation of wireless services."

The bill now goes to the House Energy and Commerce Committee for their consideration.

Seamless Emergency Comms Progress

Fourteen states are earning high marks for their efforts to implement interoperable emergency communications systems. According to the Public Safety Wireless Network, a project of the U.S. Departments of Justice and Treasury, the states are Colorado, Delaware, Florida, Illinois, Louisiana, Michigan, Minnesota, North Carolina, Nevada, Ohio, Pennsylvania, South Carolina, South Dakota, and Utah.

Interoperable systems enable first responders, such as police, fire, and EMS, to communicate with each other at emergency scenes. The ability to communicate among agencies has been a hot topic since the problems with communications encountered on September 11, 2001.

Public Safety Gets More Spectrum

The FCC has voted to open 50 MHz of spectrum in the 4940- to 4990-MHz band for use by public safety agencies. In addition to making it easier for emergency workers from different jurisdictions to communicate with each other, the spectrum can support such services as monitoring vital signs of rescuers, sending live video images of emergency scenes to command posts outside the areas, or downloading floor plans directly to rescuers inside a building.

New Satellite Licensing Process

The FCC has introduced a new licensing process for satellite services. The new procedure is designed to streamline and speed up the regulatory process of an already competitive telecommunications industry. The Commission has adopted safeguards to discourage speculation, including a requirement that licensees post a $5 million to $7.5 million bond within 30 days after receiving a license, payable upon revocation of the license for missing a milestone; limits on the number of applications companies can have; an attribution rule so that licensees cannot evade the limits; additional implementation milestones and stronger enforcement milestones; and a streamlined replacement satellite application procedure. The FCC also confirmed that it retains the discretion in reviewing assignments and transfers of control to determine whether the initial license was obtained in good faith with the intent to construct a satellite system. ■

homeland security

power, and products

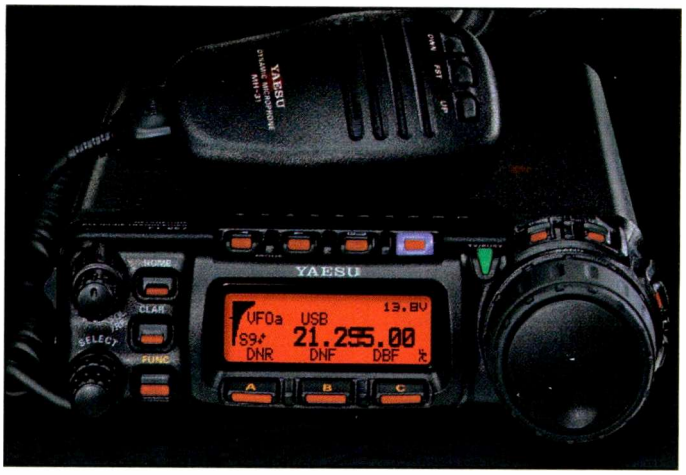
by Rich Arland, K7SZ

Answering Your Letters, And Assembling An Emergency "Jump Kit"

Welcome back! I am writing this column shortly after the fall of Baghdad and the end of the major military operations in Iraq. While we have won a major battle in the War on Terrorism, we have not won the war.

Several days ago I was watching the Discovery Times channel on satellite. They aired a very insightful and informative program on Al Qaeda and their subsequent reformation after 9/11 and Operation Enduring Freedom in Afghanistan. During the show I kept thinking that these folks are far from defeated, and are *a lot* more dangerous than previously thought. For one thing, their operations have dispersed and become an integral part of the Internet. Tracking, finding, and neutralizing these terrorists is going to be a full-time job requiring some of the best IT minds in the business, along with a host of Special Operations Forces (SOF).

Another point: the United States of America and American interests here and abroad are going to be ongoing targets for these Islamic extremists. It's gonna be a long war, folks. Deal with it!



Here's the new Yaesu FT-857, the FT-817's big brother.

Feedback

At the end of several "HOMSEC" columns I asked for feedback and ideas for this column. You have not let me down. Over the last several months I have received numerous e-mails and snail mails regarding this column, my professional expertise (or lack thereof), my opinions, objectivity and foresight, along with some ideas for topics for future columns. Let's take a few minutes to go over some of these comments.

Arland On Scanners

Several folks, obviously heavily involved in the scanner side of the hobby, sent me e-mails and postings regarding my advice about purchasing scanning equipment. Their take was that I should not be telling folks that they didn't need a high-dollar scanner and that a $25 find at the local flea market would work just fine.

First of all, I am writing to a general audience. The more feedback I get the more I realize that a good percentage of you are ham radio operators. That's always a nice beginning. Second, few of you are heavily involved in the scanning end of the hobby to the extent that you are willing to part with $300 to $500 for a high-end scanner with trunk-tracking capability. So, here again, are my words of wisdom regarding scanners: buy what you *need* to listen to the things you *want* to listen to in your area.

For instance, if your area does not have the local Public Safety agencies on an 800-MHz trunked system, don't waste the money buying an expensive trunk-tracking scanner. If all you want to cover are a few local VHF/UHF FM police, fire, and EMS frequencies, then a smaller, used scanner will work just fine. If, on the other hand, you want to cover a large geographical territory (you drive or travel a lot), then you'll need a scanner with a multiple banks and lots of memory capacity that's easily programmed from a computer database. Finally, if you have several agencies on trunked systems in your area, then find a trunk-tracking scanner that is compatible and use it.

The HFPack Packer Amp.

Be aware, however, that one of the major drawbacks of trunk-tracking scanners is their lack of ability to decode and track *all* the trunking schemes. Many trunked systems currently on-line do not conform to APCO Project 25 protocol, so you need to be very careful when selecting a trunk-tracking scanner and ensure that it's capable of decoding the trunking scheme in *your* area so you can follow the action.

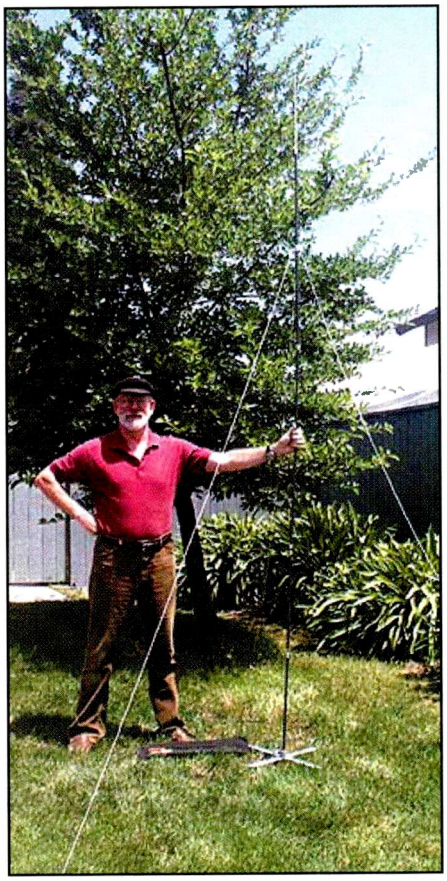
In Pennsylvania, the entire Commonwealth is going to transfer over to a trunked system starting this year (2003). The Pennsylvania State Police (PSP) is currently testing the statewide system with seemingly mixed results. However, progress marches on and, before too much longer, the PSP will abandon its long-established high-band VHF frequencies in favor of the new trunked system. Unfortunately, the protocol they are using in this new system is not covered by anything currently on the scanner market. Therefore scannists in Pennsylvania who like to keep abreast of the state police action PSP will be shut out in the not too distant future.

Am I going to rush out and buy a trunk-tracking scanner? Nope. No need. The locals here still use high- and low-band VHF and UHF, so my current scanners will work for the foreseeable future. However, I am thinking seriously about a computer-driven scanner that I can play with for the "Ultimate Mobile Installation." More on this in a later column.

Arland On CB Radio

I knew I would pick up some heat on this topic, but I stand by my original comments: "You *need* a 27-MHz CB radio since they are prolific, provide great local area coverage, and allow you to interface into another communications medium, thereby increasing your flexibility and usefulness in times of emergency." There are those of you out there that demean and condemn CB radio (and not without good reason); however, the truth is, it is a great medium and can be very effective during emergencies. Sure, no sane person likes to listen to the drivel and profanity that occurs on some of the more populated CB channels, but 27-MHz CB is great for short range, tactical communications *at minimal cost.*

Obviously the folks at Midland Radio have seen the light. Their Midland 1 Listens program is picking up quite a following. What is Midland 1 Listens? It's a program started by some innovative people at Midland Radio to provide a CB channel (in this case, Channel 1) for average travelers (non-truckers) to use to obtain travel info, report traffic problems, get help, etc. on 27-MHz CB. I realize that the FCC has set aside CB Channel 9 for emergencies, but since this channel is mostly idle here in the United States it has become overrun with DX skip-working stations outside the country. There are



The Ventenna HFp is a great emergency, portable HF antenna. Here it is in the 40-meter configuration with included guy wires.

times that the DX activity level on Channel 9 is higher than that on Channel 19, with all the trucker traffic, too!

Midland Radio has expanded its initial plan to include Channel 1 on GMRS and FRS, also. I have dared to go even further and proposed to them that the National Calling Frequency on 2 meters (146.520 MHz) be rolled into this plan as a place for ham radio operators to listen for each other. I realize that this sounds more than a little funny and redundant since 146.52 simplex is *the* National Calling Frequency. However, as I mentioned in a previous column, I have monitored "52 Simplex" countless hours and have heard virtually *nothing*! Let's start using "52 Simplex" in conjunction with Midland 1 Listens to provide another choice for travelers and others to find help and obtain information.

Arland On Jump Kits

In a recent column I included pictures of my Yaesu FT-817 HF QRP transceiver and LDG Z-11 auto-tuner and listed them as part of my Jump Kit. This has solicited the most feedback by far! It seems that there are a lot of readers out there who are keenly interested in emergency communications and would like further information regarding my Jump Kit and what it includes. Okay, you asked for it!

First of all, let's define a "Jump Kit". This is the bag (or bags) you grab as you go out the door to perform emergency communications (EMCOMM) duties. In the Jump Kit you have virtually everything you need to enable you to set up a communications station and get on the air during an emergency. Now, let me be the first to say that planning and assembling a Jump Kit is not an easy task. There are a lot of variables to contend with. What will work for me may not, for whatever reason, work for you. So the following is provided merely as a guideline for you to start planning and assembling your own Jump Kit. One other thing to remember: your Jump Kit is *never* completed! It is a dynamic entity that changes as your emergency communications requirements change. It is a trial and error exercise in optimization.

The ARRL's Amateur Radio Emergency Services guidelines state that an emergency communicator should be self sufficient for a minimum of three days. Personally, I find this a bit limiting and would prefer to look at an emergency communications situation in terms of a 10- to 14-day period of self-sufficiency. This means that you need several changes of clothing, including underwear and socks, toilet articles, spare glasses, medications, wet-weather, and/or cold-weather gear (depending upon time of year and climate), high-energy/high-density/low-bulk food items to sustain you when no food is available at your site. In addition to the radio gear, spare batteries, antennas, and feedline, you'll need log sheets, ARRL message forms, pens/pencils, emergency lighting, maps, compass or GPS unit, whistle (audible alerting), first aid kit, sun block, insect repellent (with lots of DEET), weather radio, and/or scanner. In some cases, you will need to provide your own tent for shelter and sleeping bag. And, this is only a partial list!

As you can see, it is entirely possible to accumulate a massive amount of "stuff" that is directly related to your emergency communications duties. The challenge is to pare this stuff down to a manageable amount of gear that will allow you to oper-

Got CB? You should, because it's a good, versatile short-range communications medium available at minimal cost. Pictured here is the Cobra 25 LTD.

The Gall's StreetPro Gear Bag, a sturdy nylon equipment carrier that is 12 x 18 1/2 x 7 1/2 inches (HWD). It's $49.99 at www.galls.com.

ate effectively without requiring a U-Haul trailer to transport! In emergency situations, mobility counts!

Arland's Got A Brand New Bag!

You will find that one of the first decisions to be made is the type of carrier all your gear will fit into. In the past I have used brief cases, duffle bags, a Gall's Police Supply "Street Bag," a plastic "action packer" trunk, a soft sided cooler, and my latest attempt at portability: a mobile tool box with wheels and handle from Lowe's Home Improvement Center. Each carrier filled the bill at a given time but was superceded when my comm requirements changed (or my pile of "stuff" got bigger!).

I am in the midst of modifying the mobile tool box to accommodate high-capacity lead/acid batteries, charging circuitry, all the RF gear, antennas, feedlines, power inverters, laptop computer, electronics tool kit, and station accessories. My clothes, emergency rations, toiletry articles, etc. will go in the Gall's Street Bag. My ultimate goal is to organize the Jump Kit to a functional level that will enable me to be an effective emergency communicator for a minimum of 14 days and still be able to carry everything myself!

Arland On Emergency Communications Planning

The Jump Kit is the end product of an in-depth series of planning sessions to accurately identify exactly what it is you want to accomplish as an emergency communicator. This basically depends upon your involvement with your local ARES/RACES or emergency volunteer group. If you show up at a real-world event loaded for bear on HF and the rest of your fellow emergency communicators are there with their VHF/UHF equipment, you're going to be more of a hindrance than a help. About the only thing worse on this scale of preparedness is to arrive on scene without the proper communications training!

At this point, list making is mandatory. Separate your lists into several categories: Radio Gear, Station Accessories, Power, Antennas, Personal Items, First Aid/Meds, and Shelter, and Food. This is the time to get a little crazy and brainstorm each topic, listing absolutely everything you can think of that you might need during a 14-day emergency. Later in the planning phase, you'll start paring down each list to get to a manageable level of equipment. But for now, go ahead, go nuts!

Once you're done, sit back and take a close look at your lists and start thinking about the things you can absolutely do without and redo your lists accordingly. Then, take another critical look and start the process over again deleting redundant, non-essential items. Finally, take a very realistic look at the lists you've pared down with the attitude "What can I leave off the list(s) and *still* perform my EMCOMM duties at an acceptable level?"

When you have gotten through this catharsis, it's time to assemble all the things on your individual lists. Gather everything, and I mean *everything* in one place, and physically look at your proposed Jump Kit. It's a staggering amount of stuff, huh? It is very difficult for most of us to visualize the amount of gear it will take for us to be self-sufficient for 14 days. At about this point it should hit you that, unless you plan on hiring several gun bearers to help haul your mass of gear around, you're gonna have to do some more list paring. Well, get to it! Remember: the goal is mobility. You may very well be on your own and have to "hump your own ruck" in the bush. That's the time you'll regret not deleting more stuff from your list.

Arland On RF Gear Selection

What you take to an emergency communications event will be dictated by your emergency communications group's official duties and whom they serve. The served agency can be any individual or group, ranging from The American Red Cross, county, state or federal Emergency Management Agencies, local, county, or state police, etc. Whomever your EMCOMM group serves has unique requirements, which are the basis for your plan. Often HF comms is not a requirement, however, when needed, HF is a valuable tool in your emergency communications arsenal.

The majority of ARES/RACES, EMA, and EMS comms are done on VHF/UHF FM frequencies. This is short-range, tactical communications with a real-time orientation. Typically, VHF/UHF FM amateur communications are used to "shadow" specific served agency personnel to keep them in constant contact with the on-scene incident commander. Further EMCOMM requirements may stipulate the activation of one or more nets to handle refugee relocation traffic, back-up comm support for first-line comms, logistical support for outlying shelters, checkpoint ingress/egress and command and control communications,

traffic control, and motor pool logistics, to name but a few.

Therefore, your main piece of gear should be a VHF/UHF FM transceiver, preferably *not* a handheld, capable of at least 10 watts of RF output. There are many good rigs on today's market that will fill this bill. I have an ICOM IC-21000H 2-meter mobile radio that offers 5, 25, and 50 watts output and expanded receiver (137 to 174 MHz) in a relatively small package for around $150. Look for sales, as ICOM, Yaesu, and Kenwood offer factory incentives that yield some outstanding prices on their gear.

If you decide to incorporate a dual-band radio (2 meter/70 centimeter), be sure to pick one that offers dual-band simultaneous receive and cross-band repeat. This way you can monitor two bands at one time and configure your rig to operate as a remote base by linking the VHF and UHF radios together (internally) and working like a mobile repeater.

Personally, I'd opt for separate VHF/UHF radios, since this would offer both dual-band receive and cross-band repeat (with the addition of a small controller), and, if you had problems with one radio, you'd still have the other rig that would work. Encounter problems with the dual-band rig and you've lost both your VHF and UHF capability.

An HF rig is nice to have. Currently there are a number of small, mobile/portable HF rigs that offer outputs from 5 to 100 watts in a compact housing. Until recently, my favorite has been the Yaesu (Vertex Standard) FT-817 HF + 6-meter, 2-meter, and 70-centimeter multimode rig with 5 watts output. I carry two outboard amps: one is the HFPack (www.hfpack.com) Packer Amp for HF that boosts the FT-817 output to 38 watts on HF. The other is a Mirage (MFJ) BD-35 dual-band amp for 2 meters and 70 centimeters, which yields around 35 watts output on these two bands. This combo is small and everything fits into a soft-sided cooler bag, including HF/VHF/UHF antennas, feed lines, power supply, and tool kit.

Yaesu has recently marketed the FT-857, the big brother of the FT-817. It is a 5- to 100-watt HF + 6-meter, 2-meter, and 70-centimeter multimode rig that is about twice the size of the FT-817. At this point, I am looking seriously at changing over my Jump Kit to accommodate the FT-857, since it does not require external amps and has more features than its little brother. Both the FT-817 and FT-857 offer HF/VHF/UHF multimode coverage in a very compact package, ideally suited for EMCOMM use.

ICOM and Kenwood also offer their versions of compact mobile/portable HF/VHF/UHF rigs at competitive prices, so do your homework, look for sales/factory incentives, and spend your money carefully.

My main purpose in using the FT-817 (or FT-857) is to be able to cover all the major bands used in EMCOMM plus have the ability to fire up on HF if the need arises. As I stated previously, HF is nice to have but certainly *not* a prerequisite. These two Yaesu rigs do it all and I like the flexibility that I have using them.

Arland On EMCOMM Antennas

For my Jump Kit, I keep a 5/8-wavelength, 2-meter mag mount antenna with about 20 feet of coaxial cable handy to cover 2 meters. For 70-centimeter coverage I use a homemade 1/4-length ground plane (check out the *ARRL Antenna Book* or the *ARRL Handbook* for details). I also have Arrow Antennas' 2-meter and 70-centimeter Yagi beams that can be disassembled for easy storage. Additional VHF/UHF coverage is provided with a set of collapsible whip antennas that I built using parts from RadioShack.

The HF antennas I use are pretty "plain Jane": a 40-meter 1/2 dipole fed with 300-ohm ladder line, available from The Wire Man (www.thewireman.com), and a Ventenna (www.ventenna.com) HFp portable multi-band vertical. The HFp only covers 40 to 10 meters; however, the 40-meter dipole, when fed through a 4:1 balun in the LDG Z-11 auto tuner, can tune 80 through 10 meters, giving me full HF coverage.

The 40-meter dipole is made from #28 multi-strand Copper Weld "Stealth Wire," which is extremely robust. The wire has a black PTFE covering that won't snag in tree limbs. The center insulator is a 3/4-inch Schedule 40 PVC pipe end cap that has been drilled and filled with epoxy. There is a SO-239 coaxial plug epoxied to the open end, which connects the 300-ohm ladder line to the antenna elements. This makes for an extremely compact HF antenna that can be rolled up and stored along with 50 feet of feedline. The Ventenna HFp disassembles into several 12-inch pieces for storage, along with the base, radials, and feed line.

Jump Into Your Own Kit

Now you have some idea of what I consider minimal radio gear and accessories for a Jump Kit. In future columns we'll describe the power system, including DC-to-AC inverters and data transmission equipment to further enhance your EMCOMM abilities.

Until next time, remember: Preparedness is *NOT* an option. ■

overheard

by Ken Reiss <radioken@earthlink.net>

strategies and techniques to keep YOU informed

A Scanning Vacation!

Well, it's that season again. Lots of folks are piling into the family car and zooming off for the weekend or for the annual family vacation. When you hit the road, don't leave your scanner behind. There's plenty of good listening out there, even though you may not be intimately familiar with the territory or frequencies in use.

Getting Equipped

Putting in a permanent mobile installation is beyond the scope of this month's column, but for right now I'm assuming that you want to do something temporary to take on your trip. Luckily, there are about as many variations on mobile equipment as there are mobile scanning enthusiasts.

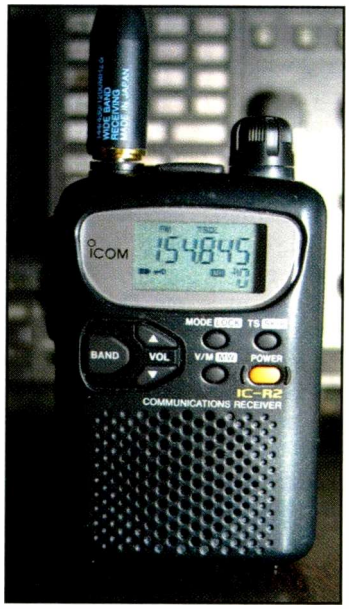
Simple installations, like using a handheld in the car, may turn out to be the perfect traveling arrangement for you. Let's face it, it's supposed to be a vacation, and hopefully you'll have other things to focus on besides the radio most of the time. Still, having a scanner in the car can be helpful for those long drive times and in places where you might encounter traffic. Having a handheld can also prove convenient for times when you'd like to scan in the hotel room or around the campfire at night.

You can also install a small base unit or mobile scanner in your car on a temporary basis, and a simple cigarette lighter plug is about all you need for power. Just make sure the adapter you get is compatible both with the voltage and current of your radio, and, of course, watch the polarity. Most car cigarette lighters use a positive center (negative ground) and most scanners are wired that way too. But, once in a while, you come across one that doesn't work as expected. This is a good way to ruin a radio if you're not careful.

As far as antennas go, the sky's pretty much the limit. The metal body of the car makes a great ground plane, so any 1/4-wave whip or gain antenna on a magnetic mount should provide reception for several miles. You can also compromise, using a rubber duck antenna for handhelds and, if necessary, suction cups mounted on the inside of the glass. They don't work as well as an external antenna, but something is better than nothing.

If you're going to use an "internal" antenna, I've found that longer tends to be better. Those 1/4-wave telescoping antennas work quite well, or there are a number of other models that offer some gain on the higher frequencies. One that is long enough that it sticks up above the dashboard or window when the radio is sitting where you intend to use it can improve reception considerably. Glass passes the radio signal much better than metal.

You can also use the same method that car manufacturers use to keep from having to "spoil the lines" of the car with the likes of an antenna—the old wire on the windshield trick. Solder one end of the wire to an appropriate connector for your radio, then run the other from where the radio will sit up and around the edges of the front or back window. You can build a dipole this way by hooking a second wire to the other side of the connector. My experience has been that this makes the installation harder and is probably not necessary.

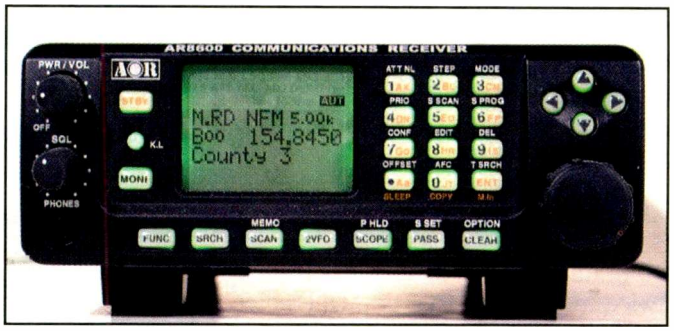


If you need maximum portability, small radios like this ICOM R-2 provide a lot of receiver that won't take much space in the luggage.

Try to make the wire an even multiple of a 1/4-wave for maximum effectiveness on the frequencies you're interested in. If you divide 2832 by the frequency in MHz, you'll get the 1/4 wavelength in inches. You can then multiply that number by two, four, or eight to give you a long enough wire to make it from the radio in the console to the front or rear windshield (or a side window that won't be going up and down on the trip). As long as you don't pick up too much engine or computer noise from your car's electronics, this antenna will work fine, and may outperform many stock antennas for handhelds because of the increased exposure to the signal through the glass.

What To Listen To

Here's where things tend to get a bit complicated for vacation scanning. You're likely to be driving through a bunch of areas that you're unfamiliar with and don't have detailed frequency information available. Or perhaps you're flying into an area and want to concentrate on that city's system. Programming your radio in advance is a good idea and will help you make the most of the time you have available, but it's not completely necessary.



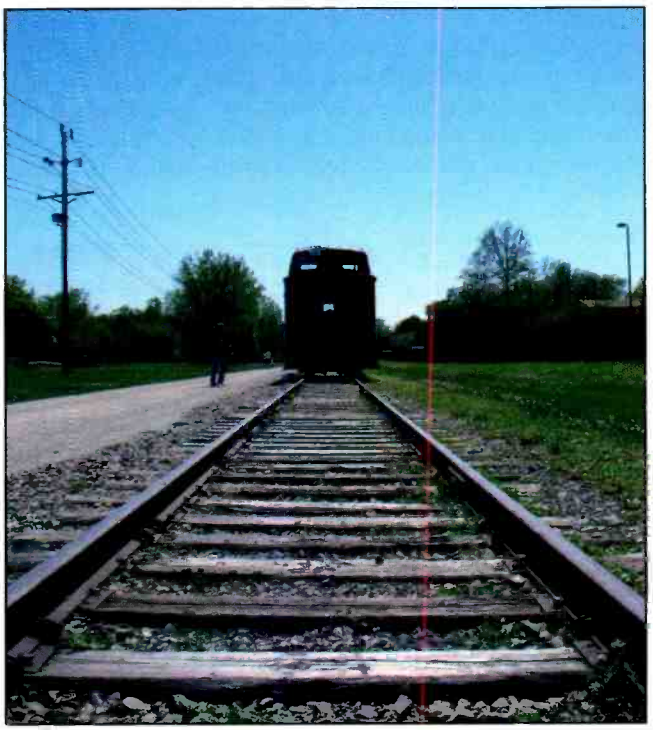
If you have a dashboard that you can mount things under, many of today's sophisticated receivers can be powered off of the 13.8 VDC present in most cars. Just watch the polarity, or get a cigarette lighter adapter from the manufacturer if you're unsure. You can do a lot of damage in a hurry if you plug things in the wrong way!

This one's in a museum, so it probably doesn't transmit much. The museum it's in has radios though! Many airports are busy places around the clock, so you'll hear lots of action if you happen to be staying near one. With today's heightened security, though, I wouldn't recommend carrying your scanner around the airport.

Excellent resources like *Monitor America* and *Police Call* (available at RadioShack) can help considerably. These excellent guides will probably give you way more information than you can deal with effectively anyway. Concentrate on the big ones: state highway patrols or police, major metro area police dispatch, fire alarm frequencies, etc. Pick out the services you're most interested in and punch those into your scanner. I try to keep each geographic area in its own bank. It can also be fun to plug in the itinerant frequencies if you have room. These are used by lots of businesses all over the country. If you have a spare bank, the Family Radio Service (FRS) and (Multi-Use Radio Service) MURS frequencies can be entertaining (see "FRS, MURS, And Weather Frequencies").

Also, keep your schedule in mind. If you're likely to be traveling at times when the noise from the radio would disturb others, you're not likely to listen at those times. If you're in a resort or other area with lots of other things to do, again, you won't be listening as much during those times. Think about when during the trip you might be able to listen without getting into trouble with family members or negatively flavoring the vacation. Remember, you're supposed to be having

You never know when something will crop up. Having the frequencies in the scanner before you get there will be most helpful in avoiding traffic jams! Unfortunately, you'll have to be aware of local laws that may prevent listening in certain areas!



Don't forget the railroads. They're everywhere and many frequencies are active. You can fit all of the AAR channels into a 100-channel bank that so many scanners offer these days.

fun. A pair of headphones might be a good accessory to remember also!

Here's one place where a computer programmable radio comes in extremely handy. All you have to do is hook up the computer, back up the current data (if your radio has that option), and then download the new stuff. If you make the same trips on a regular basis, this is worth its weight in gold. It's very quick and easy to connect the computer and download a new frequency file. Four hundred channels can be programmed in just a few minutes, and most of that time involves getting the thing connected and starting the download software. Many newer scanners and ham transceivers (which have broadband receive capabilities) offer this feature. You'll need to check with the manufacturer or dealer about software and cabling for your particular radio.

Finally, I'd dedicate at least one bank on the scanner, if not more, to destination monitoring. I'm assuming you'll be spending a big part of your trip in one spot, and there you'll have a chance to learn a little about local frequency usage. You'll also have some quiet time so, if you have to, reprogramming the radio a bit is not out of the question. You might want to do this as you learn more about what's used in the area, or because you've just filled up the available banks with frequencies for use enroute. Don't forget to reprogram it for the trip home before it's too late!

It's worth leaving all of your banks on for a little while when you get to the destination. If you're in or near any good size metropolitan area, lots of frequencies are likely to be in use. In fact, if you're in a major metro area, there are probably very few *unused* frequencies. You might find something you hadn't planned on one of those frequencies you were using for someplace else along the way. I've found some very interesting listening quite by accident.

I have also forgotten to reprogram my scanner before I left and thought I'd take the time to do it once I got to the destination. Once I got there, I found that listening to the same frequencies I had at home was more than adequate to keep me guessing as to what I was hearing. So don't hesitate to bring the scanner even if you don't want to reprogram it!

You can also *search* for frequencies using the scanner's search modes if you're so inclined. It's helpful to have ranges pre-programmed into the scanner if you have that option, or take along a reference page or two regarding the expected ranges to find things. If nothing else, you'll get a feel for how much two-way radio traffic is around you waiting to be captured.

FRS, MURS, And Weather Frequencies

Here's a handy chart of the FRS frequencies. Remember that channels 1 through 7 are also part of the General Mobile Radio Service (GMRS), where higher power is allowed. You can hear anything on these frequencies.

Ch.	Freq.	5	462.6625	10	467.6125
1	462.5625	6	462.6875	11	467.6375
2	462.5875	7	462.7125	12	467.6625
3	462.6125	8	467.5625	13	467.6875
4	462.6375	9	467.5875	14	467.7125

And here's an equally handy table of business and Multi-Use Radio Service (MURS) frequencies

151.6250	151.8200	151.9550	462.6250	464.8250	467.9000
151.6550	151.8350	154.5150	462.6750	467.8125	467.9250
151.6850	151.8800	154.5700	464.3250	467.7625	469.2625
151.7150	151.8950	154.6000	464.5000	467.8500	469.5000
151.7750	151.9250	462.5750	464.5550	467.8750	469.5500
151.8050	151.9400				

Don't forget the weather! Here are the NOAA weather channels. Most, but not all, areas are covered by one or more of these. My advice is to put them in a bank and scan for the strongest signal, not necessarily the first one you find!

162.550	162.425	162.500
162.400	162.450	162.525
162.475		

Benito, seen here in his cool shack in Sao Paulo, Brazil needs information on the TR-4500 that he says works great. He's looking for a modification that was published sometime back about how to modify the receiver for use as a spectrum analyzer (with an oscilloscope, of course). If you can help, write to him at Benito Vasquez, Rua Inglaterra, 5 apt. 32, Santos-San Paulo, Brazil. CEP 11030-510É just like it says in the picture!

Computer-Controlled Mobile Scanning

Okay, you have to be pretty dedicated and probably traveling alone to get away with this trick, but I do know of a couple of people who actually run computer-control systems in their cars while on vacation. One person, we'll call him John (because that's his real name, and he'd probably appreciate that more than other things we could call him), hooks his PRO-2006 to vehicle power and then uses a laptop on an adapter sitting on the passenger seat.

He says he really doesn't use the computer to look at the display much (good idea while driving), but rather to switch banks in and out of service as he travels from county to county and state to state. He also logs all the activity along the route so he can see what frequencies were active, then he fine tunes the system after

he's done with the trip. He makes the same trip several times a year, so hopefully it's getting better and better as time goes on.

Scanner Laws!

You'll need to do a bit of research before your trip to make sure you're not opening a can of worms by carrying your scanner in the car. Some states prohibit any kind of public safety receiver in the car, while others have virtually no restrictions. Some states that have restrictions also have exemptions for amateur operators and others, so you'll want to look into the situation before you find yourself on the wrong end of an innocent traffic stop. If in doubt, pack the scanner away in the trunk and don't use it until you get to your destination.

Frequency Of The Month

Our frequency this month is **161.775**. Plug that in and see what you hear. In fact, if you're looking for something different to scan, how about plugging in a bank of our Frequencies of the Month to see what you hear as you travel the country? I've included a list, thanks to a letter from Phil Karras. Phil wrote: "I just read part of your April column and I thought it would be a good idea to have a bank in my scanner for just your freqs. So, I went to do that and then couldn't find the January or February 2003 issues of *Pop'Comm*—guess I've loaned them out." Here you go Phil. Thanks for your letter!

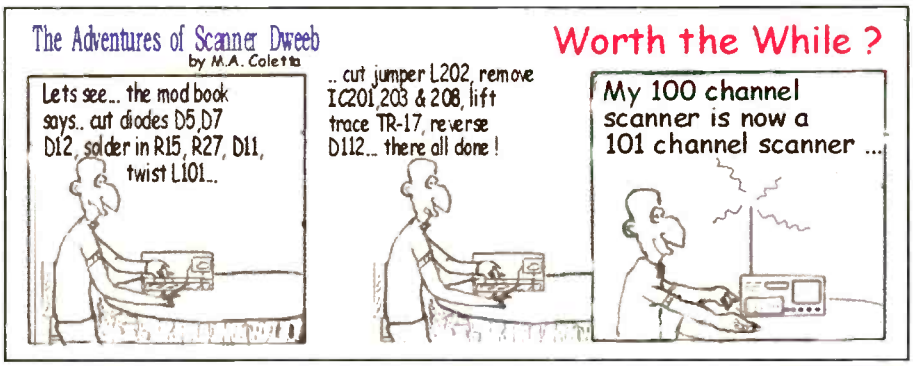
Don't forget to drop me a line to let me know what you hear or don't hear. We'll include your name in the drawing for a free one-year subscription to *Popular Communications*! If you've got a favorite frequency you'd like considered for the Frequency of the Month, you can send that along, too!

Frequencies Of The Month

Thanks to Phil's letter (sorry, you'll have to actually read the column) here's a list of our Frequencies of the Month since we started! That's a bank's worth in many scanners! With that strange mix of frequencies you're bound to hear something!

Oct-01	121.9000
Nov-01	450.5500
Dec-01	154.7400
Jan-02	462.6625
Feb-02	154.1300
Mar-02	42.1200
Apr-02	166.1000
May-02	156.8000
Jun-02	460.1250
Jul-02	118.9000
Aug-02	121.9000
Sep-02	154.1600
Nov-02	453.2250
Dec-02	170.9750
Jan-03	856.6875
Feb-02	153.8900
Mar-03	282.1000
Apr-03	467.5875
May-03	155.6400
Jun-03	42.2200
Jul-03	157.1000
Aug-03	161.7750

As always, we welcome your input or questions regarding scanning. If you take a trip and find some cool new frequencies, send them in! E-mail suggestions and questions to <radioken@earthlink.net>, or via official federal mail to Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126. (Complaints should go to Harold!) Until next time, good listening! ■



by Alan Dixon, N3HOE / WPUC720 / KST8678

A GMRS "Small Base Station" For Monitoring And Working FRS Channel 1

Last month we took a look at several different Commercial Mobile Radio Services (CMRS) available to us. We may find these commercial services useful to augment our individual personal communications needs, or they may simply fill these communications needs in themselves. Whichever the case in your instance, you still need at least a basic understanding of the commercial wireless services offered, just as you need to understand the Personal Radio Services you use. Let's take a look at how to enhance a particular aspect of personal radio, Family Radio Service (FRS).

FRS Channel 1 is rapidly becoming accepted as the national Common Calling Channel, yet little has been written about how to set up a truly functional base station for monitoring and responding to assistance request calls on the channel. Obviously, we could go about with an FRS handheld radio clipped to our belts, tuned to Channel 1. But what REACT members and others interested in monitoring FRS Channel 1 need is a practical and comfortable base station operating setup.

There are a couple of FRS base stations on the market now, so the obvious solution would be to add one of these to your listening post. It's just not as simple as that, however. FRS was conceived as a *handheld* radio configuration, nothing more. But the reality is that folks use these tiny FM walkie-talkies indoors and out, at home or in the office, in cars and trucks, moving or standing still. After all, consumers and hobbyists alike appreciate a functional handheld wireless service without a monthly airtime bill (or those annoying prepaid airtime "cards").

The single factor that tends to restrict FRS to the handheld configuration is the FCC regulation which specifies that FRS radios shall not have removable or remote antennas (47 CFR §§95.193(c), 95.647). It's easy to imagine the logistics of setting up an FRS base station, or even a mobile station, for that matter. The FRS base stations on the market turn out to be simple tabletop or wall mount units, with a no-gain antenna permanently attached. They look and operate like ordinary wired intercom system desktop units. And none I have seen have come equipped with a separate microphone. Ho-hum.

At least one vendor marketed a true mobile FRS unit. Since the transceiver section of FRS units must be connected directly to the antenna, RadioShack's mobile FRS radio had the RF workings of the radio neatly mounted in the base of a magnet-mount antenna. The antenna itself was no bigger than a quarter-wave antenna for the 462-MHz channels involved. A fixed cable would be routed into the car or truck to a combination handheld mobile mic and control head. Another lead provided 12-volt power. This mobile was well thought out, and it's a great loss to consumers that it's longer being marketed. As far as my research indicates, the RadioShack mobile was the only FRS unit of its kind.

I suppose that had the RadioShack FRS mobile concept been more of a smashing market success, one or more manufacturers may have produced a true FRS base station using this same concept. Imagine most of the circuitry of an FRS transceiver mounted in a weather-tight box suitable for antenna mast mounting. As required by law, the no-gain omnidirectional antenna would protrude from the top of the box. A single cable of substantial length could drop down to a house or apartment unit below where you could have a real base station unit—a box with channel and CTCSS selectors, an S-meter, power supply section, and speaker. And you could have a separate hand mic or desktop base microphone.

A Solution

It could have been produced and it should have been produced. But it wasn't. Still, there is a solution. You and I really can have a true FRS base station for monitoring and operating Channel 1, and we can have the maximum transmit and receive range technically possible for operating FRS Channel 1. We can assemble the components of this station ourselves, at very reasonable cost, too. Oh sure, there is a catch. But as you will see, it turns out to be a rather privileged situation. Those of you who are familiar with FRS are likely shaking your heads and mumbling something to the effect of, *How can this possibly be legal?*

The solution is found in the fact that FRS Channels 1 through 7 are shared with GMRS licensees. These same frequencies are known as the GMRS *interstitial* channels, since they are splinter channels located between the "regular" (original) GMRS operating channels. What makes these interstitial channels unique is that, besides being shared with FRS, they are by regulation low-power channels (§§95.29(f), 95.621(a), 95.627). The regular GMRS channels are for high-power base, mobile, and duplexed repeater operation. Up to 50 watts transmitter output power is authorized. In contrast, only 5 watts Effective Radiated Power (ERP) is permitted on the interstitial channels. There is also a modest limitation on antenna height.

The bottom line is that we can assemble a GMRS base station for the interstitial channels (and regular channels, as well) operating at or below the specified power level for the channels in question, and within the specified antenna height range. And any low-power GMRS interstitial channel operation will absolutely blow the socks right off any off-the-shelf FRS station configurations!

All of this is accomplished by having what the FCC officially calls a GMRS "small base station" (§95.25(e)). Your small base station may operate on any or all of the GMRS channels with up to 5 watts ERP, using an antenna up to 20 feet above ground or above the building or tree on which it is mounted (§95.51(b)). And the really good news is that you won't have to spring for an expensive commercial-grade GMRS base station unit, or even a slightly less expensive commercial-grade mobile

Handy Links And Telephone Numbers

Here are very handy sources of products and information you will need to get into GMRS and to construct your station as described in this column.

For GMRS licensing:

http://www.pe.net/~atd/fcc605.htm
http://www.fcc.gov/uls or
1-888-CALL-FCC (toll-free)

For antennas, SMA adapters, static-discharge units, and other site supplies:

Amateur Electronic Supply
http://www.aesham.com
1-800-558-0411
Burghardt Amateur Center:
http://www.burghardt-amateur.com
1-800-927-4261
Ham Radio Outlet:
http://www.hamradio.com
Main location, Western U.S.,
1-800-854-6046

For antenna masts, feedline, and ground wire:

RadioShack:
http://www.radioshack.com
1-800-THE-SHACK

Now shop around, carefully. Be sure to tell any vendors you contact that you heard about them in *Pop'Comm*.

transceiver for your base station radio. You simply use one of those inexpensive bubble-pack GMRS handheld radios that are sold at stores like Wal-Mart, Target, K-Mart, membership wholesale warehouses, sporting goods, and appliance superstores, as well as nearly everywhere else.

These radios come individually or in pairs, in display-type clear plastic blister or bubble packaging. Typical models include the Audiovox GMRS-1535 (shown in the August, 2002, "On-The-Go Radio" column) and the Genex MK series. These Genex models have been marketed under the Memorex name and can be found in at least one of the major variety chain stores. They were also briefly reviewed in the August, 2002, column and can be found in RadioShack stores under the original Genex name.

Various bubble-pack GMRS radio models have really come down in price in the last two years. You'll likely find them under $50 apiece, and sometimes for as little as roughly $30 each when on sale. Shop around for just the right unit at just the right price to use in assembling your own FRS Channel 1 operating station.

First Things First

Get one of these inexpensive GMRS bubble-pack handhelds. Find an inexpensive base station antenna for the 460- to 470-MHz range. Some amateur models for 440 MHz can be cut down to this higher frequency, but you will need a UHF-range SWR meter to do so. *Caution: Unless you will have a long cable run (over 50 feet), you will not want an antenna with more than 3 dB gain.*

Commercial-grade base antennas for this band can be very expensive, but this is not our aim here. Shop carefully. You should not have to pay more than about $100 for your antenna. Check with local two-way radio dealers. Nearly every town has at least one. Check with mail-order amateur radio supply houses; they may be able to ship you an amateur base station antenna pre-cut for GMRS frequencies for a modest additional charge. If you need an SWR meter for cutting your own antenna, ham radio dealers often have a VHF/UHF model for about $50. Ask.

You'll need an antenna mounting pole and hardware as well as a static discharge unit for a small measure of protection against lightning. And, of course, you'll need grounding wire. You can get RG-8 (*not* RG-58) cable to run from your antenna down to your operating position. Radio purists will preach the virtues of higher-grade specialty cables with somewhat lower loss figures than RG-8, but the substantial additional cost and lower loss figures are simply not necessary for a typical home installation. Bear in mind that you are limited to just 5 watts ERP, which is more than enough to communicate with 1/2-watt ERP FRS units in the field!

Next, you'll need a bench or desk-mount for your GMRS handheld as well as a few other miscellaneous pieces. You can buy a dashboard-mount cell phone holder for anywhere from around $5 to $15. I used one that has a "foot" pad with double-stick padded adhesive tape that can be mounted to a desktop. I also acquired a wall-wart power supply for my handheld and the optional headset accessory offered by most bubble-pack GMRS and FRS vendors.

Finally, before you ever get on the air with a GMRS radio, even on FRS-shared channels, you will need a license. Welcome to the world of GMRS! You old-timer GMRS licensees out there stop groaning! This FRS Channel 1 operating and monitoring base station is so simple in design, that you may have overlooked its possibilities. And some of you unlicensed FRS users are already squirming, I see. The mere thought of the hassle and the expense of getting a GMRS license for the first time can indeed be daunting. But it's time for FRS users who are serious radio hobbyists or who are emergency volunteers to consider biting the bullet and going for that FCC ticket.

An FCC applicant need only go through the licensing process once, and that first $75 for a five-year term really isn't going to break too many people. (See "Handy Links And Telephone Numbers") And, unlike both amateur and professional operator licenses of various classes, there is no test of any kind. Whew!

Next month we'll look at our prototypical station for monitoring and operating on FRS Channel 1 and decode some cellular alphabet soup. See you then! ■

technology showcase

new product performance analysis

by Harold Ort, N2RLL, Editor

The Cubex Dual-Band 2-Meter/70-Centimeter Quad Antenna

This lightweight (xxx pounds) dual-band quad antenna first caught my eye at a recent hamfest. It's a slick-looking 2-meter and 70-centimeter ham antenna that doubles as a directional antenna for the avid scanner enthusiast.

Here's a quad with four elements on 2 meters and seven elements on 70-centimeters on a 48-inch fiberglass boom—not a heavyweight aluminum monster that requires half the neighborhood to put up. After I was satisfied with the assembly process (that took a total of 90 minutes to complete) erecting the antenna took another 20 minutes. Since my space is somewhat limited, it's bolted to the house in a fixed position. Of course, you can install it using a light duty rotor (the kind used for small TV antennas) for total 360-degree coverage.

Is that all there is? You bet, and it's a snap to assemble. I only reset the kitchen timer at the top of the photo once. The quad was finished in 90 minutes!

Easy Construction

The Cubex Model 4L2M7L70CM antenna comes completely unassembled. That's the good news. The *better* news is that you don't need any tools to put it together. That's right—no tools needed except your solder and soldering gun to prepare the coax. The kit includes everything except your coax (to use both 2 meters and 70 centimeters you'll need two lengths of coax) and a few drops of epoxy or instant glue. Just bring along your common sense and go for it!

The antenna is actually assembled in three steps: first, the mounting plate is fastened to the boom with the provided stainless steel bolts and clamps, then the 7-centimeter portion is assembled, and finally the 2-meter elements are assembled. On this Cubex model, the aluminum mounting plate can be mounted in the center or at the reflector end for tower-leg mounting or "end" mounting. (You can also order the optional PVC tee with stainless steel worm gear clamp, mounting it in the center of the boom for mast-top mounting).

Assembly is straightforward and uncomplicated, even for first-time users. Each black spreader and corresponding wire element is color-coded, as is the boom. If you can distinguish red from blue and silver from white, you're nearly finished!

Each spreader simply pushes into the pre-drilled boom holes. On the tip of each spreader you'll place a plastic grooved tip (the company recommends spraying these tips with a black spray enamel to extend their life, of course letting them dry completely) which holds the wire elements. One at a time, you'll carefully slip the elements over the end of the element, gently bending each one toward the reflector end of the boom. When finished with the UHF portion, hold the boom up to your eye and sight down its length, moving the spreaders slightly in order to square each one. Don't worry if it's slightly "off" because it won't affect the antenna's performance, just its appearance.

Assembling the antenna is quick and easy: just slide the spreaders into the boom's pre-drilled holes.

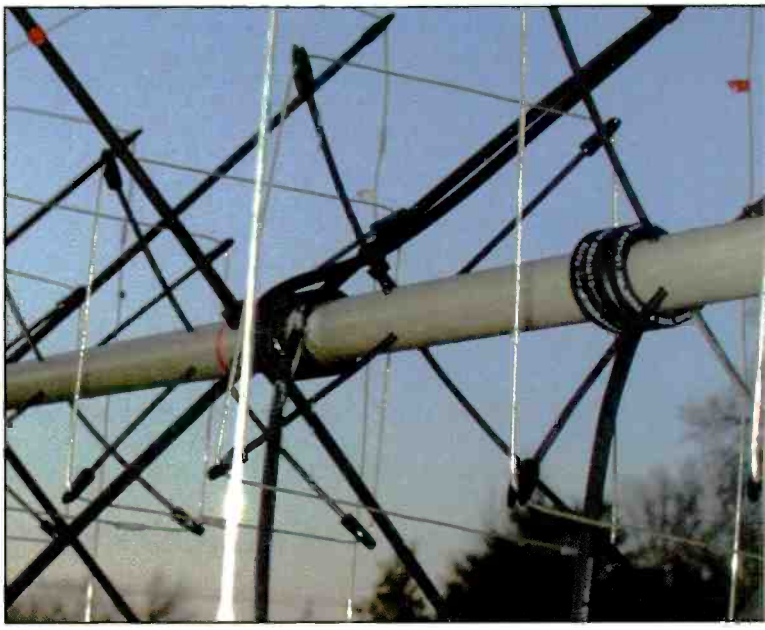
Be sure you're using good quality coax, such as 9913 or equivalent. You'll have to strip about an inch of the outer jacket from the end, separate the braid, and then strip about 3/8 inch of insulation from the center conductor. Solder one end to each of the two provided lug nuts, tighten them to the terminal block, and route the coax down the spreader to the boom.

You won't be using RG-8 on this antenna because you've got to make a simple four-turn balun by winding the coax around the boom; same for the 2-meter section, except you'll do 6 1/2 turns for the balun. Remember, each part of the antenna is completely assembled independent of the other; first the UHF section, then the 2-meter section.

Here's Carolyn giving the Cubex quad the eye! Sighting down the boom helps you properly square the spreaders. (You didn't think I'd be able to get my wife to bolt it to the house while I watched, did you?)

An old galvanized wall-mount was rigged to hold the Cubex quad in a fixed position against the house.

Winding the balun is easy with either RG58 or 9913 coax. Remember, at VHF and UHF frequencies you'll want to keep your coax run as short as possible to avoid signal loss.



A close-up of the baluns. The white material on the far balun is excess instant glue and the hardening powder.

When you've squared the 70-centimeter spreaders, use a couple of drops of instant glue (I also used the sand-like powder found in some instant glue kits to create a good bond) to permanently lock them in place. That instant glue or epoxy will also permanently bond the balun to the boom.

The 2-meter portion of the antenna is as easy to assemble as the 70-centimeter portion. Slide the color-coded spreaders into the boom, slip the tips on the spreaders, and carefully guide the wire elements over each spreader. Hold the boom up, sight down its length and properly square each section, glue them in place, make the balun, and you're done. How easy was that? Well, I've assembled all kinds of antennas from many manufacturers, and putting this Cubex dual-bander together was supremely easy! The only thing that might be easier would be screwing together a two- or three-section CB vertical.

Mounting And Performance

My antenna mounting situation is a little unusual, and certainly different from yours. Most of the activity on VHF and

The Cubex quad isn't as close to that gutter as it looks. Performance of this inexpensive quad is outstanding!

UHF I want to hear is north of my location, and, because I don't want to erect yet another pole on the side of the house, I decided to mount the Cubex in a fixed position, pointing north. It's attached to the house with a spare homemade galvanized mounting bracket. All I had to do was stretch—very carefully!—out the window and bolt it in place once the bracket was properly mounted to the house.

If you're using an antenna rotor (with the rotor wire and two separate coax lines coming down the pole) get some help with your antenna installation. It's too late when you've hurt yourself or damaged your house or antenna because you didn't take the time to think safety! Since installing the antenna a month ago, we've had an ice storm and 40-mph winds. It's still there, intact and doing very well.

In a word, this Cubex antenna is outstanding! I'm able to hit several New York City-area repeaters using my Alinco HT. Most of them weren't reachable with a simple vertical. Reception to my west is *very* good (there's nothing east of me except the Atlantic Ocean). What's nice about the quad is that it's quiet. The Cubex antenna lives up to that expectation. My VSWR is about 1.6:1 at 146.500 MHz and slightly lower at 446.0 MHz. Excellent! And I didn't have to adjust the tightly wound balun for either band!

With my PRO-2006 scanner, stations that were barely audible to my north are now loud and clear. So much again for that dual-band vertical! Distant New York City-area public safety stations sound like they're local! The antenna is up high enough that it catches all the local action here in Monmouth and Ocean Counties, including nearby Ft. Monmouth, despite the fact that many are south and southeast of my QTH.

For ease of construction I'd give this Cubex quad an A+, and for on-air operation and ability to pull 'em in, another A+. Considering it's only $129.xx it's a great antenna value.

For more information on this Cubex VHF/UHF dual-band quad (Model 4L2M7L70CM) contact Cubex asc, 21911 Hyde Park Drive, Ashburn, VA 20147; Phone: 703-858-5348; Web: <www.cubex.bigstep.com>. Tell them you read about it in *Popular Communications*! ■

v.i.p.

spotlight

how you got started in radio

Congratulations To Sean Welsh, VE3OZ/VE3YHF of Orangeville, Ontario

Popular Communications invites you to submit, in about 300 words, how you got started in the communications hobby. Entries should be typewritten, or otherwise easily readable. If possible, your photo (no Polaroids, please) should be included.

Each month, we'll 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, grammar, and 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: "V.I.P. Spotlight," *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801 or e-mail your entry to <popularcom@aol.com>, letting us know if you're sending photos. Please print your return address on the envelope if using the postal mail system. Not doing so will delay your submission being processed. If you're e-mailing photos, please send them in a separate e-mail with your name in the "subject" line.

Our August Winner: Sean Welsh

Pop'Comm reader Sean tells us,

In 1972, I was given a small three-band portable radio as a present for my ninth birthday. The radio had a mystery position on the band switched called "SW." After fiddling around with it one evening, I was amazed to hear people speaking in English from Moscow, and even more amazed when I also heard an English broadcast from Cuba! From then on I was hooked on radio communications.

During the late 1970s and early '80s, whether it was the Top-40 sounds from WABC in New York, the first few glimpses of "punk rock" from the BBC, or being called "Comrade" by Joe Adamov on Radio Moscow, my ear was usually glued to either my DX-160 or FRG-7, logging what I heard, sending away for QSLs or reading the radio hobby magazines. I still have a certificate signed by Hank Bennett for the SWL call of VE3DX1SAW.

During the late '80s and '90s I was sidetracked away from the hobby by work and family commitments. In 1992, however, I finally had time again to revisit my old friend, World Band Radio, and dug my DX-160 out of storage. I also decided to get my Amateur Radio license and currently hold an Advanced class license with Morse code endorsements and the callsign VE3OZ, which was previously held by my radio Elmer during the 1970s, John (now HK3AK).

"I now spend most of my radio time SWLing with a Lowe HF-225, scanning with a BC-785D, participating in the HF Pack group with my FT-817, or building wire antennas."

I now spend most of my radio time SWLing with a Lowe HF-225, scanning with a BC-785D, participating in the HF Pack group with my FT-817, or building wire antennas. I also enjoy APRS and operate Echolink RF simplex node number 17950 on 70 cm. Currently, I'm active in our local ARES and REACT groups and with our local radio experimenters club. I enjoy visiting the ham flea markets and have met several great friends along the way.

To this day, I am still amazed and fascinated with radio communications. Whether it's chatting with my wife and kids on FRS, working stations around the globe with 5 watts, or scanning the action bands, I still feel the way I felt 1972 after tuning the BBC in for the first time. ■

Sean Welsh at his well-equipped monitoring post in Orangeville, Ontario.

the wireless connection

a look behind the dials

by Peter J. Bertini <radioconnection@juno.com>

More Magic Eye Projects!

This month we'll continue with our Magic Eye tube adapter projects. I'll show how to use an inexpensive 12-volt filament 1629 in 6.3-VAC sets. I'll also share the secrets behind making your own adapters so you may use the more readily available 1629 eye tube in lieu of the increasingly rare 6E5 and 6G5/6U5 eye tubes. Why? Well, eye tubes have very short lives, and, unfortunately, the phosphors on the target are worn out long before the cathode emissivity falls off. Indeed, the triode sections of otherwise defunct eye tubes could be used in homebrew projects if you're a frugal and budget-minded tinkerer!

Magic Eye, A Review

One of RCA's 1930s marketing campaigns centered on their line of Magic Brain Radios. **Photos A** and **B** show matchbook cover art toting the RCA Magic Brain concept. My RCA 10T tombstone radio is a Magic Brain RCA offering. Note the RCA Magic Brain logo on the sticker pasted to the 10T RF compartment enclosure shown in **Photo C**. RCA's Magic Brain radios featured floating RF tuning decks on the main chassis, individually shielded RF coils, and, on some sets, a Magic Wave antenna system and a sealed-speaker chamber with ported resonator tubes for the Magic Voice sound system. **Photos D** and **E** show an early RCA dealer Magic Brain display model, and **Photo F** shows a photo from an early RCA advertisement for the Magic Brain sets. While Magic Eye tuning was first coined by RCA, Sears and other manufacturers soon became licensed to use the device, and Magic Eye quickly became a generic catch-all for any set using a cathode-ray tuning eye tube.

The 6E5, first introduced by RCA in mid-1935, and the 6G5/6U5 were the most commonly used cathode ray eye tubes for "radios of consequence" made in the latter part of the 1930s. Of the two, the 6G5/6U5 is now more of a premium, with prices edging towards $30 for NOS (new old stock) examples. The 6E5 commands a tad less, while the very rare 6T5 eye tube with its odd annular ring display was used for a brief period in what are now very coveted Zenith radios, commonly selling for well over $100. **Photos A** and **B** show a 6T5 eye pattern for full and no-signal conditions.

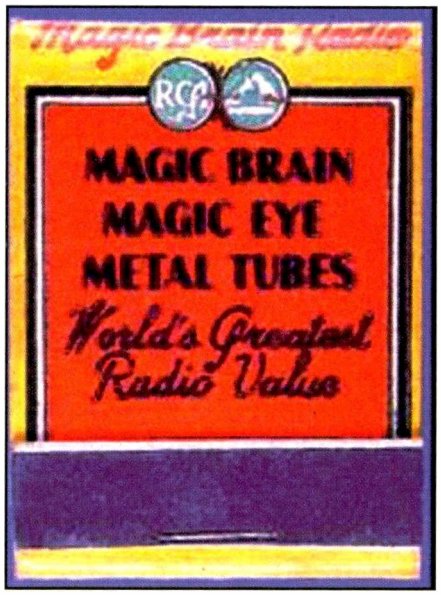


Photo A. RCA matchbook cover advertising toting the Magic Brain system. Photo courtesy of Philip Rheinstein.[2]

Photo B. The other side of the matchbook cover. Photo courtesy of Philip Rheinstein.[2]

These tubes all share some common characteristics. They are all six-pin based with 6-volt at 300-mA filaments, and, while their display sensitivity is different, they are based the same and are basically interchangeable. A 6E5 in a set intended for a 6G5 will be quite lively due to the higher AGC voltages; while, conversely, a 6G5 will not close fully on strong signals if used in lieu of a more sensitive 6E5. Other eye tubes that need-

Photo C. Magic Brain decal on the cover the Magic Brain assembly in the author's RCA 10T tombstone.

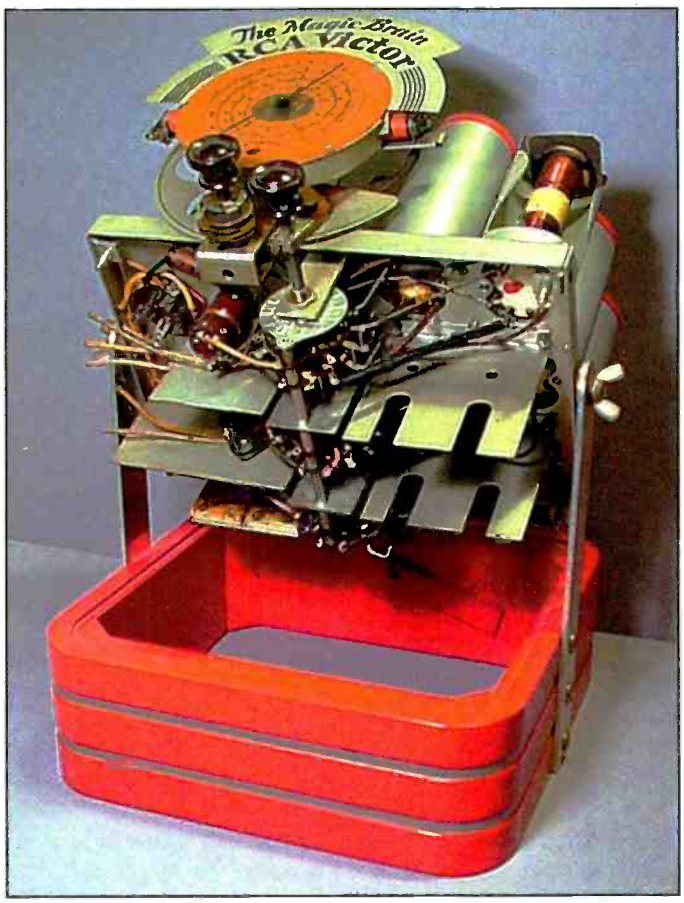


Photo D. Advertising dealer mockup for the Magic Brain RF tuning assembly. Only the cut-open coil can contained a coil assembly. Photo courtesy of Mike Shultz.[3]

Photo E. The advertising model allowed the chassis to be tilted so customers could view beneath the Magic Brain chassis. Photo courtesy of Mike Shultz.[3]

ed lower filament currents and plate voltages for use in battery sets were also available.

The 1629 Magic Eye

This tube was first used in military equipment during the 1940s. Even the famous ARC-5 transmitters used the tube as a tuning indicator! Heath and others took advantage of the huge numbers of 1629s on the surplus markets, using them instead of more expensive meter movements in signal tracers, LCR bridges, and other pieces of test equipment. The tube uses an 8-pin octal socket, and the filament requires 12 volts at 150 mA.

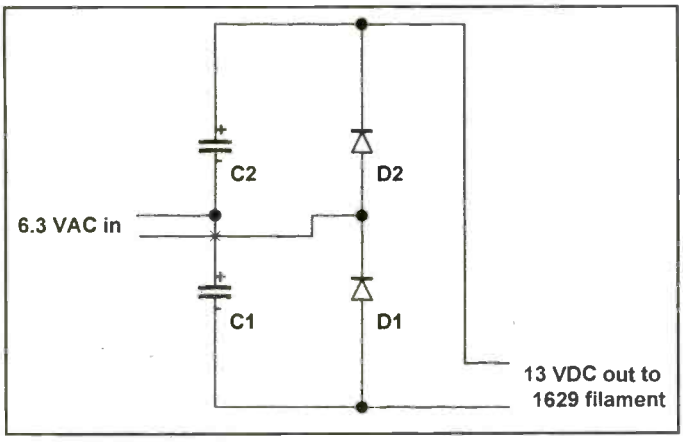


Figure 1. The trick behind using a 1629 in sets with 6.3-VAC filaments: a simple voltage doubler boosts the filament voltage to around 13 VDC. Now, don't you wish you thought of that first?

Photo F. These happy shoppers, shown in an early RCA printed advertisement, are apparently impressed with the RCA Magic Brain display. Photo courtesy of Mike Shultz.[3]

Fortunately, 1629s are still in good supply. Eventually, even they will become scarce, but there will be new innovative workarounds when that happens. There are ways to use these tubes in pre-1940 sets that are non-intrusive, requiring no modifications to the radio. Eye tube adapters, complete with a 1629 tube, are available at very reasonable prices (I mentioned one supplier a few months back[1]).

It's been said "give a man a fish, and you feed him for a day. Teach him to fish, and you feed him for a lifetime." So, I'm going to teach you how to make your own eye tube adapters.

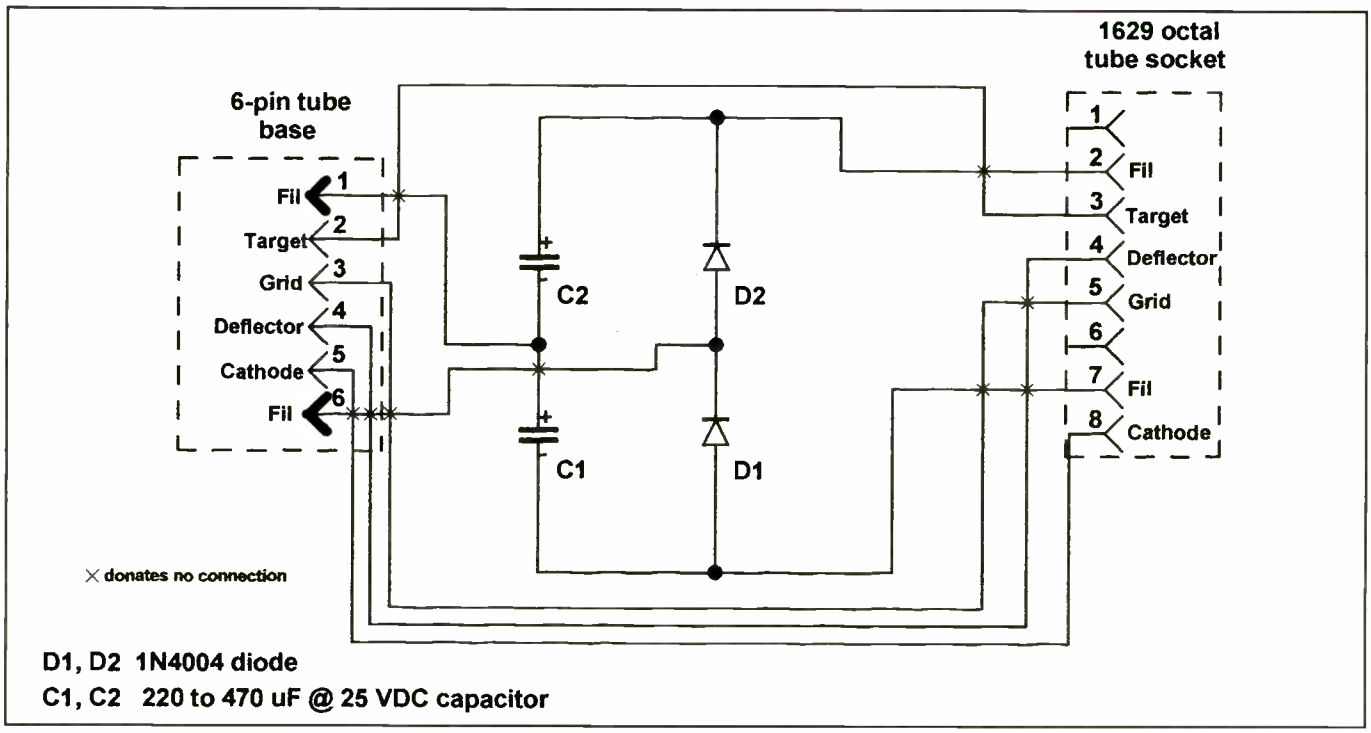


Figure 2. An adapter for using the 1629 in sets that use 6E5, 6G5, or 6T5 eye tubes. The voltage doubler can be hidden in the 6-pin tube base if care is taken in selecting the parts and in construction.

While many of you probably won't save much money doing so, at least you'll know how the devices work. Many of you will have the tubes and materials on hand!

Secret Revealed?

So, how's it done? Simple! A small voltage-doubler circuit boosts the 6.3-VAC filament voltage to about 13 VDC. This limits the technique to AC powered radios. **Figure 1** shows the voltage doubler circuit; **Figure 2** shows how the voltage doubler is wired between the 6-pin tube base and octal socket, along with the other necessary signal wires for the target, deflector, cathode, and grid connections.

Building The Adapter

The first step is to reclaim the base from the defective radio tube. If you're lucky, you'll find a dud tube with a glass envelope that has loosened from the base. If not, you'll need to wrap the glass envelope in several layers of newspaper and gently,

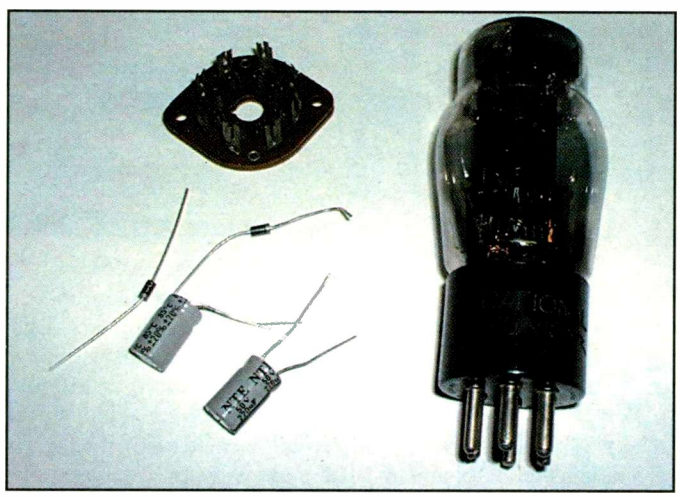


Photo G. What's needed to build an adapter for using the 1629 in vintage radios.

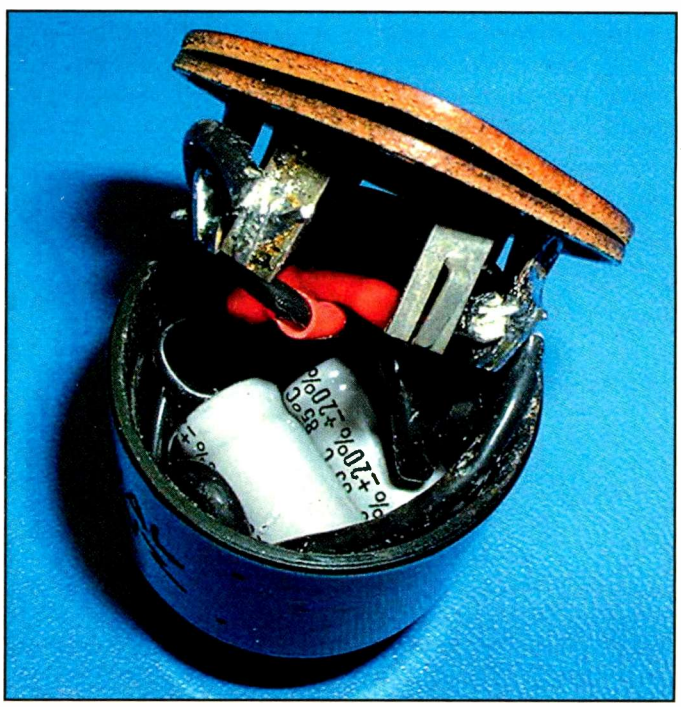


Photo H. You can conceal the voltage doubler components in the old 6-pin tube base. It's a very tight fit, so the smallest sized caps should be used. Also, make sure there's clearance behind the octal socket so the 1629 tube base key isn't blocked!

but firmly, rap the glass with a small hammer so it shatters. Wear protective eye-wear, please!

Dispose of the broken glass shards and tube elements, and carefully clean out any remaining material from the Bakelite tube base. A sharp pen knife will scrape away the adhesive from the walls of the base. Then clean and desolder all of the tube pins.

Here's what you'll need:

1 ea. 1629 electron ray tube
1 ea. Defective 6-pin tube (type 42, 6E5, 6G5, etc.)
1 ea. 0ctal tube socket, wafer or molded
2 ea. 1N4002 diode (200 PIV or better at 1 amp.)
2 ea. 220 mFd at 25-volt electrolytic (caps may be between 220 to 470 mFd)
misc. slip-on *spaghetti* insulation, bare #22 wire, solder

Photo G shows what's needed to build the adapter: two diodes, two capacitors, a defective 6-pin tube, and an octal socket.

Photo H sums up the construction details. One note: radial lead electrolytic capacitors may make a more compact layout, as component space is at a premium inside the old tube base! You will need to make several trial fits before committing to soldering everything together. Be watchful of shorts when fitting the parts. The voltage doubler is wired *freehand* style, with slip-on insulation, called *spaghetti*, on all exposed wires. Number 20 or 22 bare, tinned bus wire can be used for the interconnections between the 6-pin tube base and the octal socket, as shown in **Figure 2**.

All leads going to the 6-pin tube base must be fully insulated, or shorts may occur when the assembly is glued together! Test fit everything, and once the wires are aligned in the proper base pins, slide the assembly together and then solder and trim the leads as they emerge from the tube base. A few dabs of adhesive or epoxy will help keep the octal socket firmly attached to the 6-pin base. The keyway (between pins 1 and 8) on the 1629 should be pointing downwards for proper display orientation. The completed adapter with 1629 is shown in **Photo I**.

The voltage-doubler capacitor values should be kept between 220 and 470 mFd; going much higher than 470 mFd might result in exceeding the desired 12.6- to 13-VDC filament voltage range, as the caps try to charge to the peak AC voltage! The 1629 has a 150-mA filament, but the voltage doubler will draw nearly 300 mA from the set's filament supply. You can change the voltage, but the current will reflect the actual power needed to heat the cathode: 1.89 watts in either case. As mentioned, some ripple is acceptable. Remember, you are trying to approximate 13 volts RMS, not a pure rectified voltage.

A 1629 Magic Eye Tuning Aid For The Hallicrafters S-53

Last month's column featured a 6E5 eye tube adapter for the Hallicrafters S-53 communications receiver. (Interested readers might want to reference that issue for the particulars.) The S-53 uses 6.3-VAC tubes, but the 1629 12.6-VAC filament can be adapted to work using the voltage doubler circuit. The only difference is the addition of the voltage doubler circuit breadboarded on the 6E5 socket. Pins 1 and 6 are not used, which permits using socket pins for 1 and 6 as convenient terminal tie-points for the additional circuitry.

Here's our shopping list for the 1629 version of the magic eye tuning adapter:

1 ea. 1629 electron ray tube
1 ea. 8-pin octal tube socket, phenolic or molded
1 ea. Plastic project box, such as Hammond 1594DB series (5.2x2.6x1.7 inches)
1 ea. Length of four-conductor 20 AWG stranded wire, shielded preferred
1 ea. Matching accessory socket and plug (six pins preferred).
1 ea. 1-megohm, 1/2-watt resistor
2 ea. 1N4004 silicon diodes (200 PIV or greater, at 1 amp.)
2 ea. 220 or 470 mFd at 25 VDC filter capacitors
Misc. Nylon cable clamp, mounting screws and hardware, as needed
1 set Four rubber or felt stick-on feet for the enclosure to rest on
1 set Cinch-Jones matching socket and plug for receiver modification

The radio must be modified as shown in the July column to bring out the AGC, filament voltage, cathode, plate voltage, and ground return for the eye tube adapter. Fortunately, many boatanchor receivers have accessory sockets on the rear aprons, so accessories like Q-multipliers, external S meters, and calibrators, can be powered by and used with the receiver. I must advise against modifying sets by adding sockets, even on the rear apron. Modifications will adversely affect the set's value. My S-53 is a clunker and a daily player, not a museum piece. So please, no nasty mail or lectures! I'll be featuring a full cabinet and electrical restoration of this piece when time permits.

Assembly is the same as the 6E5 tuning eye project shown last month, except for the addition of the voltage doubler to increase the filament voltage to 12 VDC. The Hammond enclosure is large so there's plenty of room for the voltage doubler components. Since the 1629 has no internal connections to pins 1 and 6, pins 1 and 6 on the socket are used as tie points for the voltage doubler wiring. **Photo J** shows the voltage doubler mounted on the 1629 socket, and **Photo K** shows the circuitry mounted inside the Hammond enclosure (bottom view, cover off). Proper display orientation for the 1629 eye pattern is with the tube socket key pin pointing downwards. We'll be doing an S-meter project for this receiver in the future as well. In an upcoming column, we'll also add eye tubes to series-filament AC/DC radios.

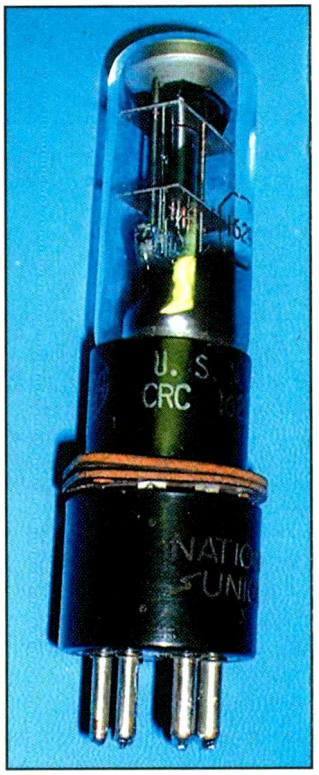


Photo I. All done, tested, and ready for use!

Wireless Connection Mailbag

It's been awhile since I've dug into the mailbag and shared readers' comments, queries, and suggestions. Thanks to everyone who's written! I've done my best to answer most requests by private e-mail when possible. If you haven't received a reply, it's probably because I wasn't able

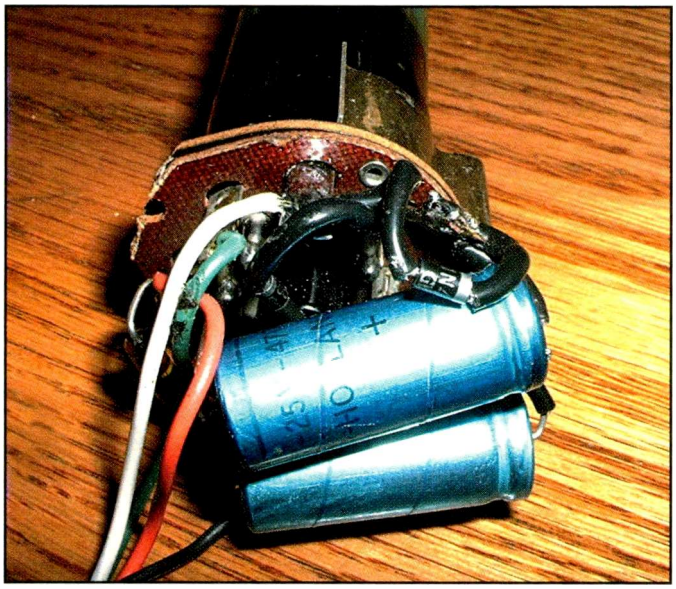


Photo J. The voltage doubler allows using a 1629 in our earlier S-53 Hallicrafters tuning eye project. The voltage doubler components are assembled on the octal tube socket, unused pins are used for convenient tie points.

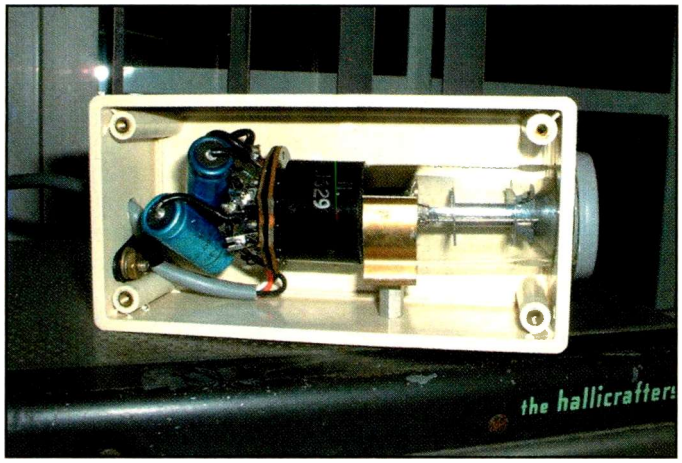


Photo K. The 1629 version of the Hallicrafters S-53 tuning eye adapter in the Hammond enclosure.

to offer or find a reasonable answer for your query. Let's share a few here, however.

Here's a note from Ed Lewis, KQ6DX,

Thank you for the help on my SG-8; it's finished and works great. A question: is it a good idea to replace the two-prong electrical cord with a three-wire grounded plug? Also in your article you said to replace the .01- and .1-mfd paper capacitors. My SG-8 has .1 and .02 mFd. I checked the schematic and that is what Heathkit used, so I used a .1 and .022 mFd. I enjoyed your article and learned from it.

Ed is referring to our November, 2002, column when we refurbished the Heathkit SG-8 signal generator. Thanks for the correction on the wax capacitor value, Ed—the error probably was a typo or a consequence of my short memory span! Grounded test equipment raises several serious safety issues! First, the grounded case can pose an electrocution threat if you come between it and a hot chassis! But, no one should be servicing radios unless they are using an isolated variable AC power supply for the radio under restoration, and the bench power should also include some sort of GFI (ground fault interrupter) protection. So to answer your question, I'd ground the case via the ground lead in a three-wire cord, but the other safety precautions must also be faithfully followed.

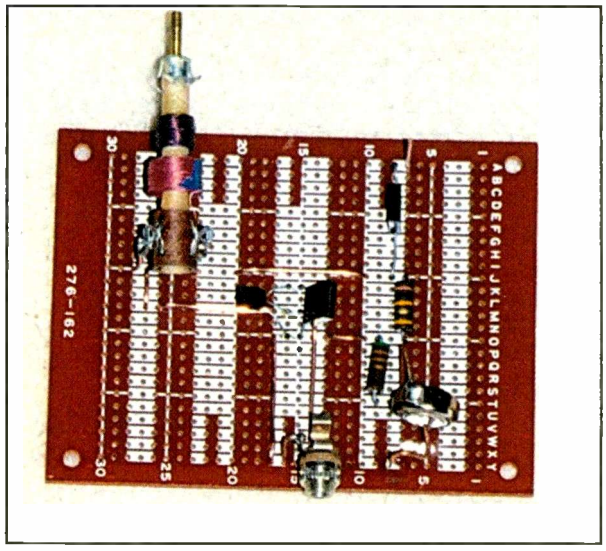


Photo L. Reader Mike Grime's MK-484 receiver project works like a champ! Mike built the simple radio using RadioShack perfboard.

Reader Mike Grimes, K5MLG, offers these comments,

I built my ZN-414 (MK-484) receiver and have been waiting to get a good photograph (see **Photo L**).

The Receiver-On-A-Chip was built on a generic RadioShack pc board, which made wiring and testing a breeze. I powered my receiver with a watch-button cell. It uses a surplus ferrite antenna. Although it will drive a ceramic earplug, I use an old transistorized signal tracer as an amplifier. The results are outstanding. Using only a one-foot antenna, the receiver is hot; local stations are booming in! At least on the BCB, it outperforms a new regenerative receiver that I've also made. Other amplifier designs and experiments with the MK-484 are in the works.

Thanks for printing my treatise on radio theory and principles in the December, 2002, issue. I'm curious if you received any feedback or comments on other possible favorites? By the way, I picked up a copy of *Radiotron Designer's Handbook*. I agree—it's an excellent reference and will add it to my list, but it is a little advanced for the beginner. The math is a little scary.

Thanks for your contributions, Mike. I haven't received any comments on your suggestions for learning radio theory and principles, but I've found readers tend to write more often if they disagree with something shown in the article. Thanks for the feedback on the MK-484 receiver! Nice job. Believe it or not, we sent out almost 200 devices based on our "Wireless Connection" offer. You were the only person kind enough to provide some feedback!

That's it for this month, we've hit the column limit for this time, but we will back in September with more Wireless topics!

References

1. Bill Turner, 1117 Pike Street, Saint Charles, MO 63301. E-mail: dialcover@webtv.net
2. http://home.pacbell.net/philbert/
3. http://uv201.com/index.html

■

RSGB Books now available from CQ

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RSGB, 1st Ed., 1992. 233 pages.
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Edited by Dr. George Brown, M5ACN
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Packed with around 50 "weekend projects," Practical Projects is a book of simple construction projects for the radio amateur and others interested in electronics. Features a wide variety of radio ideas plus other simple electronic designs and a handy "now that I've built it, what do I do with it?" section. Excellent for newcomers or anyone just looking for interesting projects to build.

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The Antenna Experimenter's Guide

RSGB. 2nd Ed. 1996. 160 pages.
Takes the guesswork out of adjusting any antenna, home-made or commercial, and makes sure that it's working with maximum efficiency. Describes RF measuring equipment and its use, constructing your own antenna test range, computer modeling antennas. An invaluable companion for all those who wish to get the best results from antennas!

Order: RSTAEG **$28.00**

Backyard Antennas

RSGB, 1st Ed., 2000, 208 pages.
Whether you have a house, bungalow or apartment, Backyard Antennas will help you find the solution to radiating a good signal on your favorite band.

Order: RSBYA **$30.00**

IOTA Directory - 11th Edition

Edited by Roger Balister, G3KMA.
RSGB, 2002 Ed., 128 pages
This book is an essential guide to participating in the IOTA (Islands on the Air) program. It contains everything a newcomer needs to know to enjoy collecting or operating from islands for this popular worldwide program.

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RSGB. © 2001, 320 pages.
Choose from dozens of simple transmitter and receiver projects for the HF bands and 6m, including the tiny Oner transmitter and the White Rose Receiver. Ideal for the experimenter or someone who likes the fun of building and operating their own radio equipment.

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The HF or short wave bands are one of the most interesting areas of amateur radio. This book takes the reader through setting up an efficient amateur radio station, which equipment to choose, installation, and the best antenna for your location and MUCH more.

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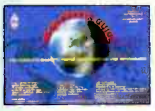
Radio Communication Handbook

Edited by Dick Biddulph, G8DPS and Chris Lorek, G4HCL.
RSGB, 7th Ed., 2000, 820 pages.
This book is an invaluable reference for radio amateurs everywhere. It also provides a comprehensive guide to practical radio, from LF to the GHz bands, for professionals and students.

Order: RSRCH **$50.00**

RSGB Prefix Guide



By Fred Handscombe, G4BWP.
RSGB. 6th Ed., 2003. 48 pages.
This book is an excellent tool for the beginner and the experienced hand alike. Designed with a "lay flat" wire binding for ease of use the new "Prefix Guide" is a must for every shack.

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Info Central

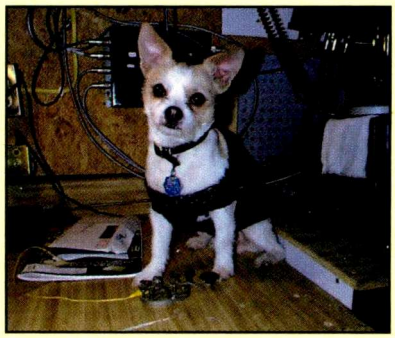
by Harold Ort, N2RLL, Editor

news, trends, short takes, and other things radio

Grundig North America Not Affected By Grundig AG Bankruptcy Filing, And More

Grundig fans and owners of their equipment, relax. Mr. Esmail Hozour, Grundig, Eton Corporation CEO told *Popular Communications*, "Grundig North America is legally and financially, completely separate and unaffected by the Grundig, Europe filing..."

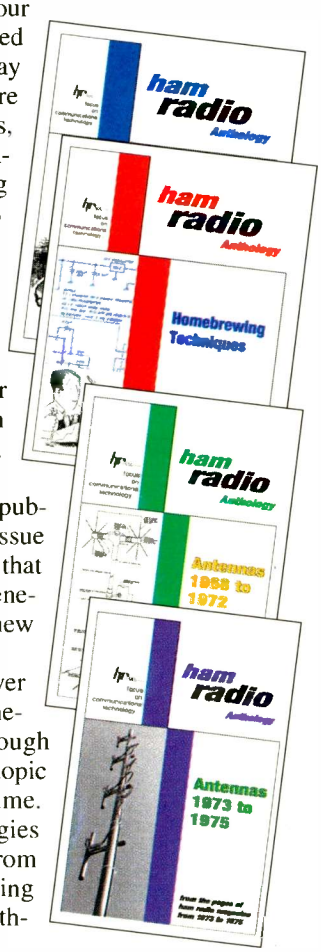
Rumors about future products and warranty service have been flying after many self-proclaimed radio community talking heads heard about Europe's number one radio manufacturer filing for protection from creditors in Germany. The fact is the stateside Grundig company, Eton Corporation of Palo Alto, California (formerly Lextronix), is independent of the German company in everything from product design to development and marketing.



Reader Bill Prather, KC4KMG, of North Carolina says Archie is a straight key man.

CQ Announces *ham radio* Anthology Series

Fans of *ham radio* magazine, take note: A new series of anthologies, reprinting selected articles from the pages of *ham radio*, is now available. The first four books in the series will be introduced at the Dayton Hamvention and may be pre-ordered online. The topics are "Antennas, 1968–1972," "Antennas, 1973–1975," "Homebrewing Techniques," and "Troubleshooting Techniques." Published from 1968 to 1990, *Ham radio* magazine is generally acknowledged as the premier amateur radio technical magazine of its time.



According to Dick Ross, K2MGA, President and Publisher of CQ Communications Inc., which now owns the rights to *ham radio*, "many of the articles are as applicable today as they were when first published. We combed through every issue of the magazine to select articles that remain topical and can give the benefit of *ham radio*'s excellence to a new generation of hams."

The two antenna anthologies cover all types of antenna designs and theory from 160 meters through microwaves. They are arranged by topic within each chronological volume. Two additional antenna anthologies will follow, reprinting articles from 1976 to 1990. The "Homebrewing Techniques" anthology brings together the most useful and practical advice and techniques for the person who wants to build anything from small solid-state projects to beam antennas. Likewise, in "Troubleshooting Techniques," the best articles on the subject have been carefully selected to meet today's needs and give today's hams a much-needed helping hand at solving equipment problems on their own.

The *ham radio* anthology books were edited by CQ Technical Consultant Lew Ozimek, N2OZ. They retail for $19.95 each and will be available from many amateur radio dealers and directly from CQ. Advance orders may be placed by phone toll-free at 800-853-9797 (M-F, 9 a.m.–5 p.m. Eastern) or online anytime at <www.cq-amateur-radio.com>.

CQ Communications is the publisher of *CQ Amateur Radio*, *CQ VHF*, and *Popular Communications* magazines, as well as amateur radio-related books, videos, and CDs. It is headquartered at 25 Newbridge Road, Hicksville, NY 11801. For more information, call 516-681-2922.

August Means The Perseids Meteors

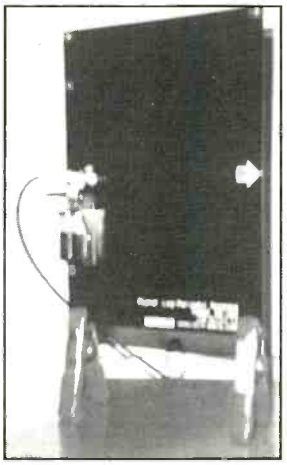
One of the best annual meteor showers is the Perseids, which runs from about July 23 to August 20, peaking about mid-August. Besides providing skywatchers a spectacular visual display, radio operators—and listeners—are treated to enhanced *E*-layer ionization that enables long-distance contacts on 2 and 6 meters.

The best place to hang out is **144.200 and 50.125 MHz**, where you should listen during frequent meteor bursts for *very* short QSOs (contacts) in SSB. For no more than about 30 seconds the band will come alive with contacts, then suddenly become quiet. The process can repeat several times, especially during a very active meteor shower.

WinRadio's AX-31B Antenna Revisited

Pop'Comm reader Gus Stellwag, WDX2AD of Orangeburg, New York, writes,

I purchased a WinRadio AX31B antenna, which you evaluated in your July, 2002, issue. Because of the directivity qualities of this anten-



Gus Stellwag's method of mounting the WinRadio AX31B antenna.

na, many people would not want to have it permanently fixed in one direction. A simple, low-cost way to make a stand for the antenna so it can easily be moved in any direction is to use two medium-size carpenter's clamps like in the photo. It does the job and also looks very neat. Perhaps you can pass this tip on to other readers.

Thanks, Gus, you just did! And if any other readers have ideas or improvements to radios and accessories, we'd like to hear from you.

Tom's Favorite Radio

Pop'Comm reader Tom Trott of Mobile Alabama has a golden oldie radio, and says,

I just finished reading the article on your favorite radios. While my PRO-2006 is great, I like my rock-bound Regency Flight Scan with only 10 channels. I've had it since the late 1970s or early '80s and it never misses a beat. And that's a lot more than I can say about the Bearcat 300 next to it. Been in the shop twice and needs it again. I'll just buy me a new scanner. ■

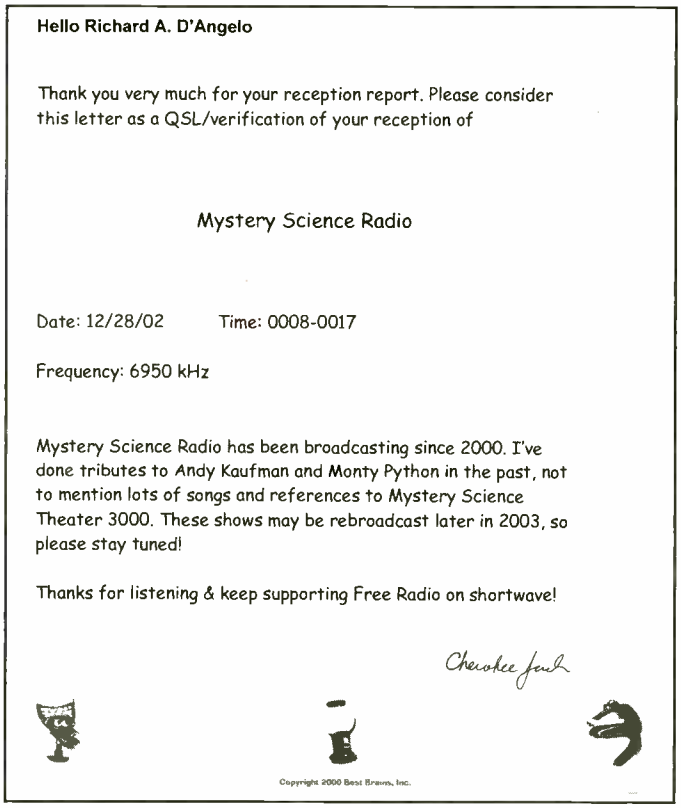
Tom Trott's Regency Flight Scan radio.

pirate & alternative radio

free radio broadcasting

by Edward Teach

Dogs Barking, The Three Stooges Theme, And...



Hello Richard A. D'Angelo

Thank you very much for your reception report. Please consider this letter as a QSL/verification of your reception of

Mystery Science Radio

Date: 12/28/02 Time: 0008-0017

Frequency: 6950 kHz

Mystery Science Radio has been broadcasting since 2000. I've done tributes to Andy Kaufman and Monty Python in the past, not to mention lots of songs and references to Mystery Science Theater 3000. These shows may be rebroadcast later in 2003, so please stay tuned!

Thanks for listening & keep supporting Free Radio on shortwave!

Cherokee Jack

Rich D'Angelo in Pennsylvania got this QSL from Mystery Science Radio on 6950.

Here's what's come in over the past month—not what you'd call a flood of logs but no desert either! Let's check 'em out.

WMPR 6955 at 0203 with all techno/house music and ID "This is WMPR Dance Party" several times. They played a song with the lyrics "Heart of Darkness" and "Time Runs Endlessly." Off at 0238 with a "slow-mo" ID. (Brian Duddy, NY) (*Welcome, Brian!—ET*) 6955 at 1620 with usual content and their standard ID. (Jerry Coatsworth, on DXpedition in Brighton, MI) 0154 with new-age-type music including "War without Tears." IDs as "WMPR—6955" by woman and man. (Joe Wood, TN) **6927** at 0140 with techno/party music and an ID. (Stacey Whaley) *(Welcome, Stacey! What state?—ET)*

WMOE 6950 at 0455 came on with the sound of a dog barking, *Three Stooges* theme, a bit about Paul calling for a job, talk about selling cars, various song selections, and ID at 0503 "quiet numbskulls, I'm broadcasting. (Duddy, NY) 6950 at 0530 with the numbskulls comment over *Three Stooges* theme. At 0513 "What's the name of that thing?" more *Stooges* music and lots of "nyuk, nyuks." (Lee Silvi, OH) **6925** at 0045 with up-tempo Irish music and several phonetic IDs. Address given as P.O. Box 1, Belfast, NY 14711.

KRMI, 6950 USB at 0458 with "this program has come to you from the United States of America," carnival-type music, "Let It Snow." (Duddy, NY)

Big Thunder Radio, **6955 USB** at 0126 with piano music, mention of "on the radio out there. They signed off at 0135 with a female saying "Signing off; I'll be back." (Duddy, NY) 0110 with female announcer saying they were broadcasting from the East Coast. Gave a Hotmail address for reports. (Coatsworth, ON)

Wild Imagination Radio, 6950 at 0334 with "Now Alright, Let's Fight," "Where's Your Next Fight Going to Be?" "He Used to Come Out here." Then more piano from 0342 to 0347.

Sycko Radio, 6956 USB at 0335 with *Beavis and Butthead*, rock, coughing, "Hello out there in Radioland." And mentioning good propagation, lots of activity, using an experimental antenna, "Hi Radioland," 25 watts ground wave, Captain Ron Mobile, "my own line of antennas" "gain 70 to 80 watts." (Duddy, NY)

Radio Tribute (tentative ID), **6950** at 0038 with the song "Gloria" and partial ID "...listening to Radio...broadcasting from the heart of North America." Then played bluesy music at 0049, 0052 ("Mojo Working"). Later "Oh yah—you got—baby please don't go—got my mojo—listening to Radio Tribute (?)—heart of North America—want a QSL—old gospel." Then another song until sign off. (Silvi, OH)

WHYP, 6925 at 0037 with "Get it On, Get it On," and then talk about the Winter SWL Fest. "Bob's running around in his underwear, Jay got arrested walking around Saturday in his underpants." Mentioned WHYP Winter Fest post wrap-up special. Various tunes such as "I'm Too Sexy" They were on for over an hour. (Duddy, NY) 2355 announcing a test broadcast of music and later into a recording of a conversation at the SWL Fest. (Coatsworth, ON) **6955** at 0303 with dedication to Mr. Fansome and Mr. Murphy. Mentions of a snowstorm and driving in the snow. IDs at 0305, 0309 and others. Also at 0136 with James Brownyard taking call-ins, parody commercials, Uncle Schlekstein stores, several IDs, Ravi Brownyard with ID and QSL info at 0156, and sign off at 0158. (Wood, TN)

Laser Hot Hits, 6953.5 at 0050. This must have been a relay. Catchy IDs with two female announcers who, I believe, are called the Laser Girls. The station uses the Merlin mail drop. (Jerry Coatsworth, ON)

Unidentified: 6950 USB with "Everybody Wants to Rule the World" at 0310, then "We Can Work It Out." No ID, they just went off the air. Another unid on **6955** USB at 0442 with an unknown song, then "Cold Winter Nights" and "Oooohhhh, If I Had My Way," possibly by Sting. Faded at 0447.

Another on **6955 USB** at 0116 with talk about smoking weed, a techno number, rock, and comment "Jimmy, hey, this is my radio—get off my radio, man, I am trying to communicate, trying to take over the channels. Jimmy, is that it? I'll let you come back. Don't drink up all my sobe's (*suds?—ET*). Then more rap, rock, dance stuff, and off with coughing at 0140. (Duddy, NY) (*Yours truly heard this broadcast as well but was unsuccessful in getting an ID, even though the signal was quite strong—ET*).

6950 at 0020 with various songs. Lost or off the air at 0029. (Silvi, OH)

And that cleans out the in box for this time. I had to dump one log for lack of a frequency and a couple of unidentifieds for lack of content info. Please keep those loggings coming my way. ■

Survey Results: Telematics And You!

by Harold Ort, N2RLL, Editor

Back in the July 2002 issue of *Pop'Comm*, "On-The-Go" columnist Alan Dixon talked about telematics, that is, your vehicle's communications, saying, "The telematics revolution is coming." And indeed it has! Many vehicles now sport built-in Global Positioning System (GPS) units, compasses, and more. Telematics also includes your CB, FRS, and ham radio—all your vehicle's communications systems.

Twenty percent of you reported having never heard of telematics before, while only about 8 percent said you had heard the term, but never knew what it meant. And, despite that extensive "On-The-Go" column, about 25 percent of you asked the question "What is telematics?" I'm sure by now, though, that number is considerably lower as both Alan and Rich Arland continue their excellent coverage of in-vehicle communications systems. Most of you (about 40 percent) want more coverage of telematics in *Pop'Comm*, although about 20 percent of respondents indicated you're really only interested in one or two aspects of mobile electronics, such as mobile CB radio.

As we expected, many of you (about 35 percent) also have had two-way radios, a mobile phone, or other electronic communications and/or navigational gear in your vehicle for quite a while. But, interestingly, 25 percent of you report having no interest in vehicular communications or navigational equipment—base station operators, I'd imagine!

We also asked you, "If available and affordable, would you prefer to have a permanently installed true *mobile* phone in your car, truck, or SUV: One-quarter of you said yes, if you could still have a *portable* wireless phone at little or no additional expense. Another eight percent of you said yes, but that a full-power mobile phone would be very nice because you really don't need a low-power portable unit.

It appears about 12 percent of you would prefer not worry about where your portable cell phone is; if it's installed in the vehicle, there's no last-minute searching before hitting the road. But that's clearly the minority, because nearly 40 percent of you said you like the portability of a handheld wireless phone, as it works in the car as well.

By far, in another survey, the majority of respondents indicate a main concern about our radio hobby is anti-monitoring legislation. It's ours, too. But, rest assured, we're doing all we can to tell the world about the benefit of monitoring our public safety frequencies. Your input, as usual, is always welcome!

Two additional items: unfair media portrayal of radio hobbyists and non-hobbyists who believe we have no business listening to public safety comms ranked high (each about 35 percent) among your concerns. While those two categories usually go hand-in-hand, two other concerns—broadcasters leaving shortwave and using satellite and Web radio, and the possible loss of amateur frequencies to commercial interests—generated a lot of mail and obvious concern.

Other items, ranked in order of importance to you were cost of equipment, people using radios illegally, fast-moving technology making your equipment obsolete shortly after purchase, and antenna restrictions.

While it's certainly true that there are mega-buck receivers and transceivers out there, we also have a great choice of reasonably priced equipment, if you shop around! Let's dream for a moment: If money wasn't a major concern, most of you reported you'd buy a top-of-the-line general coverage receiver. Nearly the same percentage of you (about 30 percent) said you'd buy a top-of-the-line handheld scanner for your monitoring post. While antenna systems are the lifeblood of any radio system, only about 10 percent of you said you'd completely upgrade your antenna system. The same number of respondents indicated they'd shop around for the best price on a new multi-mode transceiver.

Most of our readers said their last major radio purchases was a year or two ago, and only about five percent of you said you plunked down the cash about six months ago.

We encourage you to keep the letters and e-mails coming. Remember, as we've said all along, this is your magazine. Your comments and suggestions shape the future of *Pop'Comm*!

Two *Pop'Comm* readers will receive a free one-year gift subscription (or extension) for taking part in our monthly survey. They are Harold Liljedahl of Fairfield, Iowa, and Emily Keene, of Uniontown, Pennsylvania. Congratulations to both of you and thanks for your support!

August Survey Questions

1. At my home monitoring post I experience RFI (radio frequency interference):

Yes 1
No 2
Sometimes 3

2. I was able to determine the source of the RFI and it was in my own home/apartment:

Yes 4
No 5

3. The problem was in my own home/apartment, and I used the following method to find the source of the RFI:

An MFJ Line Noise Meter or similar device 6
Alternately turning on and off circuit breakers in my house while listening to the radio 7
Turning appliances on and off while listening to the radio 8
Using a portable radio to track the source of noise 9

4. The problem was:

My computer/monitor 10
A light dimmer switch 11
Fish tank heater 12
Electric blanket 13
Old incandescent light bulb 14
Fluorescent light fixture 15
Fax machine 16
TV or VCR 17
Answering machine 18
Doorbell 19
Arcing wall outlet 20

5. My RFI problem was traced to outside my home:

Yes 21
No 22
It's in my neighbor's house 23
It's a nearby telephone pole 24
I don't know the source 25

by Kirk Kleinschmidt, NTØZ

You've Got The Power!

Since the earliest days of Amateur Radio, hams have taken to the field to operate in the woods, at the beach, or from a nearby mountaintop. The weekend exercise, sponsored by the ARRL, is ostensibly to prepare ops for communications emergencies, but, as anyone who's ever participated knows, the contest-like weekend is a lot of fun. I recently touched on Field Day but if you'd like to check it out further, point your browser to <www.arrl.org/contests/ rules/2003/rules-fd-2003.html>.

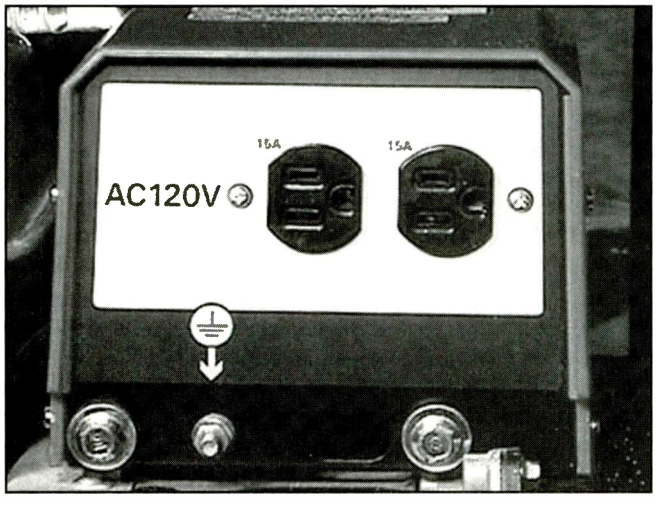
Participants in this year's get-together, slated for the weekend June 28, qualified for some interesting mementos, as detailed in the sidebar. Many clubs around the country set up elaborate multi-operator stations. Your participation will be welcomed, so check with nearby radio clubs if you don't want to "go it alone."

This month's topic is all about power—electrical power, that is. Electrical power when you're operating away from the AC mains (Field Day, perhaps?). If you need more juice than your solar panel and deep-cycle battery can supply, a portable power generator may be just the answer. Here's some practical advice about choosing the right generator and using it safely.

Generators

Basically, portable power generators (PPGs) are "backwards" motors. They convert mechanical energy [shaft rotation] into electrical energy. Think of them as 120-V "automobile-style" alternators that happen to be powered by lawnmower engines.

For most PPGs, as the engine spins an AC generator (alternator), the voltage and frequency of the AC output depend on the rotational speed of the engine. If the engine is running too fast or too slow, the PPG's voltage and frequency will be high or low, accordingly. If the engine speed is correct, voltage and frequency will approximate the power supplied by the AC mains—a 120-VAC sine wave with a frequency of 60 Hz.



The "business end" of my Honda EZ2500A compact 2.5-kW generator. This little beauty works great with solid-state devices and features electronic voltage regulation. (How can you go wrong with a Honda?)

To confirm the voltage and frequency output of your generator—and to confirm the AC load on the generator—check out P3 International's "Kill-A-Watt" AC power analyzer. This gem costs only $45 and will find a great many uses in the house and on the road. It's available at RadioShack and many other outlets.

There are several electronic and mechanical methods used to keep voltage and frequency values stable as engine speeds vary. Many PPGs use mechanical "governors" to keep the shaft turning at the about the right speed. If the shaft slows down (because of increasing generator demand), the governor "hits the gas" to bring the shaft speed up to par (and vice versa).Sophisticated units also have electronic regulators to help keep things steady near 120 V/60 Hz.

The most basic units have preset throttle/engine speeds that can be adjusted to match required loads. These are most useful for powering incandescent lights and small power tools that can safely tolerate "cruddy power." Use them to power solid-state devices at your own risk! As a rule, PPGs with better regulation and greater output power cost more money, while units that have little or no automatic regulation and less capacity are more affordable.

Choosing The Right PPG

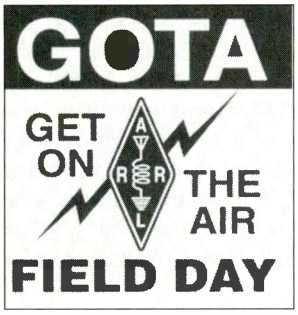
To be useful, your generator must be able to safely power all the devices that will be attached to it. For most ham radio stuff, simply add up the power requirements of all powered devices, add a reasonable safety margin (about 25 percent), and choose a suitably powerful generator that meets your other requirements.

If you're powering motors, however, they'll need a lot more power to start up than they do to keep running. For example, a motor that takes 1000 W to run may take 2000 to 3000 W to start. Light bulbs, soldering irons, space heaters, and most radios don't require extra start-up power, but be sure to plan accordingly.

PPG size and weight usually vary according to power output. Low-power units are lightweight and physically small, while beefier models are larger and weigh more. Tiny camper models (800- to 1000-W output) are amazingly small and lightweight, but some units lack sufficient regulation and may not be recommended for powering solid-state devices. On the other hand, some

Field Day

The theme of this year's Field Day is "When All Else Fails...," and it's designed to highlight the emergency preparedness capabilities of hams, and Amateur Radio in general, to the general public. To that end, the ARRL is selling T-shirts that feature the new logo and the ARRL's new GOTA (Get on the Air) commemorative pins. Point your Web browser to <www.arrl.org>.



teeny gens can put out a whopping 90 A of 12-VDC for charging batteries. If your gear is battery-powered, you may still be in luck.

Most portable generators are driven by small gasoline engines ("lawnmower engines"). Basic models are powered by standard side-valve engines, which are usually noisy and short-lived. More expensive models have overhead-valve (OHV) engines, pressure lubrication, low-oil shutdown, cast-iron cylinder sleeves, oil filters, and electronic ignition systems.

As a rule, smaller PPGs have smaller gas tanks (and vice versa), but that doesn't necessarily mean that they need more frequent refueling. Some small engines are more efficient than their larger counterparts and may run for half a day while powering small loads. Remember, PPG run times are shown for 50-percent loads. If you're running closer to max capacity, your run times may be seriously degraded. The opposite is also true. "Extended Run" models usually have more efficient engines and larger gas tanks. Typical PPGs run from three to nine hours on a full tank of gas at a 50-percent load.

As previously mentioned, voltage and frequency regulation, or lack thereof, may significantly influence your buying decision. The bottom line is that *any* PPG can safely power light bulbs, heating elements, and power saws, but when it comes to computers, TVs, and expensive ham radios, units with mechanical or electronic regulation may be required, if only for peace of mind! I test PPGs for "solid-state compatibility" with a small TV set I purchased for $5 at a garage sale!

Unloaded generators typically put out 130 V at 62 to 63 Hz. As loads increase, frequency and voltage decrease. Under full load, output values may fall as low as 105 V at 58 to 59 Hz. Normal operating conditions are somewhere in between. If "electronic voltage regulation" isn't mentioned on the box, consider calling the manufacturer before you buy. And, although you might get lucky, don't expect expert help from the salesperson at your local hardware store because they're used to helping contractors who want to power lights and saws.

Safety

Before starting the engine, read the user manual at least twice, cover to cover. Carefully follow the instructions regarding engine oil, throttle, and choke settings (if any). Be sure you understand how the unit operates and how to use the receptacles, circuit breakers, and connectors. Make sure the area is clean, dry, and unobstructed. PPGs should be set up outdoors.

Do not operate gas-powered engines in closed spaces, inside passenger vans, or inside covered pickup beds, etc. If rain is a possibility, set up an appropriate canopy or other outdoor protective structure. Keep the generator and any attached cords dry!

Exhaust systems can get hot enough to ignite certain materials. Keep the unit several feet away from buildings, and keep the gas can (and other flammable stuff) at a safe distance. Don't touch hot engines or mufflers!

When refueling, shut down the generator and let things cool off for a few minutes. Don't smoke and don't spill gasoline onto hot engine parts—a flash fire or explosion may result! Keep a small fire extinguisher nearby. If you refuel at night, use a light source that can't ignite the gasoline.

Your extension cords must have intact, waterproof insulation, three "prongs" and three wires, and must be sized according to loads and cable runs. Use 14- to 16-gauge, three-wire extension cords for low-wattage runs of 100 feet or less. For high-wattage loads, use heavier 10- to 12-gauge, three-wire cords designed for RV service feeds. If you use long extension cords to power heavy loads, you may damage your generator and/or your radio gear. Try to position extension cords so they won't be tripped over or run over by vehicles. And don't run electrical cords through standing water or over wet, sloppy terrain.

Now Go Enjoy Field Day!

Modern PPGs will power your Field Day excursions for years to come if you choose the right unit up front, use it correctly, and store and maintain it properly. Now *you* have the power!

That's it for this month. Send your photos, letters, and column suggestions coming to "Ham Discoveries," c/o *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801. ■

clandestine communiqué

tuning in to anti-government radio

by Gerry L. Dexter

A New Clandestine On The Air, Easily Heard In North America!

Every new month seems to bring with it another new clandestine broadcaster on shortwave. This time it's one called **Radio Sadaye Kashmir**, using **9890** via Kvitsoy, Norway, at 0230 to 0330. The programming is in Urdu until 0310 and in some unidentified language for the rest of the transmission. As of this writing no information has turned up as to what entity is behind these broadcasts. The transmission is being fairly well heard in much of North America, with a weak tone preceding the broadcast by as much as 20 minutes. Programming begins at 0230 and, for some reason, has a stronger signal than the tone it follows.

The anti-Zimbabwe **Voice of the People** is no longer the fairly easy catch it has been. They've dropped their "morning" transmission at 0330 on **7120** and are now on only from 1655 to 1755. That makes reception an impossibility in North America.

Someone is jamming the broadcasts of the relatively new anti-Saudi **Voice of al-Islah**. So they've dropped the use of 7590 in favor of **9925**, airing from 1900 to 2100.

Information Radio—the U.S. military psyops—broadcasts to Iraq continue to air on **9715** and from 1500 to 2000, though the broadcasts are barely being heard in North America. We've seen one report of a reception during the 0600 time period, which should provide us with a better chance.

Still another new one is the **Voice of South Azerbaijan**, a station of the Southern Azerbaijan National Awakening Movement. They plan to use **9570** and, if things go according to schedule, they should be on the air with regular, daily broadcasts by the time you read this.

No word yet as to what the exact broadcast schedule will be.

The **Voice of Oromo Liberation** is scheduled on **15670** (via Julich, Germany) Tuesdays, Wednesdays, Fridays, and Sundays from 1700 to 1800 in Amharic and Oromo.

The **Voice of Tibet** now uses **15400, 15615, 15645, 21495, 21525, 21635**, and **21760** from 1215 to 1300 and **11550, 11975, 12025**, and **12145** from 1430 to 1515, although only one or two of these frequencies seem to be in use during any given period. The broadcasts are transmitted from Almaty, Dushanbe, and Tashkent and suffer jamming from China.

The U.S. government's **Radio Sawa** broadcasts to Iraq and the Middle East are now airing as follows: 0400 to 0600 on **5965, 9665, 11670, 11865**, and **11875**; 0730 to 0830 on **6045, 7170, 9565, 9615 11805, 15140, 15235, 15440**, and **17855**; 1700 to 1800 on **7105** and **11855**; 1800 to 1900 on **7180, 7280, 9530, 9770, 11825, 11905**, and **11960**; 1900 to 2000 on **6040, 7195, 7280, 9530, 9615, 11825, 11905**, and **17740**; 2000 to 2100 on **6050, 6060, 6150, 7195, 7280, 9530, 9650, 11825, 11905**, and **17740**. All programming is in Arabic.

The other new U.S. Mideast broadcast, **Radio Farda**, targeting Iran, is operating with this schedule: 0030 to 0400 on **9515, 9585, 9795**; 0400 to 0600 on **9585, 9795, 12015, 15290**, and **17675**; 0800 to 0830 on **9585, 13680, 15290, 17675**, and **21475**; 0830 to 1400 on **13680** and **21475**; 1400 to 1700 on **9435, 13680**, and **15410**; 1700 to 1900 on **11705** and **1845**; 1900 to 2000 on **6140, 11960**; 2000 to 2130 on **9785, 11960**, and **11985**.

The **Voice of the Struggle of Iranian Kurdistan** has returned to the air. But it's one of those 4-MHz toughies that not only roam around but do so during a most inappropriate time period for reception in most of the U.S. Your only chance is during the 0300 to 0400 broadcast, somewhere between **4260** and **4290**. The broadcasts are in Kurdish except for the last 15 minutes, which are in Farsi.

The **Voice of the Democratic Path of Ethiopian Unity** is now scheduled on **21550** from 0700 to 0800 and 1830 to 1930 on **11840**, all in Amharic.

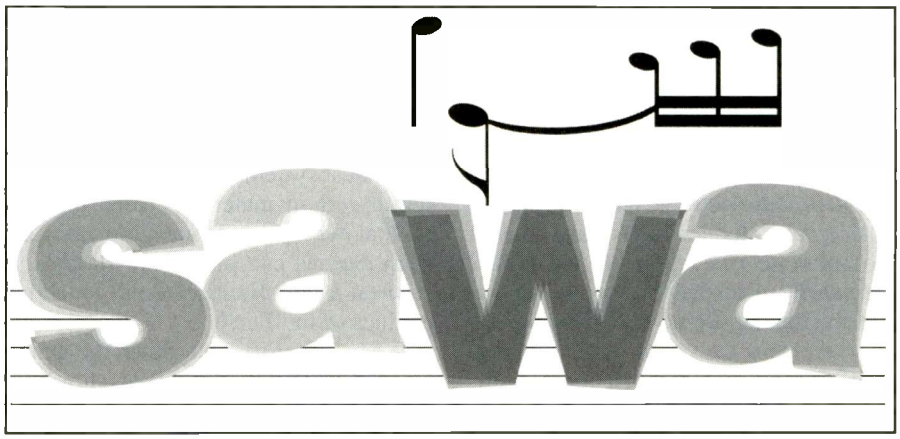
Rich D'Angelo in Pennsylvania checks in with the following clandestine station loggings:

Radio Voice of the People on **7120** at 0332 in English talking about elections, then tribal vocals, political discussion, and "You are listening to the Voice of the People." ID. As noted above, this transmission has been discontinued.

Radio Barabari, via Lithuania, **7470** at 1728 to 1732 closing with a discussion in Persian, ID, and closedown at 1731. (D'Angelo, PA).

And that will take care of things for this time. Remember that we're always anxious to receive your informational input for this column. Loggings, schedules, QSL copies, information about the groups behind clandestine broadcasts, addresses, and whatever else that might be of interest to those who are hooked on chasing and monitoring these shadow broadcasters are always welcomed. Let's hear from you!

Until next month, good hunting! ■



The U.S. government Radio Sawa broadcasts around the clock on mediumwave and shortwave.

Tap into secret Shortwave Signals

Turn mysterious signals into exciting text messages with the MFJ MultiReader™!

Plug this self-contained MFJ *MultiReader*™ into your shortwave receiver's earphone jack.

Then *watch* mysterious chirps, whistles and buzzing sounds of RTTY, ASCII, CW and AMTOR (FEC) turn into exciting text messages as they scroll across an easy-to-read LCD display.

You'll *read* interesting commercial, military, diplomatic, weather, aeronautical, maritime and amateur traffic . . .

Eavesdrop on the World

Eavesdrop on the world's press agencies transmitting *unedited* late breaking news in English -- China News in Taiwan, Tanjug Press in Serbia, Iraqui News in Iraq -- all on RTTY.

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

Monitor Morse code from hams, military, commercial, aeronautical, diplomatic, maritime

-- all over the world -- Australia, Russia, Japan, etc.

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Printer Monitors 24 Hours a Day

MFJ's exclusive *TelePrinterPort*™ lets you monitor any station 24 hours a day by printing transmissions on an Epson compatible printer.

Printer cable, **MFJ-5412**, $9.95.

MFJ *MessageSaver*™

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

High Performance Modem

MFJ's high performance *PhaseLockLoop*™ modem consistently gives you solid copy -- even with weak signals buried in noise. New threshold control minimizes noise interference -- greatly improves copy on CW and other modes.

Easy to use, tune and read

It's easy to use -- just push a button to select modes and features from a menu.

It's easy to tune -- a precision tuning indicator makes tuning your receiver easy for best copy.

It's easy to read -- the 2 line 16 character LCD display with contrast adjustment is mounted on a brushed aluminum front panel for easy reading.

Copies most standard shifts and speeds. Has MFJ *AutoTrak*™ Morse code speed tracking.

Use 12 VDC or use 110 VAC with MFJ-1312B AC adapter, $14.95. 5¼Wx2½Hx5¼D inches.

No Matter What™ One Year Warranty

You get MFJ's famous one year *No Matter What*™ limited warranty. That means we will repair or replace your MFJ *MultiReader*™ (at our option) *no matter what* for one full year.

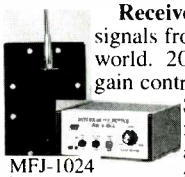
Try it for 30 Days

If you're not completely satisfied, simply return it within 30 days for a prompt and courteous refund (less shipping). Customer must retain dated proof-of-purchase direct from MFJ.

Super Active Antenna

"World Radio TV Handbook" says MFJ-1024 is a *"first-rate easy-to-operate active antenna ...quiet... excellent dynamic range... good gain... low noise... broad frequency coverage."*

Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz-30 MHz.



Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED. Switch two receivers and auxilary or active antenna. 6x3x5 inches. Remote has 54 inch whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, $14.95.

MFJ-1024 **$139.95**

Indoor Active Antenna

Rival outside long wires with this *tuned* indoor active antenna. *"World Radio TV Handbook"* says MFJ-1020B is a *"fine value... fair price... best offering to date... performs very well indeed."*

MFJ-1020B **$79.95**

Tuned circuitry minimizes intermod, improves selectivity, reduces noise outside tuned band. Use as a preselector with external antenna. Covers 0.3-30 MHz. Tune, Band, Gain, On/Off/Bypass Controls. Detachable telescoping whip. 5x2x6 in. Use 9 volt battery, 9-18 VDC or 110 VAC with MFJ-1312, $14.95.

Compact Active Antenna

Plug this *compact* MFJ all band active antenna into your receiver and you'll hear strong, clear signals from all over the world, 300 KHz-200 MHz including low, medium, shortwave and VHF bands.

MFJ-1022 **$49.95**

Detachable 20 inch telescoping antenna. 9 volt battery or 110 VAC MFJ-1312B, $14.95. 3⅛x1¼x4 in.

Eliminate power line noise!

MFJ-1026 **$179.95**

New! Completely eliminate power line noise, lightning crashes and interference *before they get into your receiver!* Works on all modes -- SSB, AM, CW, FM, data -- and on all shortwave bands. Plugs between main external antenna and receiver. Built-in active antenna picks up power line noise and cancels undesirable noise from main antenna. Also makes excellent active antenna.

MFJ Antenna Matcher

MFJ-959B **$99.95**

Matches your antenna to your receiver so you get maximum signal and minimum loss.

Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Select 2 antennas and 2 receivers. 1.6-30 MHz. 9x2x6 in. Use 9-18 VDC or 110 VAC with MFJ-1312, $14.95.

Dual Tunable Audio Filter

MFJ-752C **$99.95**

Two separately tunable filters let you peak desired signals and notch out interference at the same time. You can peak, notch, low or high pass signals to eliminate heterodynes and interference. Plugs between radio and speaker or phones. 10x2x6 in.

High-Gain Preselector

MFJ-1045C **$99.95**

High-gain, high-Q receiver preseletor covers 1.8-54 MHz. Boost weak signals 10 times with low noise dual gate MOSFET. Reject out-of-band signals and images with high-Q tuned circuits. Push buttons let you select 2 antennas and 2 receivers. Dual coax and phono connectors. Use 9-18 VDC or 110 VAC with MFJ-1312, $14.95.

CW, RTTY, ASCII Interface

MFJ-1214PC **$149.95**

Use your computer and radio to receive and display brilliant full color FAX news photos and incredible WeFAX weather maps. Also RTTY, ASCII and Morse code. Frequency manager lists over 900 FAX stations. Auto picture saver.

Includes interface, easy-to-use menu driven software, cables, power supply, manual and *JumpStart*™ guide. Requires 286 or better computer with VGA monitor.

High-Q Passive Preselector

High-Q passive LC preselector boosts your favorite stations while rejecting images, intermod and phantom signals. 1.5-30 MHz. Preselector bypass and receiver grounded positions. Tiny 2x3x4 inches.

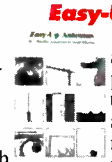
MFJ-956 **$49.95**

Super Passive Preselector

MFJ-1046 **$99.95**

New! **Improves** any receiver! Suppresses strong out-of-band signals that cause intermod, blocking, cross modulation and phantom signals. Unique Hi-Q series tuned circuit adds super sharp front-end selectivity with excellent stopband attenuation and very low passband attenuation and very low passband loss. Air variable capacitor with vernier. 1.6-33 MHz.

Easy-Up Antennas



How to build and put up inexpensive, fully tested wire antennas using readily available parts that'll bring signals in like you've never heard before. Antennas from 100 KHz to 1000 MHz.

MFJ-38 **$16.95**

MFJ Antenna Switches

MFJ-1704 **$64.95**

MFJ-1702C **$24.95**

MFJ-1704 heavy duty antenna switch lets you select 4 antennas or ground them for static and lightning protection. Unused antennas automatically grounded. Replaceable lightning surge protection. Good to 500 MHz. 60 dB isolation at 30 MHz. **MFJ-1702C** for 2 antennas.

World Band Radio Kit

Build this regenerative shortwave receiver kit and listen to signals from all over the world with just a 10 foot wire antenna. Has RF stage, vernier reduction drive, smooth regeneration, five bands.

MFJ-8100K **$69.95** *kit*
MFJ-8100W **$89.95** *wired*

21 Band World Receiver

MFJ's new 21 Band World Receiver lets you travel the world from your armchair! Listen to BBC news from London, live music from Paris, soccer matches from Germany and more! Covers 21 bands including FM, Medium Wave, Long Wave and Shortwave. *Sony*® integrated circuit from Japan, multicolored tuning dial, built-in telescopic antenna, permanent silkscreened world time zone, frequency charts on back panel. Carrying handle. Operates on four "AA"s. Super compact size!

MFJ-8121 **$39.95**

Free MFJ Catalog

and Nearest Dealer . . . 800-647-1800

http://www.mfjenterprises.com

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FAX: (662) 323-6551; **Add s/h**
Tech Help: (662) 323-0549

world band tuning tips

your monthly international radio map

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 UTC equals 7 p.m. EST, 6 p.m. CST, 4 p.m. PST.

UTC	Freq.	Station/Country	Notes
0000	9400	Radio Bulgaria	
0000	17615	BBC relay, Thailand	
0000	9870	Radio Austria Int'l	
0000	11675	Radio Kuwait	AA
0000	11620	All India Radio	HH
0030	9825	BBC, England	
0030	13605	Radio Thailand	
0030	9715	RDP Int'l, Portugal	PP
0030	3310	Radio Mosoj Chaski, Bolivia	SS
0030	4920	All India radio - Chennai	Hindi
0100	9675	RAI, Italy	
0100	4780	Radio Cultural Coatan, Guatemala	SS
0100	11820	Voice of Russia, via Vatican	
0100	6175	Voice of Vietnam, via Canada	
0100	9440	Radio Slovakia Int'l	
0130	6155	Radio Telefis Eireann, Ireland, via UK	
0130	9580	VOIRI, Iran	
0130	15375	Voz Cristiana, Chile	SS
0130	6000	Radio Havana Cuba	
0130	9725	University Network, Costa Rica	
0130	9925	Croatian Radio, via Germany	
0130	7375	Radio Ukraine Int'l	
0200	4845	Radio K'ekchi, Guatemala	SS
0200	6185	Radio Educacion, Mexico	SS
0200	11585	Kol Israel	HH
0200	11710	RAE, Argentina	
0200	7130	Radio Yugoslavia	
0200	9835	Radio Budapest, Hungary	
0200	9765	Voice of Russia	
0200	7300	Voice of Turkey	TT
0200	9560	Radio Korea Int'l, S. Korea, via Canada	
0200	7180	Voice of Russia, via Moldova	
0200	4790	Radio Atlantida, Peru	SS
0200	6135	British Forces Broadcasting Service	
0230	9475	Radio Cairo	AA
0230	11965	Deutsche Welle, Germany, relay - Sri Lanka	
0230	7470	Radio Denmark, via Norway	DD
0230	11880	Radio Exterior de Espana, via Costa Rica	SS
0230	6458	Armed Forces Network, Puerto Rico	
0230	7185	Radio Sawa, USA, Morocco relay	AA
0230	17860	Radio Canada Int'l, via China	
0300	17675	Radio New Zealand Int'l	
0300	4830v	Radio Litoral, Honduras	SS/EE
0300	5915	ZNBC, Zambia	vern/EE
0300	7215	Trans World Radio, via South Africa	
0300	7120	BBC, via South Africa	
0300	9870	Radio Prague Czech Republic	
0300	9665	RAE, Argentina	SS
0300	7270	Radio Tirana, Albania	Albanian
0300	9985	KHBN, Palau	unid
0300	12005	RTV Tunisienne, Tunisia	AA
0300	4976	Radio Uganda	
0300	9605	Vatican Radio	
0300	4800	Radio Lesotho	
0300	7225	Trans World Radio, Swaziland	unid
0300	4885	Radio Clube do Para, Brazil	PP
0330	11885	Voice of Turkey	TT
0330	7290	Voice of America relay, Sao Tome	
0330	7305	Vatican Radio	SS
0330	9495	Radio Sweden	
0330	7340	Voice of America relay, Botswana	
0330	10320	Armed Forces Network, Hawaii	
0330	9640	Radio Fana, Ethiopia	Oromo
0400	6070	CFRX, Canada	
0400	9500	Radio Bulgaria	BB
0400	11985	Radio Vlaanderen Int'l, Belgium, via Bonaire	
0500	7255	Voice of Nigeria	
0500	9715	YLE/Radio Finland	Finnish
0600	7125	Rdf. Nationale Guineenne, Guinea	FF
0600	4845	Radio Mauritanie, Mauritania	AA
0600	7190	RTV Tunisienne, Tunisia	AA
0600	11765	BBC, via South Africa	
0600	11960	China National Radio	CC
0600	11835	Voice of America relay, Botswana	
0630	9530	Magadan Radio/Radio Rossii	RR
0630	7255	Voice of America relay, Morocco	
0630	13760	Radio Free Asia, via Northern Marianas	CC
0800	6045	Radio Sawa, USA, via Morocco	AA
0800	4935	Radio Capixaba, Brazil	PP
0800	4985	Radio Brazil Central, Brazil	PP
0830	9755	RDP Int'l, Portugal	PP
0830	9675	Radio Cancao Nova, Brazil	PP

UTC	Freq.	Station/Country	Notes
0900	9595	Radio Tampa, Japan	JJ
0930	4865	Radio Alvorada, Brazil	PP
1000	6115	Radio Union, Peru	SS
1030	5010	Radio Pueblo, Dominican Republic	SS
1030	4799	Radio Mallku, Bolivia	SS/QQ
1030	4877	La Cruz del Sur, Bolivia	SS
1100	11880	Radio Australia	
1100	3305	Radio Western Highlands, Papua New Guinea	
1100	4919	Radio Quito, Ecuador	SS
1100	3335	Radio East Sepik, Papua New Guinea	Pidgin
1130	9600	Radio Havana Cuba	SS
1130	3315	Radio Manaus, Papua New Guinea	Pidgin
1130	4605	Radio Republik Indonesia, Serui	II
1200	5020	SIBC, Solomon Islands	
1200	3325	Radio Republik Indonesia, Palangkaraya	II
1200	4890	NBC, Papua New Guinea	
1200	9600	Radio Rebelde, Cuba	SS
1200	4785	Nei Menggu Peoples Broadcasting Stn, China	CC
1230	11605	Radio Taipei Int'l, Taiwan	CC
1230	9680	Voice of Indonesia	II
1230	2310	ABC Northern Terr. Service, Australia	
1300	11705	Radio Japan/NHK, via Canada	JJ
1300	11895	Voice of America relay, Philippines	unid
1300	11710	Voice of Korea, North Korea	
1300	13770	VOIRI, Iran	Farsi
1300	12055	Voice of Russia	RR
1300	11955	China Radio Int'l	CC
1300	17660	YLE/Radio Finland	Finnish
1300	15190	BBC relay, Antigua	
1300	11785	Voice of America relay, Thailand	
1300	13725	Radio Free Asia, via Sri Lanka	unid
1330	17880	China Radio Int'l	CC
1330	9740	BBC relay, Singapore	
1330	9280	WYFR/Family Radio, via Taiwan	CC
1330	18960	Radio Sweden	
1330	9335	Voice of Korea, North Korea	
1400	13620	Radio Kuwait	
1400	13860	BFBS, England, via Armenia	
1400	15335	RTV Marocaine, Morocco	AA
1400	9365	Radio Free Asia, via CIS	VV
1430	15205	Voice of America relay, Greece	
1500	12015	Voice of Mongolia	
1500	17730	Deutsche Welle, Germany, via Antigua	GG
1500	11650	Radio Australia	
1500	17895	Radio Africa Int'l, via Austria	FF
1500	18940	Radio Afghanistan, via Norway	Dari
1530	15220	Radio Netherlands, via Canada	
1530	11730	RTT Tunisienne, Tunisia	AA
1600	11655	Qatar Broadcasting Service	AA
1600	11690	Radio Jordan	
1600	21605	UAE Radio, Dubai	
1600	17545	Kol Israel	FF
1600	15670	Voice of Ethiopian Medhin (cland) via Germany	unid
1630	15400	YLE/Radio Finland	Finnish
1630	21660	BBC relay, Cyprus	
1700	15420	Voice of America relay, Morocco	
1700	15595	Vatican Radio	
1700	17870	Channel Africa, South Africa	
1700	15140	Radio Sultanate of Oman	AA
1800	11775	Caribbean Beacon, Anguila	
1800	15190	Radio Pilipinas, Philippines	Tagalog
1830	11990	Radio Kuwait	
1830	12080	Voice of America relay, Botswana	FF
1830	13650	Radio Vlaanderen Int'l	
1830	13640	RTE, Ireland, via Canada	
1830	15150	Voice of Indonesia	GG
1900	17685	Adventist World Radio, via South Africa	unid
1900	13865	INBS, Iceland	Icelandic
1900	17705	Voice of Greece, via US	Greek
1900	13780	Deutsche Welle, Germany	
1900	15110	Radio Exterior de Espana	SS
1900	13605	All India Radio	
1900	9890	Voice of Russia	
1900	15315	BSKSA, Saudi Arabia	AA
1930	13660	Swiss Radio Int'l, via French Guiana	
2000	11635	Radio Jamahiriya, Libya, via France	AA
2000	11655	Radio Netherlands relay, Madagascar	
2030	9780	Republic of Yemen Radio	AA
2030	11995	Radio France Int'l relay, Gabon	FF
2030	9960	Voice of Armenia	
2030	15295	Adventist World Radio, via South Africa	
2100	11975	Voice of America relay, Sao Tome	
2100	11855	Radio Japan/NHK, via Ascension Is.	
2100	15120	Voice of Nigeria	
2100	17565	Voice of Greece, via USA	Greek
2130	11905	Radio Tashkent, Uzbekistan	unid
2200	9495	All India Radio	
2200	9870	BSKSA, Saudi Arabia	AA
2200	21740	Radio Australia	
2200	9830	VOIRI, Iran	
2200	9690	Radio Romania Int'l	Romanian
2230	9510	Radio Romania Int'l	
2230	9580	Africa Number One, Gabon	FF
2230	9563	Voice of the Iraqi People (clandestine)	AA
2230	9390	Kol Israel	HH
2230	5985	Radio Congo, Congo Republic	FF
2230	9540	Radio Tirana, Albania	
2245	9895	Radio Netherlands	
2300	11720	Radio Netherlands relay, Bonaire	SS
2300	11800	RAI Int'l, Italy	II
2300	9990	Radio Cairo	
2300	5960	Radio Canada Int'l	
2300	11780	Radio Nacional Brazil	PP
2300	11660	Radio France Int'l	SS
2300	11830	Radio Anganguera, Brazil	PP
2300	11815	Radio Brazil Central	PP
2300	17680	Voz Cristiana, Chile	SS
2300	6025	Radio Budapest, Hungary	
2330	17860	Deutsche Welle, Germany relay, Rwanda	GG
2330	9875	Radio Vilnius, Lithuania	
2330	9575	Radio Medi-Un, Morocco	AA
2330	6180	Radio Nacional Amazonia, Brazil	PP
2330	15430	Radio Free Asia, via N. Marianas	CC
2330	13800	China Music Jammer	
2330	12050	Egyptian Radio/R. Cairo	AA
2330	12040	Radio Ukraine Int'l	Ukranian

power up:
radios & high-tech gear

by Harold Ort, N2RLL

review of new, interesting, and useful communications products

AOR Introduces AR-ONE Receiver

AOR USA announces the availability of the AR-ONE, a new wide-range communications receiver capable of monitoring any frequency from 10 kHz to 3.3 GHz with excellent sensitivity while providing maximum user flexibility. An earlier planned introduction of the AR-ONE was delayed, but AOR reports that units are now flowing into the marketplace.

"The AR-ONE Communications Receiver was designed and built with the monitoring professional in mind," said Takashi "Taka" Nakayama, KW6I, Vice President of AOR's North American operations. "It can stand alone as a highly accurate receiver or it can support secondary signal processing, spectrum display units and computer signal analysis." The AR-ONE has two RS-232C ports on its rear panel. "This will allow the joining of multiple AR-ONE units. As many as 99 AR-ONE receivers can be controlled by a single computer."

The new AR-ONE is a triple-conversion super-het 10-kHz to 3.3-GHz receiver with tons of features.

The AR-ONE was conceived as a "breakthrough" design. Its many features include 10 VFOs, 1,000 memory channels, an ultra-stable frequency reference oscillator, selectable tuning steps and resolution down to one Hertz (Hz), the ability to monitor AM, NFM, WFM, USB, LSB, CW, and data modes, a triple-conversion superheterodyne front end, adjustable BFO, high intercept, multi-IF signal output ports at 10.7 MHz or 455 kHz and more.

Operating features include the ability to control all functions by computer and most functions through the control head. The unit can communicate many settings and readings to the user, including items such as signal bandwidth and the strength of a received signal. The rear panel has two RS-232C ports, an "N" connector antenna terminal, two BNC inputs, power input, speaker output, and the IF taps.

"The AR-ONE is designed for professional users, such as governments, military applications, law enforcement, laboratories and others who require the ultimate in a sensitive, wide-range receiver," said Mr. Nakayama. "At this time, we do not have plans to produce a version of the AR-ONE that has cellular frequencies blocked, so it cannot be offered for sale to the general public in the USA," he added. With the ability to link up to 99 receivers, the AR-ONE may be an unparalleled resource for surveillance operations and high-end monitoring.

The unit can be installed in base or mobile operations. The user has the flexibility to tune in increments of a single Hz, making the most of the widely used available RF spectrum tunable to the AR-ONE. Its ability to readout signal strength in user-selectable dBμV or dBm units makes direction finding more scientific and its ultra stable frequency reference brings a lab-quality readout to the user in day-to-day operations. Rear panel IF outputs allow for secondary signal processing and analysis. In addition, other accessories or computer programs make visual signal display possible, including graphic displays.

"The AR-ONE may well redefine what is possible in terms of monitoring," said Mr. Nakayama. "We believe governments need enhanced tools for surveillance to keep pace with communications developments, particularly as applied to Homeland Security. One area of interest is the ongoing battle against terrorism across the world. We hope the AR-ONE can play a role in bringing those efforts to a quicker conclusion."

For more information, contact AOR USA at 20655 S. Western Avenue, Suite 112, Torrance, CA 90501 or visit them on the web at <www.aorusa.com>. Be sure to tell them you read about the new AR-ONE in *Pop'Comm*.

K40 Electronics Introduces New Portable Radar Detector With Ticket-Free Guarantee

K40 Electronics today introduced its new RD850 Portable Radar & Laser Detector, the world's *only* portable radar and laser detector backed by a speeding ticket guarantee. K40 is able to offer this type of guarantee because the RD850 features state-of-the-art patented technologies and unsurpassed, *test-proven* performance.

The new RD850 features a new microwave receiver and waveguide antenna design for increased sensitivity to all police radar frequencies: X, K, and superwide Ka. Enhanced software programming offers an automated calibration check so only true police radar frequencies are scanned and nearly all false signal warnings are eliminated.

K40's new RD850 radar detector is a state-of-the-art detector that includes all mounting hardware

When the RD850 encounters the VG2 "radar detector detector," it powers down to prevent detection and also warns of VG2 presence with audio and visual alerts. This is an especially useful feature in states (Virginia and Washington D.C., for example) where the use of radar detectors is illegal.

All the hardware needed to quickly mount and dismount the RD850 to a vehicle's dash, visor, or windshield is included. Because the RD850 is over 30 percent lighter than previous K40 portables, it offers stronger, more secure mounting. The RD850 plugs into any standard power port and offers user conveniences like programmable Auto Mute, selectable City/Highway mode, display brightness control, and adjustable volume.

Like it does with all of its award-winning radar and laser products, K40 Electronics subjected the RD850 to rigorous field testing to ensure the RD850 could deliver ticket-free confidence to drivers. In tests conducted by Speed Measurement Laboratories, Inc. (SML) on April 17, 2003, in Fort Worth, Texas, the RD850 turned in "best in class" performance. To ensure testing validity and accuracy, SML's test was performed by a trained, certified Texas police officer using standard operating techniques like constant and instant-on transmit modes employed daily in issuing citations. The new RD850 responded to police radar signals over seven times the normal accepted targeting distance of approximately one-quarter mile.

K40 also offers a performance guarantee with the RD850 that is unmatched in the radar detector industry. If an RD850 owner receives any radar speeding tickets during the first year of ownership, K40 will pay the cost of each fine. The RD850 is also backed by a one-year parts repair/replacement warranty.

As is the case with all products produced by K40 Electronics, the RD850 is available for purchase only through select authorized new car dealerships and specialty electronics stores. Suggested retail price is $299.95. K40 product information can be obtained by calling the company at 800-323-6768 or by visiting its website at <www.k40.com>.

Is Your Installation Protected?

Alpha Delta Communications is right on top of things radio, and their Model TT3G50 coax surge protector is no exception. Here's a little device that's built tough, broadbanded (0–3 GHz) with low loss (typ. 0.1 dB @ 1 GHz to less than 0.5 dB @ 3 GHz) and is completely weather protected with O-ring seals under knurled knob and connectors.

The TT3G50 has N female connectors, handles 200 watts, and sells for $59.95 each, plus s/h. The TT3G50U has UHF connectors and is $49.95 each, plus s/h. The gas tube ARC-PLUG is field-replaceable with knurled knobs and doesn't require tools to remove. Nor does the protector have to be removed from the coax cable circuit for cartridge replacement. The ARC-PLUG can repeatedly carry large currents for brief periods of time. If an excessive voltage appears on the feedline due to lightning or static charges, the ARC-PLUG is energized, forming a momentary arc and discharge to ground, protecting your radio gear from damage!

For more information, contact Alpha Delta Communications, Inc. at P.O. Box 620, Manchester, KY 40962 or call them at 606-598-2029. You can also visit Alpha Delta online at <www.alphadelta.com>. Be sure to tell them you read about their broadband coax surge protector in *Pop'Comm*! ■

Shannon's Broadcast Classics

a look back at radio & TV's golden years

by Shannon Huniwell

"San Antone's" Old KITE-FM— The Unlikely Cornerstone Station In The World's Highest Flying Radio Group

If you're like most news and information radio listeners who appreciate a well-told tale, *The Rest of the Story* broadcast from ABC Radio's Paul Harvey is probably a favorite. There, the venerable commentator weaves details of setbacks and humble beginnings that somehow end in triumph. The KITE-FM saga might fit nicely into Harvey's format.

Broadcast Pro-File's Jan Lowry serves as key researcher for our Cinderella story, which actually begins once upon a time around 1947. That's when San Antonio, Texas, broadcaster, Charles W. Balthrope, built a 1000-W AM daytimer (at 930 kHz) to compete with the likes of cross-town 50-kW "flamethrower" WOAI, then the only station anywhere at 1200 on the AM dial.

SAN ANTONIO	KABC 1926	680 50,000-LS 10,000-N	Alamo Broadcasting Co. Milam Building Fannin 3126	ABC Texas State	Gene Cagle, Pres. Bill Michaels, Gen. & Coml. Mgr.	Harold Carr, Prog. Dir. Jerry Spengler, Prom. Mgr. Joe Haigh, Chief Engr.
SAN ANTONIO	KCOR 1945	1350 1,000-D; CP-5,000-LS 1,000-N	Raoul A. Cortez 214 Broadway Cathedral 1301	.....	Raoul A. Cortez, Pres. Chas. F. Harris, Gen. Mgr. Wm. P. Smythe, Coml. Mgr. Marvin N. Broyles, Prog. Dir. (English)	Leonardo G. Astol, Prog. Dir. (Spanish) Kenneth R. Hyman, Chief Engr.
SAN ANTONIO	KITE 1947	930 1,000-D	Chas. W. Balthrope Transit Tower Fannin 0335	.....	Charles W. Balthrope, Pres. & Gen. Mgr.	Alec Chesser Jr., Prog. Dir. L. E. Richards, Chief Engr.
SAN ANTONIO	KMAC	1240; CP-630 250; CP-5,000	Howard W. Davis	MBS Texas State		
SAN ANTONIO 6.....	KONO 1927	1400 250	Mission Bcstg. Co. 317 Arden Grove Fannin 5171	.....	Eugene J. Roth, Chief Owner Jack L. Pink, Gen. Mgr. Bob A. Roth, Assist. Mgr.	James M. Brown, Coml. Mgr. Robert F. Jenkins, Prog. Dir. George W. Ing, Chief Engr.
SAN ANTONIO 6.....	KTSA 1928	550 5,000-LS 1,000-N CP-5,000-U	Sunshine Bcstg. Co. Gunter Hotel Garfield 1251	CBS Lone Star	Gene A. Howe, Pres. George W. Johnson, Gen. Mgr. Rex Preis, Coml. Mgr.	Merrill Myers, Prog. Dir. Bill Lamar, Prom. Mgr. W. G. Egerton, Chief Engr.
SAN ANTONIO	WOAI 1922	1200 50,000	Southland Industries Inc. 1031 Navarre St. Garfield 4221	NBC Texas Quality	G. A. C. Halff, Chairman of Board Hugh A. L. Halff, Pres. & Gen. Mgr. Jack Kessler, Assist. Gen. & Coml. Mgr.	Monte A. Kleban, Prog. Dir. Arthur L. Forrest, Prom. Mgr. Charles Jeffers, Tech. Dir.

Seven San Antonio AM outlets were active when KITE-AM hit the air there in 1947. Three possessed construction permits to either change to a more advantageous frequency, raise power, or both. A trio of San Antonio FMs were operational.

Balthropes's new KITE had six well-entrenched local AM radio competitors when it hit the air. Plus, the San Antonio market appeared to be an early adopter of post-World War II *static-free* radio, as there were a half-dozen frequency modulation outlets (planned or already) sending signals into the mid-Texas airwaves when KITE was granted FCC permission to add an FM sister in early 1951. Interestingly, this pioneer San Antonio FM scene had some of the nation's most wonderfully descriptive calls. In addition to KITE-FM, there purred KITY-FM and puckered the first KISS-FM.

Though KITE-FM would begin life as a "filler" station, used to offer Balthrope's audience something after his AM facility signed off at sunset, it was no peanut-whistle. At 97.3 MHz, KITE had an authorization to transmit with 9.22 kW, a respectable FM level in an era when many FM "add-ons-to-an-AM daytime outlet" were rather low-power affairs, simply meant to spruce-up the letterhead until a way could be found to go fulltime with the AM. (KITE-AM eventually got licensed for unlimited operation.)

On Monday morning, June 18, 1951, Mr. Balthrope and his chief engineer, John Siercovich, hit the switch that enlivened KITE-FM's transmitter. While they were remotely controlling this equipment from studios in San Antonio's tallest building, the Transit Tower, their FM signal was emanating from antenna bays secured to KITE-AM's "stick" at Dartmouth and Stephenson Roads. Period literature indicates the original FM antenna height was 195 feet (probably above the area's average terrain). KITE-FM's early programming was a simulcast of the AM during the day and likely consisted of a minimum wage DJ spinning "dinner music" without much advertising when KITE-FM went solo at sunset.

How About "The Callsign Of The Month Club"?

By December 1951, Balthrope's FM dropped power to 8.2 kW. This 1000-watt-plus slide might have been the result of having notified the FCC that the transmitter was actually more comfortably operating in the 8000-W (as opposed to 9000-W) zone, as reflected in the late-1951 station license document. In any event, the modification would be the first of many in the dynamic life of KITE-FM.

In early spring 1953, Balthrope placed his AM/FM stations under the corporate banner of KITE, Inc. A license upgrade added 100-watts (to 8.3 kW) onto the KITE-FM output. A year later, its studios were moved from the third to the fourth floor of the Transit Tower, but relocated back to the third floor in 1955. (It wasn't unusual for small stations, in terms of

It looks funny to see the KABC calls associated with a Texas station instead of identifying ABC's West Coast flagship outlet in Los Angeles. But during the late 1940s, that L.A. facility was known as KECA until ABC could convince the San Antonio property that the K-A-B-C letters were more needed in the sunny southern California.

With 50kW and the 1200 kc clear channel dial position all to itself, WOAI had (and possesses today) a Texas-size footprint. Still, the San Antonio station once found it challenging to convince eastern media buyers that a big and ready-spending population existed "way out west." To that end, WOAI's late 1940s' message to New York-headquartered advertisers included "did-you-know-that's" such as, "WOAI's daytime primary coverage delivers more people than live in Washington, DC, Baltimore, or Cleveland [and] more retail sales than in Pittsburgh, or Milwaukee, or Newark, NJ."

audience and revenue, to switch headquarters whenever some rent money could be saved.)

A week or so before Thanksgiving 1956, KITE-FM became KAML-FM and discontinued simulcasting its AM sister. Just a few months later alerted listeners that it had just been again renamed again—this time KENN-FM. Concurrently, the FM studios got moved to the transmitter site. About a year after this February-1957 call letter change, KENN-FM reverted to the KITE-FM nomenclature and the FCC updated its license to read Musical KITE, Inc., in June, 1958.

All of this shifting would normally hint to a broadcast researcher that the station was a proverbial "swinging door," suffering from uncaring capriciousness and frequent ownership changes. However, through FM radio's largely dull and disappointing 1950s, what had started as KITE-FM, often re-dubbed and then called KITE-FM again, remained under Balthrope's concerned control. During that summer of 1958, he parted with his AM outlet, after deciding to keep KITE-FM. This path was directly opposite to the "AM is the *real* radio"-ownership road taken by most Eisenhower-era radio broadcasters. Typically, it would be an FM that got spun off.

No doubt the FCC official at the Commission's call letter desk sighed, "Here we go again!" when processing another update as KITE-FM went to KEEZ-FM in September 1958. The call-sign denoted Balthrope's easy listening format, a "beautiful music" staple for many standalone FM operations of the epoch. Without an AM to think about, KEEZ-FM's owner invested in a bigger coverage area and (also during September) boosted his FM to 17.5 kW from the upper reaches of the tower of his former AM outlet. The following winter, Balthrope completely severed ties with the AM, moved the KEEZ-FM antennas to the 390-foot mark on San Antonio's KCOR-TV tower, and vacated the old AM transmitter site digs for new studios/offices in the city's Tower Life Building.

Powerful Progress Ahead

One can conjecture that, by 1961, KEEZ-FM's owner heard about the promise of FM stereo. In 1963, Balthrope's station began multiplexing with its new exciter and transmission system capable of generating 63,000 watts. The following year, it got the Commission go-ahead to reposition the KEEZ-FM antennas at the 450-foot level (of the KCOR-TV tower) and jump effective radiated power to 81 kW. With this wallop in the central-Texas air, KEEZ-FM broadcast a middle-of-the-road format (adding vocal selections to the previous staple of instrumental tunes) from 6 a.m. until midnight. Fine-tuning of this programming continued so that it could be described as "pop standards" to advertisers seeking sophisticated, 30-plus upwardly mobile adults. Some might have even had an optional FM radio (or self-installed FM converter) in their new cars!

San Antonio's Only ABC Radio Affiliate

For years, the American Broadcasting Company network outlet in "San Antone" was a 50-kW AM at 680 kHz, with the convenient call, KABC. The station wasn't owned by the "famous" ABC, though. Rather, it came under the control of Alamo Broadcasting Company, a firm whose easy-to-remember initials later went to the big ABC's Los Angeles 790 AM outlet when the L.A. facility needed a new image and closer association with the corporate moniker.

In early 1968, the ABC Radio Network split into four distinct services, including ABC/FM. While other local broadcasters took a wait-and-see attitude about the then unusual national niche network approach, KEEZ-FM opted to run some

news and a few features from the ABC/FM branch, making the big stereo station the market's sole ABC source for a while.

Setting The Stage For An Historic Sale

Balthrope talked about hitting the 100,000-W limit with his Class "C" FM. Sadly, he didn't get to hear the signal carrying that notable power hike. Though the FCC had approved the proposed jump in late August 1969, it wasn't instituted until the following March, just two weeks after Mr. Balthrope passed away at age 58. He'd recently sold the operation to his son, Charles D. Balthrope, who ran it under the corporate identity of the Camel Company. One can't help but wonder whether this name was related in any way to the station's short-lived KAML-FM callsign back in 1956. The younger Balthrope further modernized his FM's format, shifting KEEZ-FM to contemporary music around 1971. Perhaps it got tweaked to make the station that had been in his family for two decades more attractive to a buyer thinking about getting into the broadcasting business.

By Thanksgiving of 1972, Charles D. Balthrope's Camel Company accepted $185,000 for the assets and FCC license transfer of KEEZ-FM. The buyer, San Antonio Broadcasting, Inc., was primarily held by Samuel Maurice Jorrie and L. Lowry Mays. It is the latter individual who gives our story a truly nationwide provenance. Mays' foray into electronic media via this (42% share) 1972 KEEZ-FM venture gave him enough of the radio bug to shortly thereafter acquire (with another partner, Billy J. McCombs) San Antonio's WOAI.

As earlier noted, WOAI occupied the clear channel of 1200 kHz. Mays liked that prominent radio designation, and so dubbed his fledgling company Clear Channel Communications, Inc. Under this banner, he bought out Jorrie's interest in KEEZ-FM in June, 1975. Arguably, this makes KEEZ-FM the first of some 1,200 radio stations operated by Mays and/or Clear Channel Communications, Inc. Little did Charles W. Balthrope suspect in the late 1940s, while considering whether or not to build a San Antonio FM station, that his humble KITE-FM would provide the springboard from which the most famous radio group of the early 21st century would originate.

Not only was Cuban commerce more vibrant a half-century ago than today, its commercial broadcasting operations were intact and mirrored what was developing some 90-miles away in the United States. This 1952 promotional piece heralding the CMQ-TV network contained fine print indicating that Cuban commercial television advertising time could be purchased directly from CMQ representatives, located at a swanky Rockefeller Plaza address. U.S. companies wanting to reach Cuban consumers via TV show sponsorship simply needed to contact that New York office. No doubt some of the bigger sponsors got treated to a quick visit to the CMQ-TV studios and lots of complimentary tropical sight-seeing afterwards.

What Happened To KEEZ-FM?

Mays installed a middle-of-the-road music format on his new property and jettisoned the ABC/FM affiliation around Christmas 1972. Automated Top-40 "Stereo Rock" programming replaced that fare about a year later. In the early spring of 1977, the KEEZ-FM identity was discontinued in favor of WOAI-FM to capitalize on the better-known AM outlet's name. (For a few years in the latter 1940s, there'd been an "original" WOAI-FM at 102.5 MHz.) At first all but the mandatory legal IDs noted the station as "97 Rock," a handle that went the way of the wind when Clear Channel began routing an automated beautiful music offering to the WOAI-FM transmitter. This lasted until easy adult contemporary tunes constituted the WOAI-FM programming in 1979.

Further modifications hit the station in fall 1981, as Clear Channel switched their FMs' calls to KAJA-FM and installed a contemporary country music format. By decade's end, it enjoyed a new transmitter locale so that the 100-kW FM's antennas could shoot RF from 984-feet above the San Antonio market's average terrain. "KJ-97" continues to air the popular country format it debuted some 22 years ago.

No doubt the station's first owner, Charles W. Balthrope, would be proud to hear that what had been his old KITE-FM is still flying high over his beloved central Texas. Maybe he'd even smile to hear us declare, in our best Paul Harvey inflections, "And now *you know* the *rest* of the story!

A Shannon Broadcast Classics Extra—Cuban TV Before Castro

Thousands of miles from where our Texas FM was getting its start, television entrepreneurs in Cuba were set to debut their island-wide video network. Havana-based CMQ-TV had taken to the Latin American airwaves around 1950. According to the 1952 *Telecasting Yearbook* published by *Broadcasting/Telecasting* magazine, CMQ's parent company planned to "inaugurate its *NTN* or National Television Network which [was slated to] cover 80% of the Cuban territory—a market of over five million consumers."

The CMQ-TV network had main studios and offices in Havana where it transmitted over Channel 6. Effective radiated power of this "main" station was listed as 9382 W video and 18,765 W audio. Antenna height came in at 385 feet above sea level. Four owned and operated NTN affiliates scheduled for a March 1952 target date were as follows:

Channel 9, Matanzas—1,507 W video, 3,015 W audio @ 760 feet

Channel 5, Santa Clara—8,439 W video, 16,878 W audio @ 1,020 feet

Channel 6, Camaguey— 896 W video, 1,793 W audio @ 650 feet
Channel 2, Santiago de Cuba—7,802 W video, 15,604 W audio @ 1,760 feet

Prior to Castro's communist takeover of Cuba, the island nation enjoyed a robust trade relationship with the United States. That's why the CMQ folks sprung for a full-page ad in the *Broadcasting* and *Telecasting Yearbooks* of the pre-revolution era. The Cuban Radio/TV group touted that CMQ could "offer the [American] advertiser, through its National Television Network, total and efficient coverage of the Island of Cuba...the third nation of the world in trade with the U.S., and first in Latin America." In fact, CMQ-TV, and even some of its lower-powered "repeater" stations made the hop to North American dipole antennas.

Early television DXer and WNLC New London, Connecticut, engineer, Randy Barrett, reported snagging the Havana video outlet when then-Channel 6 WNHC-TV (now WTNH-TV) in relatively nearby New Haven was off the air. Reportedly, he had a stack of station ID photographs snapped from the flickering light emanating from his small TV set, with several remarkably clear images of CMQ-TV.

By 1954, the CMQ-TV network was being joined by other commercial Cuban telecasters. *Radio Daily's* yearbook for that year chronicled some 23 authorized television stations for the island. Of this robust number, 14 were construction permits and yet to be built. When Castro's gang entered the picture, much of this entrepreneurial planning went the way of a tropical breeze. Castro saw to it that the National Television Network's motto, "In Cuba...Let CMQ-TV sell for you," became moot, as nobody was buying.

Coming Next Month

Among other things, next time we'll check out some AM and TV QSL cards from a 1960s to 1980s collection. They'll provide a springboard to reminisce about those stations. Until then, remember that you're more than welcome to e-mail me via the *Pop'Comm* website at <popular-com@aol.com>, or use regular mail to share your radio-TV recollections. You can write to me at Shannon Huniwell, c/o CQ Communications, 25 Newbridge Rd., Hicksville, NY 11801.

And so ends another day of broadcast history at Pop'Comm... ■

by Gordon West, WB6NOA

Emergency Locator Beacons Approved For Wilderness Land Use

This July 1, 2003, the Federal Communications Commission authorized the land use within the United States and its possessions of a personal radio locator beacon. This device is small enough to fit in a jacket pocket yet powerful enough to reach out to both orbiting and geostationary satellites during a call for help.

Ask any avid pilot or boater the importance of their emergency position-indicating radio beacon, their lifeline to help if the aircraft goes down or the boat suddenly sinks. Most fliers and sailors certainly know the value of having this "life insurance" aboard their craft, but few may have *any* idea about the space and ground networks that take these tiny VHF/UHF signals and extract position information from them. And there's a whole lot more that can be done with newer generation emergency radio beacons.

These new portable personal land emergency radio beacons will quickly impact ground search and rescue agencies and their already great homing skills to track the activated device down. Further, ground rescue groups will need to establish formal agreements with the Mission Control Center (MCC) and Rescue Coordination Center (RCC) to become an official team to track down an activated device on land.

"This winter we could expect hundreds, if not thousands, of personal radio locator beacons to be carried by cross-country skiers and snowmobilers in the mountains, and in a life-and-death emergency, we might have five or 10 activated beacons all going off at once. Who will be the responding search and rescue agency for this new type of personal radio beacon?" commented William Alber, a reserve deputy sheriff, pilot, and avid amateur radio operator who carries 121.5-MHz homing equipment aboard his personal aircraft.

"One huge benefit to the new personal radio beacon system is the equipment from ACR Electronics that could also upload a severely injured lone skier's position from their little GPS receiver that's also hanging on their belt," added Alber, further stressing the importance of rescue groups to have assigned areas on a beacon which also carries a specific GPS location.

The personal beacon weighs just over 16 ounces and mounts on your belt.

A Little History

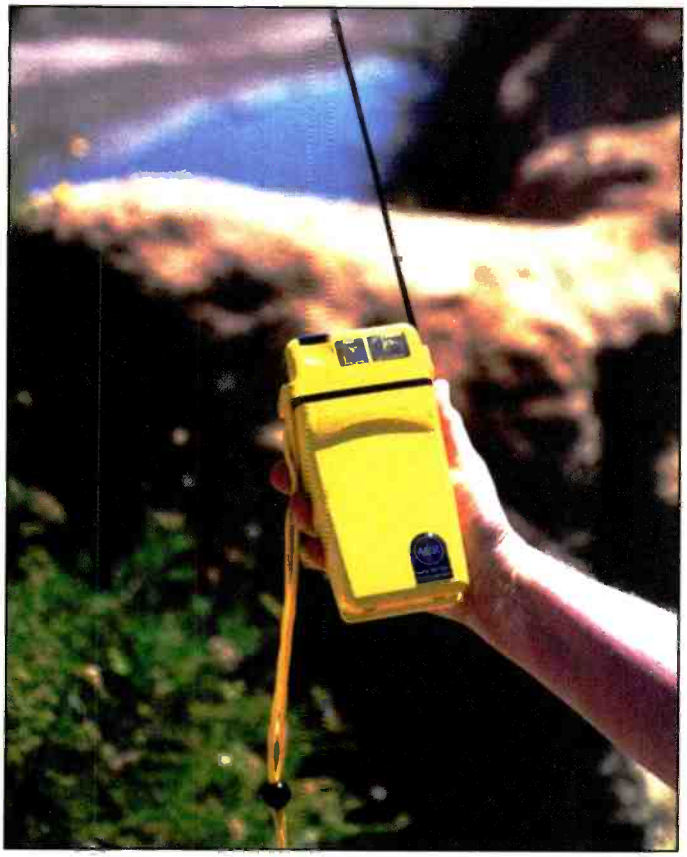
But let's take a moment to see all that has happened with Emergency Position Indicating Radio Beacons (EPIRBs) when they first came up on the air on 121.5 MHz and harmonic 243 MHz in the early '70s.

Those orange-colored emergency radio beacons became required equipment in certain military craft, commercial aircraft, and commercial boating. Private sailors and pilots who wanted added "life insurance" in case their plane went down or boat suddenly sank could also carry them.

The beacons would transmit a simultaneous 121.5-MHz and 243-MHz amplitude modulated sweeping tone, covering 400 to 1200 Hz, three times a second. Typical power output was only around a 1/4 watt, but strong enough to be received by any aircraft flying over the region. The signal would stay on the air for approximately one or two days. The key to getting rescued was having a pilot in the area report reception of the signal.

Early sailors who carried an EPIRB were always cautious to sail long routes where aircraft might continuously monitor the 121.5-MHz frequency for an activated beacon. Unfortunately, a commercial aircraft at 30,000 feet would only hear these faint signals within a 175-mile radius. And if they had the volume turned down, someone could be out of luck, big time!

The need for an ever-present listening and positioning system became apparent. Consequently, the COSPAS/SARSAT satellite system was developed a few years later to automatically fill in the gaps. The COSPAS/SARSAT system consisted of low-earth-orbit (LEO) weather satellites in near polar orbit. These satellites orbit the earth at a relatively high speed, an important component for Doppler shift position processing. Their polar orbit, and the perpendicular rotation of the earth relative to their track, allows these satellites to determine latitude and longitude by measuring the Doppler shift in frequency and the signal's strength. Due to low-orbit altitude, their view of earth is limited, creating a potential delay in detection. Moving



As long as the tape measure antenna has as "clear view" of the sky, the signals will reach the satellites.

at five miles per second, these LEO satellites can detect a signal in an approximately 1,300-mile radius. Over 12 hours, a single LEO satellite will see the entire earth.

Our COSPAS/SARSAT system began with four satellites (two American and two Russian) circling in different orbital planes. It could take several hours before a satellite came within view and, since the satellite was acting as a straight space repeater, an associated ground station would also need to be in view of the satellite hearing the activated EPIRB.

Sailors going on extended ocean voyages avoided sailing in any region where an associated land station might not have the mutual view of the passing LEO satellite. Although many new countries were coming aboard the COSPAS/SARSAT program with monitoring earth stations and sophisticated Doppler shift instrumentation, there were still many holes in cruising regions where an activated EPIRB and the satellite retransmitting the signal were only communicating among themselves.

The 121.5 MHz-only signal and its associated Doppler shift received by a ground station was still not enough on a single pass to determine an exact location of the activated distress radio beacon. It might take as many as three or four passes to finally come up with a five- or 10-mile circle of probability of where the signal was coming from. At this point, the local air rescue group would begin flying to the Doppler shift-determined rough position, then begin to pick up the 121.5-MHz sweeping signals from within a few miles of the activated beacon and, ultimately, direction-find the signal out on the high seas.

The same procedure worked in the early years for an activated air crash radio beacon: A fly-around determined the general area of the activated beacon, then ground searchers would come in with directional Yagi antennas and associated receiving equipment, and through-step attenuators ultimately tracked down the activated Emergency Locator Transmiter (ELT). A ham radio group with the Santa Barbara Amateur Radio Club in California regularly assists local authorities in tracking down activated beacons, both land and sea, in the local Santa Barbara area.

The Eighties And A New UHF Distress Frequency

In the '80s a new international UHF distress frequency, 406.025 MHz, was made available for emergency radio beacons. Its required frequency stability was better than plus or minus two parts per *Billion*—and that's billion with a capital "B." Power output from the 406.025-MHz beacon could be up to 5 watts, but this power output only transmits 520 ms at 400 bps every 50 seconds and was not intended for homing purposes. Rather, the purpose of the 406.025-MHz signal was satellite monitoring, alerting, and detection. This same equipment

The personal emergency locator beacon can withstand immersion for 30 minutes.

still carries the 121.5-MHz homing signal, and the signal is continuous as the 406.025 "burst beacon" only activates every 50 seconds for less than a half second. (Beacons sold after January 1, 2001, transmit on 406.028 MHz.)

The 406.025-MHz data burst is sent to LEO COSPAS/SARSATs as well as a relatively new geosynchronous GEOSAR satellite system covering almost all the world except for the extreme polar regions. Once the GEOSAR detects an activated 406.025-MHz EPIRB data burst, it processes the alert message almost instantly. Part of the data burst is an imbedded country code. A beacon with a U.S. country code will be routed to the United States Mission Control Center and to the National Oceanic Atmospheric Agency (NOAA). NOAA will add the beacon registration data to the emergency signal and create an alert message.

However, even though the distress alert is received without any major time delay in the mission, the 406.025-MHz burst by itself does not provide Doppler shift positioning capabilities. If a boater were sinking off Miami, Florida, two GEOSAR satellites, GOES East and GOES West would simultaneously pick up the signal, but the beacon could be off the coast of Nova Scotia, Florida, the West Indies, Chile, California, or British Columbia! It would take the Master Control Center to wait for a LEO pass on the 121.500-MHz signal to begin to develop lines of position. It takes the LEO COSPAS/SARSAT satellites to begin to feed this information in. Luckily, the 406.025-MHz calculations are stored in the satellite for later retrieval in case the satellite picks up the signal when it's simply out of range with an associated ground station. This means that a sailor down in the South Seas may still be found even though the beacon signal arriving at the LEO satellite is not line of sight instantly with a ground station. At 406.025 MHz, Doppler shift information is stored!

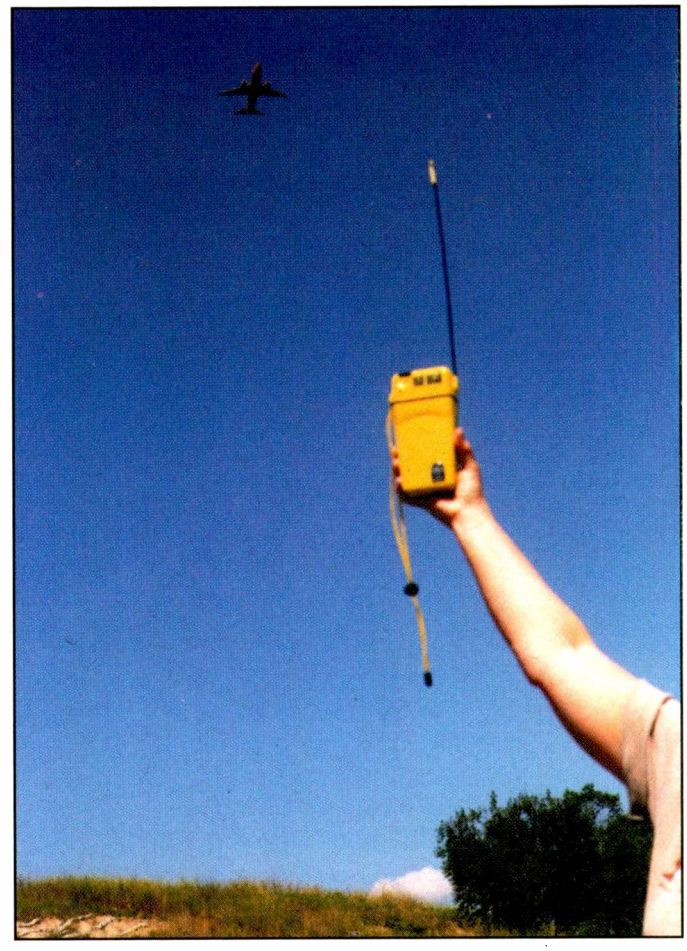
The 406.025-MHz signal, part of the new personal locator beacon transmission, contains not only the country code but also the information provided to NOAA by the owner of that device when he or she brings it home and fills out the registration. "The registration must absolutely be filled out and sent in to give the 406.025-MHz signal some geographic intelligence," said Alber.

The emergency message transmitted by the 406.025-MHz signal on any type of 406-MHz EPIRB provides identification of the transmitter through computer access of registration files maintained by the National Search & Rescue Secretariat or other national authority.

"It is the user's responsibility to fill out and mail the enclosed registration form to the appropriate agency of the country under which the EPIRB is registered," said Alber, pointing out that a non-registered 406-MHz received signal won't get an immediate phone call from the rescue agency.

Who do they phone? They phone the number indicated *on the registration form*. This phone number is a critical element in getting help fast. If you put down your own phone number and there is no one at the house to receive the phone call, they don't know if the unit was accidentally activated in your driveway or if you are freezing to death in a snow bank up in the Sierras. But if you put down the phone number to your answering machine that you have preprogrammed with, for example, "I am on my snow machine 60 miles north of Fish Lake, Maine...," this would give rescue agencies a very good idea that the call is an actual emergency.

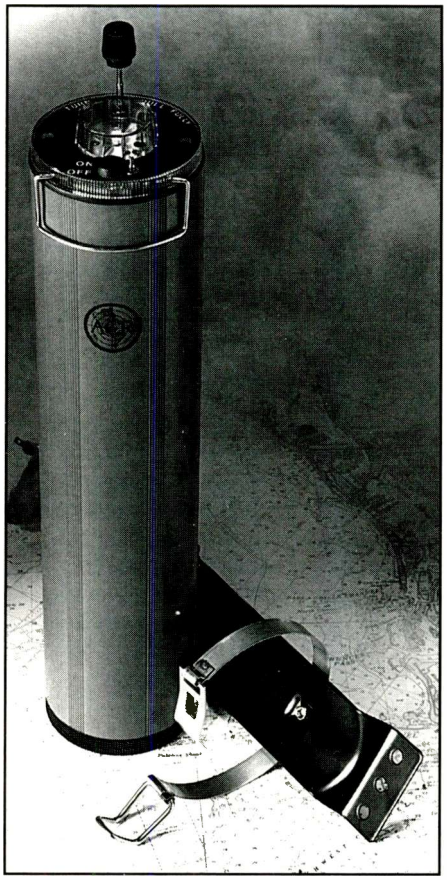
Think about it: what phone number would *you* put down that someone could call and, 24 hours a day, get information on what you might be doing and where you might be located on your upcoming outing with your brand new personal locator beacon. I like the answering machine idea the best because you can leave your own personal "help me" instructions in case the beacon is detected by a rescue agency.



Most aircraft dual-watch 121.5 MHz reporting any ELT beacon reception.

But it gets better still. Most adventurers who work out in the wilderness probably carry a GPS receiver, and almost all portable GPS equipment will output a datastream of latitude and longitude information. The new ACR personal locator beacon will accept external GPS data via an infrared interface cable that is included with the package. A three-page list of over 100 portable GPS receivers shows compatibility with most newer portable GPS devices. With a simple two-wire hookup you can add a new dimension for taking the "search" out of search and rescue when you activate your personal locator beacon: YOUR position, down to the radius of a half-mile circle, is also transmitted along with your country code and equipment-unique identification number to all your registration information on file. Even if your mother-in-law is not at home at the number you gave and can't tell them you took your snowmobile out on a partially frozen lake, they could still calculate your position as being somewhere not necessarily safe. Then help could start coming your way *without* having to wait for three or four LEO satellite passes!

The 406-MHz EPIRB tie-in to GPS is nothing brand new, but for a personal radio beacon, it is an absolute first. "The COSPAS/SARSAT system includes 36 LEOSAR land receive



Older EPIRBS were way too large for portable operation, nor were they approved for land use.

stations throughout the world, six GEOSAR land stations, and 19 Mission Control Centers that provide real-time as well as global-mode coverage for the northern hemisphere," said a spokesperson for ACR Electronics of Fort Lauderdale, Florida. We took some of ACR's equipment and worked a coordinated test for the United States Coast Guard with impressive results.

The ACR Electronics Locator Beacon

The ACR personal locator beacon does not require any formal FCC license registration, nor is there any monthly fee. This is an free international service. However, you MUST register yourself with NOAA, also free of charge. Again, in case of emergency, I suggest using your answering machine with information on your upcoming outing and noting that you have this equipment with you.

In preparation for use, you can self-test the device by momentarily moving the switch on the top of the unit to the test position, then release. During self-test, an actual satellite message is transmitted, while certain key performance parameters are measured and recorded. The self-test message is modified so the satellite won't forward an alert message during the test. The LED will flash amber three times before turning green and the unit will beep three times to indicate correct test status. Approximately two seconds after self-test, the ACR personal locator beacon will beep and an amber LED will flash to indicate if the unit has the GPS data signal in order to do the test. I strongly recommend that you regularly update your GPS position so if you accidentally slide down a mountainside and break your ankle, the last position will be current, not one that you memorized three weeks ago and five states away!

The unit has a tape-measure-type antenna that unfolds and moves into a vertical position. Polarization is not critical, but you do want the antenna to be in the clear. The beacon comes with a break-away tab on the "on" position to prevent accidental turn-on. You will hear a beep and the red LED will begin to flash once approximately every 20 seconds when the unit is actually sending a distress message. Each time it sends a 406-MHz data burst (approximately every 50 seconds) it will send another beep. To deactivate the EPIRB, simply switch it to OFF.

"The problem with trying to locate an activated ELT near an airport is the number of false activations on a regular basis," said Alber. This is confirmed by the United States Coast Guard and other rescue agencies who indicate over 99 percent of 121.5-MHz EPIRB activations are simply false alarms. With this *new* breed of emergency personal locator beacon, the 406.025-MHz data signal will confirm registration, possibly immediate location, and, from the database, give a phone number to see whether or not the owner of the beacon is indeed in a possible distress situation.

The personal locator beacon should only be activated in a life-and-death distress and as a last resort. No doubt thousands of these units will be sold by this winter. You can imagine the chaos that would result if they all start sending out distress signals with the operator simply temporarily lost or trying to figure out a way back to the campsite, These units are *not* intended for this purpose. Same thing is true about non-emergency situations like a snowmobile out of gas, or a skier waiting out a minor snowstorm in a cave. It must be a life-and-death emergency. A personal locator beacon should certainly be activated under any of the following circumstances:

- Totally lost in a snowstorm for three days
- Vehicle accident where no one knows you went off the cliff
- Skiing medical emergency with no chance of anyone coming across you soon
- Snowmobile accident leaves you stranded on a sheet of lake ice with no cell phone to call for local help
- Lost in the desert for days

You get the idea. We must not use up valuable satellite and air rescue resources of our sophisticated satellite system by calling for help if there is an alternative to get you out of the jam. Use this device as an absolute *last resort*. Remember, your emergency must be just as dire as an airplane crash with injuries onboard or a boat sinking right out from under you in the middle of nowhere. Don't use the personal locator beacon in the city, and only activate it if it is absolutely your last resort in an absolute life-and-death situation.

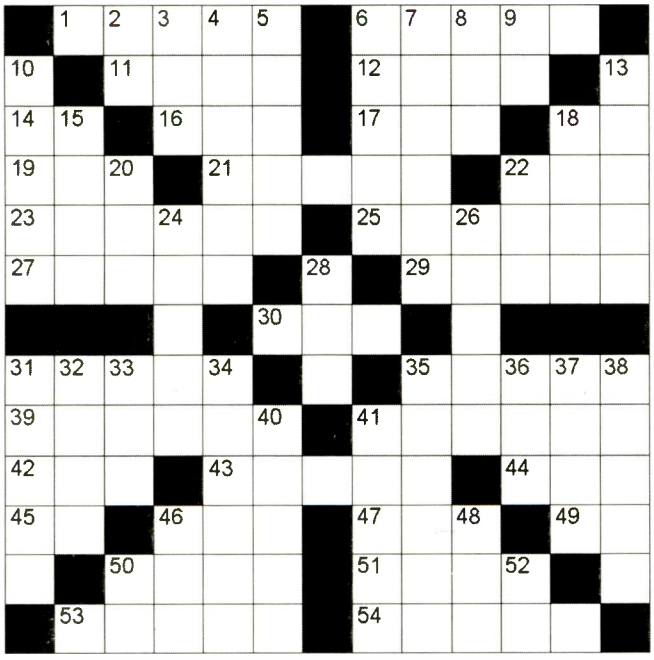
For more information, contact ACR Electronics at <www.ACRplb.com> or <www.ACRElectronics.com>. ■

the Pop'Comm puzzle corner

test your radio knowledge

by Eric Force <eric@dobe.com>

(RevSp = Reverse Spelling – e.g. "SPELLING" = "GNILLEPS" in puzzle)



ACROSS

1 Aircraft reporting system (RevSp)
6 Dielectric material (RevSp)
11 Copper ____ (circuit board)
12 About 079-101 Deg
14 CW abbr, Old Woman
16 Radio Republic of Indonesia
17 Vlaamse Radio en Televisie
18 "0 ____ 0" = True
19 Official Traffic Station (abvr)
21 Capt. Kirk's medical sidekick
22 Telephone keypad "4"
23 Phone company this type of carrier
25 Callsign, Air-Vanuatu (RevSp)
27 ITC Prefix AMA-AOZ (Country)
29 Callsign, TAROM Romanian Air Transport
30 Free MW DX Program (See page bottom)
31 Type of battery
35 RCA founder
39 CB 10-67, "All units _____" (RevSp)
41 "Cloud ____" (Vertical radiating antenna)
42 Wreath of flowers
43 FCC Country Code: HA (RevSp)
44 Airport, Columbia, SC
45 Bovine beast
46 Military Designation for Avionics (abvr)
47 Type of Transistor Logic
49 CW abbr, Concerning; Regarding
50 Amateur Radio Emergency Service (abvr)
51 aka Headphones
53 Increase wing curvature
54 Pop' Comm Pirate Radio columnist (RevSp)

DOWN

2 CW abvr, Ragchew
3 Radio Tirana, Albania
4 Resistor type, "____ film"
5 Absorbed atom
6 Resistor color code (#) Violet
7 Search and rescue satellite
8 Std Timezone, UTC -9 hours
9 Local time (abvr)
10 Depart quickly
13 King of Troy
15 AM 1500, Washington, DC
18 Area Code 216 here
20 Type of adapter
22 Airport, Grand Rapids, MI
24 A.R.R.L. founder (RevSp)
26 "____ware" (Computer program promised but not delivered)
28 30 Across
31 Popular bushing material
32 Holly
33 CW abvr, Copy
34 Portion of time (RevSp)
35 Callsign, Cathay Pacific Airways, Ltd. (RevSp)
36 The United Methodist Church (USA)
37 Field immediately surrounding an antenna
38 Resistor color code 5
40 Continuous Tone Controlled Squelch System
41 Phonetic "W" (U.S. Army 1916)
46 Amateur Radio Association (abvr)
48 Low Noise Amplifier
50 Area Code 205 here
52 About 125-146 Deg

THIS MONTH IN RADIO HISTORY "Fill-In"

On August 20, 1920...

P	I						I		G		A	M			I			N
					I			S				I				8	M	K	
	I			D					I			(	L						
			J	)		B		G						I	L	Y			
B							S		I		G	.							

Remaining letters:

AAAAAAAA CC DDD EEEEEE NNNNNN OOOOO RRRRRR TTTTTT WW

Solution: PIONEERING AMERICAN RADIO STATION 8MK IN DETROIT (LATER WWJ) BEGAN DAILY BROADCASTING.

Pop'Comm Trivia...

Housed in a modified Lockheed C-130 "Hercules" aircraft, I'm part part of the 193rd Special Operations Wing of the Pennsylvania Air National Guard and can broadcast on standard AM, FM, HF, TV and military communications bands. As such, I'm probably the world's most sophisticated mobile broadcasting station. Recently, I saw extensive duty in Afghanistan and Iraq.

What's my name and mission?

Ans: "Commando Solo", Psychological operations and civil affairs. More info at: http://www.fas.org/man/dod-101/sys/ac/ec-130e.htm

NEW! "Where's That Station" PC Program - Check It Out! - http://www.dobe.com/wts/

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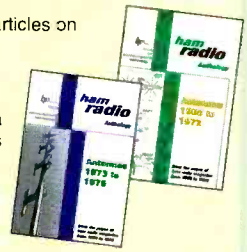

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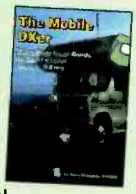

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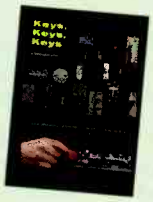

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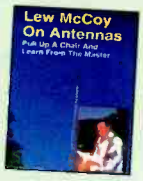

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broadcast technology

terrestrial AM, FM–and satellite radio news

by Bruce Conti <baconti@aol.com>

Post-War Broadcasting In Iraq

Under the autocratic regime of Saddam Hussein, access to broadcast media was strictly regulated. Now satellite television dishes are popping up everywhere in Iraq. Boom boxes and shortwave receivers are tuned to an explosion of radio activity. As Iraqi citizens seek to quench their thirst for freedom, broadcasters are anxious to fill the airwaves with news, information, religion, entertainment, and, of course, propaganda as various organizations jockey for position in the new democratic government.

Information Radio

The U.S. military's "Information Radio" continues to broadcast messages of cooperation with coalition forces and local authorities as order is restored in Baghdad and throughout the nation. Programming is from the same "Commando Solo" PsyOps (Psychological Operations) unit deployed during the Afghanistan war. Radio and television broadcasts are transmitted from aboard an EC-130 aircraft flying high over Iraq. A mix of Arabic music and announcements are broadcast on AM 690, 756, 9175, and 11292 kHz, and FM 100.4 MHz.

Television broadcasts under the name "Towards Freedom" have included an address from President Bush to the Iraqi people with Arabic subtitles. Information Radio broadcasts are expected to wind down as the military force is replaced by humanitarian efforts and terrestrial broadcasting is restored.

Radio Sawa

Broadcasting from the facilities of the Voice of America, Radio Sawa is geared toward a young audience, providing a mix of modern Middle Eastern music and western pop hits, plus news and information, serving the entire Middle East. According to its website, <www.radiosawa.com>,

Radio Sawa's logo.

> One of the guiding principles of Radio Sawa is that the long-range interests of the United States are served by communicating directly in Arabic with the peoples of the Middle East by radio. Radio Sawa seeks to win the attention and respect of listeners. In reporting the news, Radio Sawa is committed to being accurate, objective, and comprehensive.

Radio Sawa is on 990 and 1260 kHz from Cyprus and on 1548 kHz from Kuwait, as well as shortwave and several FM stations in the Middle East. The 600-kW signal on 1548 is often received by DXers in east coast North America. A competing clandestine signal called the Voice of Youth has been heard on Radio Sawa frequencies, perhaps intentionally jamming.

Radio Free Iraq

Radio Free Iraq is produced and broadcast from the facilities of Radio Free Europe and Radio Liberty in Europe. The primary mediumwave signal is at 1314 kHz in addition to several shortwave frequencies. Radio Free Europe continues its storied history of fighting for freedom of the press through Radio Free Iraq. A 1999 review of Iraqi media from the Radio Free Iraq website, <www.rferl.org/bd/iq/>, describes conditions prior to the fall of Saddam and the results of efforts toward freedom of the press,

> There is a death penalty for insulting the president and other officials. A media law prohibits coverage of 12 specific subjects. There was a slight improvement in media policies. The media lobbied to permit foreign media to report the plight of the Iraqi people under UN sanctions. For the first time since 1968, newspapers outside the B'aath party are published, though under hardship conditions. Three foreign broadcasting companies (BBC was banned for five years) have established offices. More than 14 satellite uplink stations have been set up without being directly censored. The Ministry of Information, however, closely monitors the content once aired. The possession of satellite dishes by private persons is illegal, and access to the Internet is not provided. Clandestine radio listening is flourishing. About 20 stations air alternative views throughout the country.

CIA Clandestines

There were at least three radio stations, or three separate programs from the same facilities, operated by the CIA during the war. Despite being named after Saddam Hussein's birthplace, Radio Tikrit was widely heard at 1584 kHz broadcasting anti-Saddam "Radio for All Iraqis" propaganda during the war. Various DXers monitoring signals in Iraq reported hearing the same announcer's voice as on Information Radio, indicating that it was indeed U.S. PsyOps responsible for the transmissions. Twin Rivers Radio (or Radio of the Two Rivers) and Al-Mustaqbal (The Future) were often monitored when Radio Tikrit was off the air. All were believed to be transmitted from either the Voice of America site in Kuwait or separate CIA facilities. Al-Mustaqbal broadcasts produced by the Iraqi National Accord actually began during the first Gulf War in 1996, and have been heard on 1557, 1575, and 1584 kHz. Programming

originated via satellite from covert studios located in Saudi Arabia and Jordan.

Shortly after the end of major combat operations was declared by President Bush, Radio Tikrit and Twin Rivers broadcasts were replaced by Radio Sumer with similar programming continued on 1584 kHz and satellite radio. Sumer is the region of southern Iraq at the Euphrates and Tigris Rivers, thus the twin rivers reference, where the first major coalition offensive of Operation Iraqi Freedom was launched.

Voice Of Iraqi Liberation

Originally reported on 1206 and 4025 kHz, the Voice of Iraqi Liberation is now being heard on 657 kHz from an unknown location in northern Iraq. Little is known about its political affiliation, although it is believed to be connected with northern Iraqi opposition groups, including the Patriotic Union of Kurdistan. According to the *2003 World Radio TV Handbook*, 1206 was formerly used by the Voice of the People of Kurdistan, while 657 once broadcast the Republic of Iraq Radio general service.

Communist Radio

The Iraqi People's Voice, also known as "Al-Tariq," and the Voice of Rebellious Iraq, represent factions of the Communist Party. The Voice of Rebellious Iraq is sponsored by Iran in support of a Shi'ite group, with transmissions known to originate from at least one Islamic Republic of Iran Broadcasting facility at 711 kHz, but more recently heard on 675 kHz.

Satellite Television

While Al-Jazeera continues to be the dominant Arabic news agency in the Middle East, the U.S. Congress has approved funds to provide an alternative perspective. "Iraq and the World" will broadcast news and analysis via satellite to Iraq and the Middle East, including rebroadcasts of NBC Nightly News with Arabic subtitles. Meanwhile, the BBC has partnered with Al-Jazeera, sharing news gathering facilities in Qatar and the region. In return, the BBC will assist Al-Jazeera with development of an English-language website, under construction at http://english.aljazeera.net/. The Kurdistan Satellite Channel is another one to watch, presenting daily newscasts from Kurdistan TV, and affiliated at least in some capacity with the Kurdistan Democratic Party.

New signals continue to be found in this rapidly evolving sociopolitical environment. The Shi'ite Radio Voice of Mujahedin at 720 kHz and the Voice of New Iraq (Iraq Media Network) at 1170 kHz are two stations recently discovered and reported by the Medium Wave Circle. (Mujahedin appears to have replaced the Voice of Islamic Revolution in support of Iran-sponsored Shi'ite opposition.) To keep up with all the latest, visit the Clandestine Radio Watch at <www.clandestineradio.com>, the Radio Netherlands Media Network at <www.rnw.nl/realradio/>, and DXing.info on the Internet. Of course, Gerry Dexter will keep you informed of current shortwave frequencies in his Global Information Guide and Clandestine Communiqué.

QSL Information

180 TRT4 Polatli, Turkey, e-mail QSL for reception Feb 19–20, 2001, after postal request was not answered. My e-mail request was sent to Sedef Somaltin (Ms.), Engineer, HFBC Frequency Management, International Technical Relations, Turkish Radio-Television Corporation, TRT Sitesi C Blok No: 525 Oran Ankara, <sedef.somaltin@trt. net.tr>. It took about three months for the e-mail response. (Renfrew, NY)

1640 WTNI Biloxi, Mississippi, friendly letter in 10 days for a taped report, signed Joel Robertson-CE. Mentioned that station is 10/1 kW ND running a Harris DX10 transmitter and a 350-foot tower with a T Network antenna. They get into Arkansas and Georgia very well in the mornings. Address: Mississippi Media WTNI, 1909 East Pass Road, Suite D11, Gulfport MS 39507. This is only my third Mississippi catch and QSL. That is a tough state for some reason. (Martin, OR)

Broadcast Loggings

All times are UTC.

535 GBC St. George's, Grenada, at 0143 a boy-band vocal (style of NSync, Backstreet Boys), best signal out of this one in quite a while. (Connelly, MA)

550 KCRS Midland, Texas, at 1122 with the Dr. Dean Edell program. ID as "News/Talk 550, KCRS." (Griffith, CO)

550 WSAU Wausau, Wisconsin, at 0149 a weak signal with interference from several stations, heard ID and University of Wisconsin sports coverage. (Ressler, OH)

760 ZYH588 R. Uirapuru, Fortaleza, Brazil, at 0031 inspirational talk by man and woman in Portuguese, then a reverberated announcement that may have been advertising; dominant over a pile of others. (Connelly, MA)

950 WWJ Detroit, Michigan, at 0415 a fair to weak signal, "We are live, local, and committed to breaking news," and CBS news. (Ressler, OH)

999 COPE Madrid, Spain, at 0101 parallel 882 kHz with a woman in Spanish, punchy booming audio; very good, stronger than adjacent 1000-kHz stations. (Connelly, MA)

1020 KOIL Plattsmouth, Nebraska, at 1005, "The country music you love, Koil Country, 1020." New call, formerly KKSC. (Griffith, CO)

1020 KINF Roswell, New Mexico, at 1104, ABC news, then "At 4 minutes past the hour KINF presents another hour of uninterrupted music from the past 60 years." Combination of oldies and nostalgia. Fighting it out with KOIL at near equal signal strength. (Griffith, CO)

1070 CBA Moncton, New Brunswick, at 0600, CBC ID, mention of "Public radio from around the world," then Radio Sweden program. Excellent signal with no co-channel interference and the strongest Canadian Maritime signal by far. (Chiochiu, QC)

1100 ZYK694 R. Globo, Sao Paulo, Brazil, heard at 0105 frenetic Portuguese talk with reverb; dominant, slight het from something on 1100.7 and from the 1098-kHz transatlantic signals. (Connelly, MA)

1120 WKQW Oil City, Pennsylvania, heard at 1904 fair to good with CNN news, "The Big Talker, AM 1120 KQW." (Ressler, OH)

1130 WDFN Detroit, Michigan, at 1420 fair, "Sportsradio 1130, The Fan," and promo for weekday morning news on sister station 1310 WXDX. (Ressler, OH)

1150 KCUV Englewood, Colorado, at 1200, still parallel with KNRC 1510, IDs as "AM 1150, KNRC," then at 1204, "KNRC Littleton, KCUV Englewood." The morning show host instructed everyone to retune to the new and improved signal on 1150. An e-mail from one of the engineers indicates that 1150 is prepared to begin IBOC digital: "The exciter is installed and we

PENDING

New Call	Location	Freq.	Old Call
WYHG	Young Harris, GA	770	WZCM
WAMC	Albany, NY	1400	WHTR
WEPN	New York, NY	1050	WEVD
KEBN	Garden Grove, CA	94.3	KMXN-FM
KQEI	North Highlands, CA	89.3	KEBR-FM
WYAB	Yazoo City, MS	93.1	WMGO-FM
KCVD	Salem, MO	91.7	KYMR
WWSR	Rockwood, TN	105.7	WOFE-FM

CHANGES

WBUB	Atmore, AL	1620	WPNS
WTID	Jasper, AL	1240	WARF
WIRB	Level Plains, AL	1490	New
KMIA	Black Canyon City, AZ	710	KUET
KCIK	Blue Lake, CA	1450	New
KVIN	Ceres, CA	920	KLOC
KYNS	San Luis Obispo, CA	1340	KGLW
KLOC	Turlock, CA	1390	KVIN
WXCT	Southington, CT	990	WNTY
WLVJ	Boynton Beach, FL	1040	WJNA
WFFL	Delray Beach, FL	1400	WPBI
WPTK	Pine Island Center, FL	1200	WINK
WJNA	Royal Palm Beach, FL	640	WLVJ
WSOS	St. Augustine Beach, FL	1170	WKLN
WSRQ	Sarasota, FL	1450	WSPB
KHBC	Hilo, HI	1060	KAHU
KJPN	Pearl City, HI	1380	MDR
KQXI	Meridian, ID	890	New
KMGG	Jonesboro, LA	920	KTOC
WMII	Manistique, MI	650	New
WPNW	Zeeland, MI	1260	WWJQ
KOWZ	Waseca, MN	1170	KOWO
KYDZ	Bellevue, NE	1180	KOIL
KOIL	Plattsmouth, NE	1020	KKSC
KKNS	Corrales, NM	1310	KBTK
KOCY	Chickasha, OK	1560	KWCO
KPNS	Duncan, OK	1350	KXCD
KRDM	Redmond, OR	1240	New
WLOA	Farrell, PA	1470	WPAO
WWGE	Loretto, PA	1400	WBZV
WDEP	Ponce, PR	1490	WZUR
WGCV	Cayce, SC	620	WTGH
WPCH	North Augusta, SC	1380	WGUS
WTNK	Hartsville, TN	1090	WJKM
WCKD	Lebanon, TN	1490	New
KYNG	Denison-Sherman, TX	950	KKLF
KXXT	Wylie, TX	700	New
WROU	Petersburg, VA	1240	WGCV
WBEI	Reform, AL	101.7	WTID
WMXV	Russellville, AL	103.5	WKGL
KMXM	Colorado City, AZ	107.1	KZNZ
KJIK	Duncan, AZ	100.7	KSAF
KSZR	Oro Valley, AZ	97.5	KOAZ
KJMY	Hope, AR	101.7	KTXO
KDJE	Jacksonville, AR	100.3	KQAR
KLEZ	Malvern, AR	101.5	KISI
KMSX	Maumelle, AR	94.9	KOLL
KPSL-FM	Bakersfield, CA	92.1	KIWI
KBXO	Coachella, CA	90.3	New
KFRP	Coalinga, CA	90.7	New
KIWI	McFarland, CA	102.9	KPSL-FM
KVRV	Monte Rio, CA	97.7	KMGG
KDLE	Newport Beach, CA	103.1	KSSD
KFYV	Ojai, CA	105.5	KKBE
KYOE	Point Arena, CA	102.3	New
KGDP-FM	Santa Maria, CA	90.7	New
KDLD	Santa Monica, CA	103.1	KSSC
KTKE	Truckee, CA	101.5	New
KFHL	Wasco, CA	91.7	New
KTAH	Steamboat Springs, CO	88.5	New
KTAD	Sterling, CO	90.3	New
KTUV	Sterling, CO	90.7	New
WXLM	Stonington, CT	102.3	WUXL
WTZB	Englewood, FL	105.9	WSRQ
WJSJ	Fernandina Beach, FL	105.3	WXGV
WSJF	St. Augustine Beach, FL	105.5	WYGV
WLCL	Canton, GA	105.7	WMXV
WWBM	Yates, GA	89.7	New
KHIK	Keaau, HI	105.1	New
WPMJ	Chillicothe, IL	94.3	WCNL
WDRS	Dorsey, IL	89.5	New
WYNG	Mount Carmel, IL	94.9	WKRI
WYGS	Columbus, IN	91.1	New
WCDQ	Crawfordsville, IN	106.3	WVXI
WJLT	Evansville, IN	105.3	WYNG-FM
WWLV	New Carlisle, IN	102.3	WZUW
KSSH	Ingalls, KS	96.3	KBGU
WEKF	Corbin, KY	88.5	New
WIVY	Morehead, KY	96.3	WIKO
WYPY	Baton Rouge, LA	100.7	WTGE
KQLK	DeRidder, LA	97.9	KAOK-FM
WOPR	Lacombe, LA	94.7	WXXF
WPRF	Reserve, LA	94.9	WXXM
WRMO	Milbridge, ME	93.7	New
WSMA	Scituate, MA	90.5	New
WMCQ	Muskegon, MI	91.7	WZMU
KOWZ-FM	Blooming Prairie, MN	100.9	KOWZ
KCRV-FM	Caruthersville, MO	105.1	KLOW
KEHT	Great Falls, MT	100.3	KRYZ
KHBQ	Kalispell, MT	88.7	New
KYWH	Lockwood, MT	88.9	New
KBQQ	Pinesdale, MT	106.7	KSXZ
KJBL	Imperial, NE	102.9	KURK
KQMC	Hawthorne, NV	90.1	New
KWID	Las Vegas, NV	101.9	KFMS-FM
WKNE	Keene, NH	103.7	WKNE-FM
WWFP	Brigantine, NJ	90.5	New
KRMQ-FM	Clovis, NM	101.5	New
WAMC-FM	Albany, NY	90.3	WAMC
WBAB	Babylon, NY	102.3	WBAB-FM
WXPK	Briarcliff Manor, NY	107.1	WYNY
WOXL-FM	Biltmore Forest, NC	96.5	WOXL
WLHC	Robbins, NC	103.1	New
WWTB	Topsail Beach, NC	103.9	WZXS
KCJL	Lincoln, ND	88.5	New
WDJO	Greenville, OH	106.5	WBKI
WLWD	Van Wert, OH	93.9	WSMJ
WWLS-FM	Bethany, OK	104.9	KQBL
KSYY	Kingfisher, OK	105.3	WWLS-FM
KCXR	Taft, OK	100.3	KHJM
KTMK	Tillamook, OR	91.1	New
WUSE	Fairview, PA	93.9	WRPL
WMVL	Linesville, PA	101.7	WVCC
WZLT	Lexington, TN	99.3	WYNG-FM
KLBT	Beaumont, TX	88.1	New
KVLZ	Gatesville, TX	98.3	KASZ
KINV	Georgetown, TX	107.7	KTND
KDXX	Granbury, TX	106.7	KDXT
KESS-FM	Lewisville, TX	107.9	KDXX
KMHT-FM	Marshall, TX	103.9	KZEY-FM
KEQX	Stephenville, TX	89.7	New
KVLW	Waco, TX	88.1	New
KPLD	Kanab, UT	101.1	KHUL
KAER	St. George, UT	89.3	New
KZBD	Spokane, WA	105.7	KAEP
WBVQ	Barrackville, WV	93.1	WVUC
WLKN	Cleveland, WI	98.1	WKTT
WDMO	Durand, WI	95.9	WJRV

are now getting the iBiquity software loaded. From there it's proving that everything is working to specs for the FCC. Should have a daytime digital signal emitting within the next 30 days. The 1150 signal has been a major improvement over the 1510 signal. We did the engineering right though. Replaced everything from the ATUs, to transmitters to phaser to grounding system." (Griffith, CO)

1180 CMBA Radio Rebelde, Villa Maria, Cuba, at 0432 with old-fashioned song way under WHAM, but very clearly parallel with 5025 SW 60 meters, which was huge! Later at 0526 even better with talk followed by a salsa song, way over WHAM then rapidly fading down leaving WHAM virtually alone. (Chiochiu, QC)

1200 WOAI San Antonio, Texas, at 0158, ABC news followed by local report, "San Antonio's home for news, traffic, weather, and Dallas Cowboys football." (Ressler, OH)

1270 WXYT Detroit, Michigan, at 0301 with a strong signal, some interference, Sporting News Radio, USA news, and "Sports Team 1270" slogans. (Ressler, OH) (*Recently increased power to 50 kW—b.c.*)

1320 CKEC New Glasgow, Nova Scotia, at 0607 playing "Here I Am" by Bryan Adams. Very strong and clear signal with relatively minor interference from WATR. (Chiochiu, QC)

1410 WDOV Dover, Delaware, at 0400 good; in dogfight with NHL game between Anaheim and Dallas presumably on WPOP. Top of the hour call and city ID with local ads, then into CNN news. (Hochfelder, NJ)

1450 WWHS Glenn Falls, New York, at 0200 heard nostalgia and light pop music, then legal ID followed by ABC news. Generally strong and all week. The recent solar disturbances made the graveyard channels very clear, generally speaking. (Chiochiu, QC)

1470 WMBD Peoria, Illinois, at 0347 a good signal, Bradley University sports coverage, "Newsradio 1470 WMBD," and promo for weekday stock reports. (Ressler, OH)

1520 KRHW Sikeston, Missouri, at 0545 a good signal, modern country gospel music, "Solid Gospel AM 1520 KRHW," and Dr. James Dobson promos. (Ressler, OH)

1557 France Info, Nice, France, heard at 0307 loud and clear in peaks with news in French by alternating man and woman. Best signal in LSB to avoid WQEW splatter. (DeLorenzo, MA)

1580 KRZI Waco, Texas, at 0215, Rangers vs. Yankees play by play, ad for local carpet company, and full ID with mention of Central Texas and ending with "You're tuned to News/Talk Radio 1660 and 1580 AM, KRZI." Should have been on 500-watt night power at this time. I tried the 1660 outlet and it was not heard. (Griffith, CO)

1620 WDHP Fredriksted, St. Croix, U.S. Virgin Islands, at 0008 mention of affiliated stations including WAXJ-FM, then jingle, followed by male reggae vocal; good. (Connelly, MA)

1670 WTDY Madison, Wisconsin, at 0625 a rebroadcast of "The Oliver North Show," interference from WRNC, "The Light." (Ressler, OH)

1680 WTTM Princeton, New Jersey, at 0647 a strong signal, Indian music, hosted by a female Eurasian DJ. (Ressler, OH)

1690 WPTX Lexington Park, Maryland, at 0030 a strong signal with CNN Headline News, "Southern Maryland's news source." (Ressler, OH)

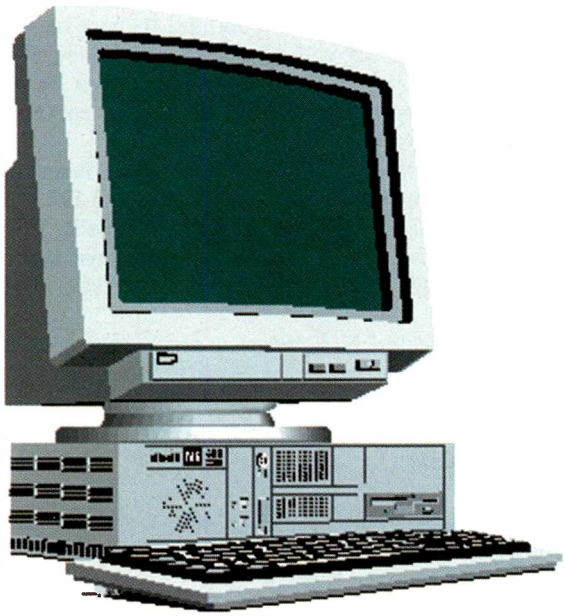
Many thanks to Bogdan Chiochiu, Mark Connelly, Marc DeLorenzo, Patrick Griffith, David Hochfelder, Patrick Martin, Jim Renfrew, and Lawrence Ressler.

For now, 73 and good DX! ■

computer-assisted radio monitoring

by Joe Cooper <joe@provcomm.net>

Intro To Computer Networks—Part II



Last month I outlined how to set up a simple local area network (LAN) that would be suitable for use with home computers. Rather than being a complex task requiring a lot of background knowledge and skill, it is actually very easy to hook up two or more computers using today's simplified hardware and software.

As I pointed out, a basic home LAN is made up of properly installed and configured networking cards, cables, an optional switch or network hub, and the built in software that comes with your Microsoft Windows operating system. If you just sit down and read over the manuals before starting off and have a good plan as to what you are going to be doing, you could have two computers connected together in a little under an hour (though as the saying goes, results may vary).

Assuming that you have successfully set up a home network, and one of the computers is now connected to a monitoring radio in some way (either directly via a serial cable or via the computer's sound card) how are you going to use the LAN with the radio? That's what I'm going to be looking at next.

Data Transfer Protocols

Before moving into actual applications of computer-assisted radio monitoring, you should first understand what takes place on the LAN. Again, this is not that complicated and you don't have to know every little detail about your LAN in order to make it work.

It's actually not that difficult to move data from one computer to another. Back in the early days of personal computing, people often transferred files and data using a special serial cable called a null modem cable. You would hook the cable between the two computers and use what is known as a terminal program to establish contact.

The terminal program dates back to the early 1980s and is still provided as part of the Windows operating system. If you go to Start>Programs>Accessories>Communications, you will find a program called HyperTerminal by Hilgraeve which is very simple to operate. This program allows you to make a simple data link between the two computers over a null modem cable so you can either type a simple text message between them or transfer a data file.

This is done by the use of one of several connection *protocols*, which are simply an agreed upon method by which each computer says when it is starting to send information and when it has stopped. This can also include a method of checking the accuracy of all of the data sent, which can include a request that information be sent again if it is not correct.

The real point here is that what makes a LAN different from using serial ports is that there is no need to make a special connection between two or more computers. The LAN does this automatically so you don't have to think about it. The data, when it is transferred has to find its own way, so to speak, between the computer that it is sent from and the one that it is going to.

This is why the whole issue of giving a computer connected to a LAN a name and address is so important. As I'll outline next, it is through the use of names and addresses that data is able to move quickly and accurately from one computer another, regardless of the number of computers on the LAN (or at least up to a reasonable number for a small practical system).

Names And Addresses On LANs

If all has gone well in setting up your LAN, you will have defined all the computers that are connected together under an umbrella name called a "workgroup," and then given each individual computer its own "name." It's important to know the name of an individual computer because most software programs that share information between computers over a LAN will need that information to work properly.

Once the LAN is connected together and the software applications know how to connect to each computer, practically any kind of data can be sent from one computer to another. It does not matter if you are sending voice, music, video, or computer files, the information will be reliably sent and received.

What makes this all possible is a special protocol for a LAN called TCP/IP, which stands for Transmission Control Protocol/Internet Protocol. This is the foundation that connects people and allows them to share information.

You don't need to be a computer programmer or a network guru to understand how to use TCP/IP, no more than you need to know how your telephone system works in order to make a

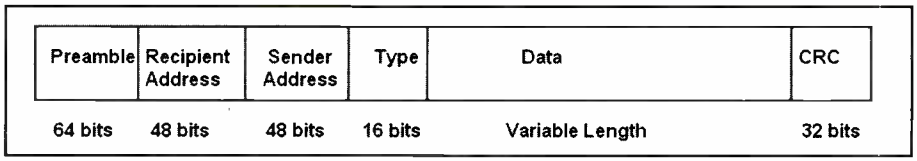


Photo A. This is a schematic of a data packet, showing the header (preamble, addresses, and type) and the trailer (CRC or error correction). As you can see, the data is packaged in with this information. When this information is placed into the LAN, the address information is used find the correct computer in the system to deliver it to. Likewise that computer knows where the information came from.

call. Frankly, I could spend an entire year of computer columns explaining the details of TCP/IP and still have lots of topics left over.

Suffice it to say that the most important thing for you to understand is that the main purpose of any data transfer protocol is to enable data from one computer to successfully find its way to another. The only difference between doing this using serial cables and a LAN is that by using TCP/IP the data can find its way from one computer to another on its own.

Moving Data Across The Network

TCP/IP accomplishes this by first taking the data (again it can be voice, video, files, etc.) and chopping it up into a specific number of small bits of information. In each case the number of bits is always the same, no matter what.

Next, each group of bits is sandwiched between what is called a header and a trailer. These are more bits of information that contain very specific information. (See **Photo A**.) The header contains a means of identifying the addresses (or names) of the computers that the data is coming from and going to. This information is used to navigate the collected bits of data through the LAN.

The trailer does two things: it marks off the end of the chunk of data and it is also used to see if the data contains the correct information. If the information that makes up this specific group of bits has become corrupted or contains the wrong information, the computer that has received it can send a request back to the original computer to send a replacement.

In computer terms, the chunk of data of specific length, along with its header and trailer, is called a packet. The best way to think of a packet is as a school of minnows: it's made up of individual minnows, each with its own identity (address) and destination (another computer's address), but which will try to arrive as a group.

So when data heads off into a LAN they "go looking for" their destination, checking with each computer until they find it. If the system uses a switch (or router) that device can check the header on each packet and send it directly to the proper computer (making the trip faster).

Let's take a look at a practical example of how to move data across a network in order to see how this is accomplished in the real world.

Setting Up The Radio And Computer

What I am going to show you next is a simple but practical example of how you can effectively use your home LAN to transfer the audio of a compatible radio to any computer in the LAN with a sound card connected to speakers or headphones.

What's interesting about this method is that it can also be used on the Internet. You could tune up a compatible radio at home to a specific frequency and listen to it from any Internet-connected computer with a sound card.

Remember, though, that all this setup will allow you to do at this time is listen to whatever signal the radio is tuned to. You can't use this network method to tune the radio; I'll explain how to do that in a future column.

You will also need to run a software program supplied with the Windows operating system, called NetMeeting, to transfer sound from one computer to another. I'll explain how this is done in the next section.

First you will need to connect the audio output of your radio to the mic input of your computer's audio card. The simplest and most desirable way to do this would be to plug a compatible cable between the radio's line-out into the sound card. (See **Photo B**.) Using line-out, rather than the speaker output, provides a constant audio output that is better suited for controlling the volume you hear out of your computer sound card. Also, you still want to be able to monitor the sound at the radio for tuning to a signal, which would not be possible if you used it as the input sound for the computer.

Another important reason for using the line-out is that it is most often electrically isolated from the radio through a built-in isolation transformer. This will prevent damaging current (or static or power line spikes) from getting into the sensitive computer circuitry.

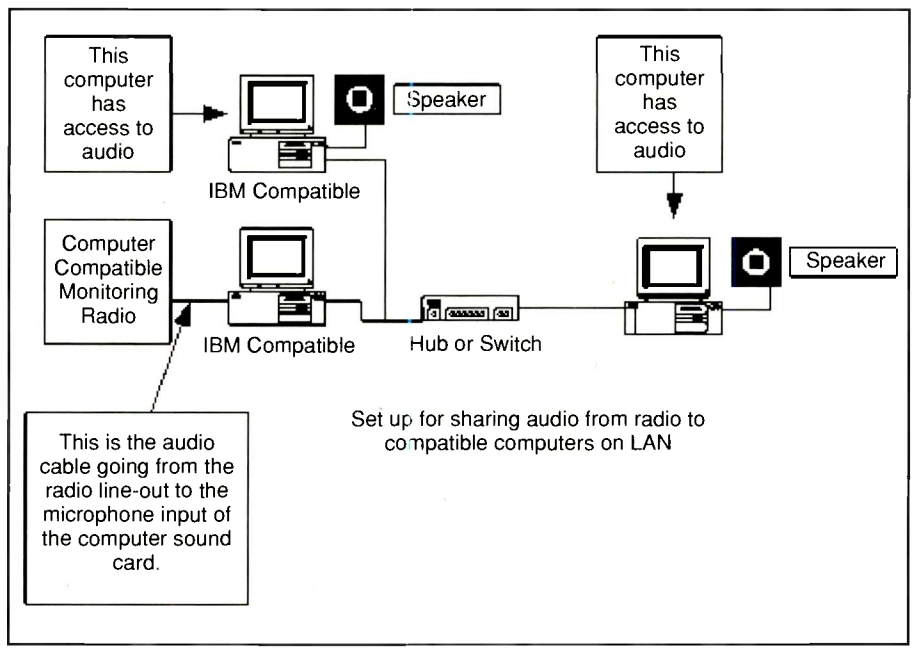


Photo B. The layout for hooking up the radio's audio to a network (LAN).

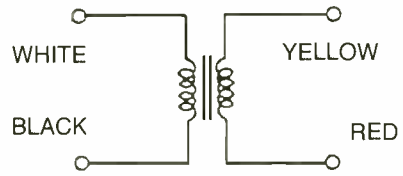


Photo C. This is the schematic for a 1:1 isolation transformer, sold by RadioShack for under $5. The positive wire of the cable would be soldered to the white or yellow wires, while the outer ground shield would be soldered to either the black or red wires. You can get more information by going to RadioShack's website at <www.radioshack.com> and searching under CAT#273-1374. They have technical notes for the product at the site.

For the same reason, don't try to connect the audio to the computer by soldering a cable across the radio's speaker lugs (or some other variation of this same idea). If you're stuck and don't have a line out, look at **Photo C** for a simple but effective means of electrical isolation. It shows an inexpensive isolation transformer that you can solder into a cable (which will have to be cut) that can then be used with the normal speaker output of your radio.

Once you have properly connected the cables between the radio and the microphone input of the computer's audio card you can start the NetMeeting program to share the audio with other computers.

Using NetMeetingTo "Pipe" Sound

NetMeeting is a utility program that allows one or more people to communicate with each other over a network or the Internet. When the software starts running you will see the user interface for the program, as shown in **Photo D**. You should note that it supports many different types of media, including audio, video, chat (text), and file transfer.

You can locate this program on your Windows operating system by this procedure:Start>Programs>Accessories>Communication>NetMeeting. Start the program by clicking once on its icon.

Before going into the actual technique of transferring sound from one computer to the next over a network, let's first take a look at how to connect two computers to begin with.

To make the connection you will need to have the NetMeeting program running on two computers: the one that is going to have the sound card connected to the radio's audio output and the other with a sound card and speakers.

With both computers running the programs, go to the computer that is attached to the radio. Go to the pull down menu item called "Call" and click on it. Among the menu items you will see "Automatically Accept Calls." Click on it. If you open the "Call" pull-down menu you will see that there is a check mark beside the item you clicked on.

Turn on the radio and then go to the pull-down menu item called "Tools" and click on it. Select the "Audio Tuning Wizard" item by clicking on it and following the instructions.

If you have followed the instructions properly the computer should be ready to send audio to another computer. When you're ready, go to the computer that you want to use to listen to your radio.

Take a look at the NetMeeting program running there and you will notice an icon in the upper right hand corner that looks like

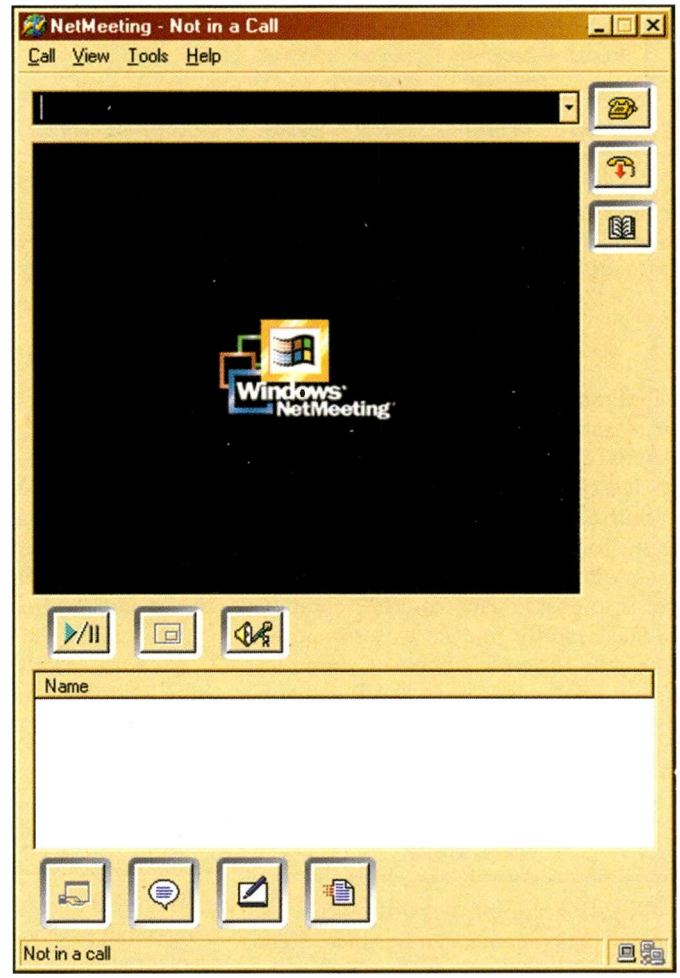


Photo D. This is the user interface for Microsoft's NetMeeting program. The white box labeled "Name" is where the name of a computer on a network would be displayed. The large black area is where video is displayed. Note the speaker and microphone symbols, which are used to control the audio input and output.

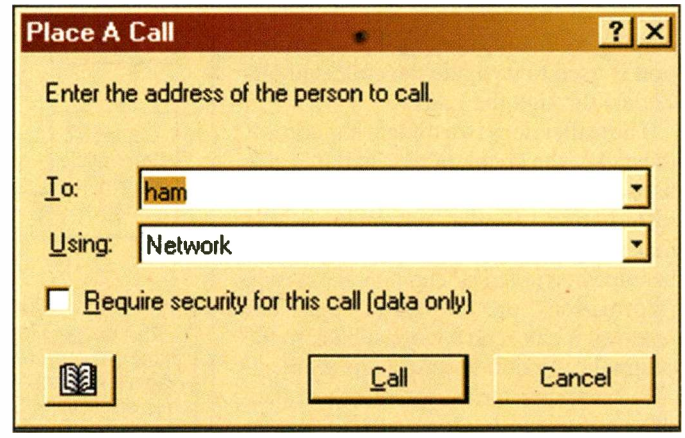


Photo E. This shows the dialog box that you use to connect to another computer when running NetMeeting. Here is where the naming of a computer on a network starts having practical use. You could also use a numbered address, such as 193.168.1.100 (just an example), instead of a name. I'll cover this in more detail in future columns.

a telephone (see **Photo E**). If you click on this icon you will see a new pop-up active window called "Place A Call." There are two fields ("To:" and "Using:") that you will use to connect one or more computers to another. In the To: field, type the name of the computer that you want to connect to. In the Using: field, click on the downward arrow to see three options: Automatic, Network, and Directory. Select Network and then click on the button labeled "Call."

You will see a new pop-up window indicating that the computer is trying to connect with the other through the network. When the connection is made, you will be notified and the main screen will show the names of the two computers that have connected to each other.

More importantly you will hear the sound of the radio playing over the speakers of the second computer. If you have a third (or more) computer with soundcard and speakers connected to the network, you can also have it play the radio's sound.

The sound you hear will not be high fidelity because it is being digitally "sampled" from the source and re-assembled. Unlike analog sound, where you hear everything, sampling does just what its name implies—it takes selected bits of the sound and converts them into digital data rather than sending along all of the information. This method keeps the amount of data on a network down to a minimum so that the system is not overwhelmed. There are techniques that can be used to improve the quality of the sound, such as data compression, which I'll be looking at in future columns.

Wrapping Up

The approach outlined here is an excellent starting point for learning about home networking, digital sampling of audio, computer addressing, and network operations. In future columns, I'll be looking at techniques for pre- and post-processing the audio sound, plus actually tuning and controlling the radio.

As I have said before, the best way to learn computer control techniques is to look at them as modules, then use them like building blocks to create a complex system. As you've seen, while the main techniques are relatively simple, they do become very detailed, so don't forget to keep a notebook and make good records of everything you do. I'd also suggest that you label your cables, or at least color-code them and make a record of them. There is nothing worse than trying to fight with a bunch of cables that all look the same and seem to go nowhere.

The other point to remember is that if things don't work the first time, go back over each step carefully. Don't forget to check the help files or manuals of the software and hardware either, as they do contain valuable information.

Remember, too, that this and the last column were overviews, rather than detailed instructions, that will point you in the general direction towards a goal. Take your time and read the instructions provided with your network/soundcard hardware and software, as well as the NetMeeting program.

Don't forget that computer-assisted radio monitoring is an experimental hobby where the best lessons often come from mistakes and failure. Everything we are doing today with computers and radios is brand new and we are as much pioneers as were the original radio hobbyists of the 1920s.

Next Month

In an earlier column, I asked about your experiences with putting together a computer-assisted radio monitoring station. Next month I'll be sharing with you the first contribution, from Charles W. Hinkle. Charles has been kind enough to put together his story along with some interesting pictures of his shack. I hope his story will inspire other people to share their experiences as well.

Later on I'm going to be returning to the topic of network control of radios and looking at some exciting developments taking place in the software field. I'll touch on remote monitoring over the Internet, as well as scanning using multiple radios under network control. I also intend to profile the new digital mode of audio transmission that's going to be used on both the AM broadcast and shortwave bands. This is truly the long-awaited marriage of traditional radio and modern computers that will take us into the 21st Century.

Please e-mail or write to me with ideas, comments, and suggestions. The e-mail address is <carm_popcom@hotmail.com> and my mailing address is "Computer Assisted Radio Monitoring," C/O Joe Cooper, PMB 121, 1623 Military Rd., Niagara Falls NY 14304-1745

Don't forget that I cannot answer general questions about computers, software, or operating systems, but I will do my best for any questions about the content of the column or computer-assisted radio in general. Thanks again and I hope that the information provided here helps you get more out of your computer and monitoring radio than you ever thought possible.

the propagation corner

by Tomas Hood, NW7US
<pc-prop-man@hfradio.org>

up-to-the-minute forecasts helping you get the most from the radio spectrum

The Summer Anomaly

One would think that here in the Northern Hemisphere the Maximum Usable Frequencies (MUFs) would be higher during the summer than during the winter. With more hours of daylight, wouldn't the increased exposure to solar radiation cause greater ionization? Yet, a look at many signal paths reveals that there are higher peaks during the winter daytime than during the summer. However, during summer nights, those same paths have higher MUFs than during winter nights. This is known as "the Summer Anomaly."

It was believed that this anomaly was in part caused by temperature differences. This model held that during the Northern Hemisphere's winter months the atmosphere is cold and, therefore, denser, and that because the earth is closer to the Sun, more intense daytime ionization occurs; thus, winter daytime critical frequencies are high. During the long hours of winter darkness, on the other hand, the ionosphere has more time to recombine, and nighttime critical frequencies fall to very low levels.

Conversely, in the summer the F_2 layer heats up, causing it to expand during the daylight hours, resulting in a lower ionization density than is observed during the winter. This, it was believed, creates summer daytime F_2-layer critical frequencies that are lower than winter values. Moreover, because of the longer hours of daylight during the summer, recombination does not occur to the extent that it does in winter. This would mean that nighttime F_2-layer critical frequencies during the summer months are significantly higher than they are during the winter months.

As scientists continue to explore the phenomena, our understanding of how the ionosphere works becomes ever more accurate and clear. Research has revealed that the reason summer MUFs are lower during the day is due only in part to temperature differences. The rest of the story lies in ion chemistry, not a thinning of the ionosphere.

In the lower part of our atmosphere, below 100 km, atoms and molecules are well mixed by wind and temperature. Above 100 km, atoms and molecules are distributed vertically by gravity according to their atomic weights. The heaviest atoms (argon) settle toward the bottom of the ionospheric layers, while the lightest atoms (hydrogen) extend to the greatest heights. The exact composition depends on temperature. In the winter, when atoms and molecules are colder, they move lower, in part causing the ionosphere to contain a greater density of oxygen atoms. During the summer, they move to greater heights as they warm up, and the ionosphere becomes dominated by a more even mixture of nitrogen and oxygen molecules. In this upper atmosphere, ionization is more affected by the geomagnetic field than by atmospheric turbulence.

Ionization is the creation of ions by atoms losing their electrons. This is caused by the energy of photons from sunlight breaking the electron away from the atom. In the absence of sunlight, these free electrons recombine with whatever nearby molecule or atom happens to be available. Electrons do not always recombine with the relatively small number of positive ions available; they may also become attached to some of the far more numerous neutral molecules, forming negative ions. This is a great thing for those who DX the lower part of the HF spectrum, as these electrons are not disassociated from the negative ions very quickly during the morning sunlight. Since these negative ions are more massive than electrons and positive ions, they do not absorb radio energy. This makes a morning window for low-band DXing.

During the summer, then, the ratio of atoms to molecules is less than the ratio during the winter. The make-up of the ionosphere during the winter favors the production of electrons from oxygen atoms over the loss of electrons by recombination in molecular interactions. Since the summer ionosphere has a mixture of nitrogen and oxygen molecules, more recombination takes place, and the ionosphere loses some of its ionization. If one looks at a given summertime signal path and compares it with the same path during the winter, it is clear that the MUF will generally peak higher in the winter. However, the nighttime critical frequencies will generally be higher than in summer nighttime.

I took a look at the published propagation charts in *QST* for 1981. I compared January's charts to July's. Sure enough: for the most part, most paths show a higher MUF in January than in July. The average was higher in July, but the peak was higher in January. I then ran some IONCAP (Ionospheric Communications Analysis Prediction) sessions with January and July of this year, using the same smoothed sunspot number for each month. The same general result proved that this summertime anomaly exists.

I did note, however, that those paths that cross the North Pole region did have higher MUFs in the summer (due to the greater amount of sunlight at the pole during the summer, as compared to no sunlight during the winter). It also appears that some paths that span the equator and exist in both the winter hemisphere as well as the summer hemisphere averaged about the same for both months in question.

Current Solar Cycle 23 Progress

The 10.7-cm observed monthly mean solar flux for April, as reported by the Dominion Radio Astrophysical Observatory at Penticton, British Columbia, Canada, was 127, down from March's 164. The 12-month smoothed 10.7-cm flux centered on October 2002 is 160.

The world's official keeper of sunspot records, the Royal Observatory of Belgium, reports an observed monthly mean sunspot number of 60 for April 2003, about the same as for March. The 12-month running smoothed sunspot number centered on October 2002 is 159. The sunspot minimum for April 2003 was 16 on April 16. The sunspot maximum of 109 occurred on April 29.

The observed monthly mean planetary A Index (Ap) for April is 20, up a point from an Ap of 19 for March. The 12-month

smoothed Ap index centered on October 2002 is 16.

A smoothed sunspot level of 51 and a 10.7-cm solar flux of about 103 are predicted for August 2003. Geomagnetic storming will be much the same as we had during July.

HF Propagation

Propagation on the higher frequencies will fluctuate less drastically during August, as the hours of sunlight are quite long and the ionosphere has very little time to recombine during the hours of darkness. Higher HF frequencies are going to be unusable over most paths, but when Sporadic-*E* (*Es*) openings occur, expect good domestic signals. These *Es* openings will be strong at times and fairly common, but might be short-lived.

Nineteen and 22 meters will compete with 16 for the best daytime DX band during August. Broadcasters know that the summer daytime MUFs are higher than during the winter, so they move their scheduled broadcasts up in frequency. These bands will open for DX just before sunrise and should remain open from all directions throughout the day, with a peak in the afternoon. Nighttime conditions will favor openings from the south and tropical areas. Look for gray-line propagation from Asia, with long-path common from southern Asia, the Middle East, and northeastern Africa, as well as the Indian Ocean region via the North Pole.

The 25- and 31-meter bands have an incredible amount of activity since many broadcasters target their audiences during prime times (morning and early evenings) in the target areas. Expect 11 MHz to be an excellent band for medium distance (500 to 1,500 miles) reception during the daylight hours. Longer distance reception (up to 2,000 to 3,000 miles) should be possible for an hour or two after local sunrise, and again during the late afternoon and early evening. Heavy congestion will occur here, too, as many international and domestic broadcasters make use of 25 meters.

The backbone of worldwide shortwave broadcasting, 31 and 41 meters, will provide medium distance daytime reception ranging between 400 and 1,200 miles. During August, reception up to 2,500 miles is possible during the hours of darkness, and until two to three hours after local sunrise. Forty-one and 49 meters should still be best for worldwide DX from sunset to sunrise. Early evening and into darkness, increasingly longer paths develop, up to several thousand miles. As propagation conditions don't change much on the lower HF bands through the solar cycle, a high number of HF broadcasters rely on these bands. International and domestic broadcasts compete with amateurs on the 41-meter band and also with each other. This makes for a lot of interference, especially during the late afternoon and evening hours, making reception of weak, exotic signals a bit more of a challenge.

Don't expect any improvement in nighttime DX conditions on 41 through 120 meters during August, since we are not yet close enough to the seasonal decrease in the static levels of winter. The 5-, 3-, and 2-MHz shortwave bands are

The Ap Index And Understanding Propagation Terminology

The Ap index, or Planetary A index, is a 24-hour averaging of the Planetary K index. The Planetary K index is an averaging of worldwide readings of earth's geomagnetic field. High indices (Kp > 5 or Ap > 20) means stormy conditions with an active geomagnetic field. The more active, the more unstable propagation is, with possible periods of total propagation fade-out. Especially around the higher latitudes and especially at the Polar Regions, where the geomagnetic field is weak, propagation may disappear completely. Extreme high indices may result in aurora propagation, with strongly degraded long distance propagation at all latitudes. Low indices result in relatively good propagation, especially noticeable around the higher latitudes, when transpolar paths may open up. Maximum K-index is 9, and the A-index can exceed well over 100 during very severe storm conditions, with no maximum.

Classification of A-indices is as follows:

A0–A7 = quiet	A30–A49 = minor storm
A8–A15 = unsettled	A50–A99 = major storm
A16–A29 = active	A100–A400 = severe storm

Solar Flux (SFI): This flux number is obtained from the amount of radiation on the 10.7-cm band (2800 MHz). It is closely related to the amount of ultraviolet radiation, which is needed to create the ionosphere. Solar Flux readings are more descriptive of daily conditions than the Sunspot Number. The higher the Solar Flux (and, therefore, the higher the Sunspot Number), the stronger the ionosphere becomes, supporting refraction of higher frequencies.

Ionosphere: A collection of ionized particles and electrons in the uppermost portion of the earth's atmosphere, which is formed by the interaction of the solar wind with the very thin air particles that have escaped earth's gravity. These ions are responsible for the reflection or bending of radio waves occurring between certain critical frequencies with these critical frequencies varying with the degree of ionization. As a result, radio waves having frequencies higher than the Lowest Usable Frequency (LUF) but lower than the Maximum Usable Frequency (MUF) are propagated over large distances.

Sunspot Number (SSN): Sunspots are magnetic regions on the Sun with magnetic field strengths thousands of times stronger than the earth's magnetic field. Sunspots appear as dark spots on the surface of the Sun. Temperatures in the dark centers of sunspots drop to about 3700° K (compared to 5700° K for the surrounding photosphere). This difference in temperatures makes the spots appear darker than elsewhere. Sunspots typically last for several days, although very large ones may last for several weeks. They are seen to rotate around the sun, since they are on the surface, and the sun rotates fully every 27.5 days.

Sunspots usually occur in a group, with two sets of spots. One set will have positive or north magnetic field while the other set will have negative or south magnetic field. The field is strongest in the darker parts of the sunspots (called the "umbra"). The field is weaker and more horizontal in the lighter part (the "penumbra").

Galileo made the first European observations of sunspots in 1610. The Chinese and many other early civilizations have records of sunspots. Daily observations were started at the Zurich Observatory in 1749; continuous observations were begun in 1849.

The sunspot number is calculated by first counting the number of sunspot groups and then the number of individual sunspots. The "sunspot number" is then given by the sum of the number of individual sunspots and 10 times the number of groups. Since most sunspot groups have, on average, about 10 spots, this formula for counting sunspots gives reliable numbers even when the observing conditions are less than ideal and small spots are hard to see. Monthly averages (updated monthly) of the sunspot numbers show that the number of sunspots visible on the sun waxes and wanes with an approximate 11-year cycle.

For more information, see <http://prop.hfradio.org>.

Optimum Working Frequencies (MHz) - For August 2003 - Flux = 103, SSN = 50 - Created by NW7US

UTC TO/FROM US WEST COAST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	24	24	24	23	21	19	17	16	15	14	13	12	12	15	17	19	20	21	22	23	24	24	24	24
NORTHERN SOUTH AMERICA	31	31	30	28	25	23	21	20	18	17	16	15	15	17	21	23	25	26	28	29	30	30	31	31
CENTRAL SOUTH AMERICA	31	28	26	24	22	20	19	18	17	16	15	17	16	19	23	25	27	29	31	32	32	33	33	32
SOUTHERN SOUTH AMERICA	28	24	21	20	18	17	16	16	15	14	14	14	13	16	19	22	25	27	28	30	31	32	32	30
WESTERN EUROPE	14	11	10	10	10	14	16	12	11	11	15	17	18	19	20	20	21	21	21	21	20	19	18	17
EASTERN EUROPE	10	10	10	9	13	16	15	11	11	10	10	14	17	18	19	20	20	20	19	18	17	15	11	11
EASTERN NORTH AMERICA	28	27	27	25	24	22	20	18	17	16	15	14	16	19	22	24	25	26	27	28	28	28	29	28
CENTRAL NORTH AMERICA	16	15	15	15	14	13	12	11	10	9	9	8	8	10	11	13	14	14	15	15	16	16	16	16
WESTERN NORTH AMERICA	8	8	8	8	8	7	7	6	5	5	5	4	4	4	5	6	7	7	8	8	8	8	8	8
SOUTHERN NORTH AMERICA	26	25	25	24	23	22	20	18	17	16	14	14	13	14	17	19	21	22	23	24	25	25	26	26
NORTHERN AFRICA	16	15	14	13	12	11	14	12	12	11	15	17	18	19	20	21	21	22	22	22	22	22	20	19	17
CENTRAL AFRICA	18	17	16	15	14	15	16	14	11	14	16	17	18	19	20	20	20	21	21	21	21	21	21	20
SOUTH AFRICA	19	18	17	16	15	15	15	16	15	14	13	15	19	21	23	25	26	26	27	27	26	24	22	20
MIDDLE EAST	13	12	11	13	16	17	15	11	11	10	10	15	17	19	20	20	21	21	21	20	18	16	15	14
JAPAN	22	23	23	22	22	21	20	19	17	15	14	13	12	11	12	13	12	12	11	15	17	19	20	21
CENTRAL ASIA	23	23	23	22	22	21	20	19	17	14	13	13	12	11	13	17	18	17	16	15	14	15	18	21
INDIA	18	19	19	19	19	18	17	15	11	10	10	10	13	10	10	10	9	9	9	11	15	16	17	18
THAILAND	18	21	22	22	21	21	20	19	17	14	13	12	11	11	16	18	19	19	17	16	15	14	14	16
AUSTRALIA	30	32	33	33	33	32	31	30	27	25	23	21	19	18	17	16	17	16	15	15	17	22	26	28
CHINA	21	22	22	21	21	20	20	19	17	15	12	12	11	14	16	15	14	13	12	11	13	16	18	20
SOUTH PACIFIC	33	33	33	33	32	30	28	24	21	19	18	17	16	15	15	14	14	14	13	23	27	30	31	32

UTC TO/FROM US MIDWEST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	28	27	27	25	23	21	19	18	16	15	14	14	15	18	20	22	23	25	26	26	27	27	28	28
NORTHERN SOUTH AMERICA	28	28	28	25	23	21	19	18	17	16	15	14	14	17	20	22	23	25	26	27	27	28	28	28
CENTRAL SOUTH AMERICA	31	28	26	23	22	20	19	17	16	16	15	16	18	21	24	26	28	29	30	31	32	32	33	32
SOUTHERN SOUTH AMERICA	28	23	21	20	19	17	16	16	15	14	14	14	16	18	21	24	26	28	29	30	31	32	32	30
WESTERN EUROPE	17	15	13	11	14	13	12	12	11	13	16	18	19	20	21	21	21	21	21	20	20	19	19	18
EASTERN EUROPE	11	10	10	10	9	15	12	12	11	15	17	18	19	20	21	21	21	21	20	19	18	17	15	11
EASTERN NORTH AMERICA	20	20	19	18	17	15	14	13	12	11	10	10	12	14	16	17	18	19	20	20	20	21	21	20
CENTRAL NORTH AMERICA	9	9	9	9	8	7	7	6	6	5	5	5	5	6	7	8	8	9	9	9	9	9	9	9
WESTERN NORTH AMERICA	16	16	15	15	14	13	12	11	10	9	9	8	8	9	11	13	14	14	15	15	16	16	16	16
SOUTHERN NORTH AMERICA	18	18	17	17	16	15	13	12	11	11	10	9	9	11	12	14	15	16	17	17	18	18	18	18
NORTHERN AFRICA	20	19	17	16	15	14	13	12	12	11	15	17	19	20	21	22	23	23	23	23	23	23	23	22
CENTRAL AFRICA	19	17	16	15	14	14	13	12	12	11	15	18	19	20	21	22	23	23	23	23	23	23	22	20
SOUTH AFRICA	19	17	16	16	15	14	14	20	19	17	17	19	23	25	28	29	31	32	31	28	26	23	21	20
MIDDLE EAST	14	13	12	11	14	13	13	12	11	13	17	18	20	21	21	22	22	22	22	21	19	17	16	15
JAPAN	22	22	22	21	20	19	17	15	14	13	12	11	12	15	14	13	12	12	11	15	18	19	21	21
CENTRAL ASIA	22	22	21	21	20	19	17	15	13	12	12	11	14	17	19	20	19	17	16	15	14	15	18	21
INDIA	13	15	16	17	18	17	15	12	11	11	15	17	18	18	17	16	15	13	10	10	10	9	9	9
THAILAND	18	20	21	20	20	19	17	15	12	12	11	15	17	18	19	20	21	19	18	16	15	14	14	15
AUSTRALIA	31	32	33	33	32	31	29	26	24	22	20	19	18	17	18	18	17	16	15	15	18	23	26	29
CHINA	21	21	21	20	19	18	17	15	12	12	11	15	17	18	17	15	14	13	12	11	13	16	18	20
SOUTH PACIFIC	33	33	33	32	31	29	27	21	19	18	17	16	15	15	14	14	13	13	16	25	28	30	32	33

UTC TO/FROM US EAST COAST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	22	22	21	19	17	16	15	14	13	12	11	11	13	15	17	18	19	20	21	21	22	22	22	22
NORTHERN SOUTH AMERICA	25	25	24	21	20	18	17	15	14	14	13	12	14	16	18	20	21	22	23	24	25	25	25	25
CENTRAL SOUTH AMERICA	30	27	25	23	21	19	18	17	16	15	15	17	20	22	24	26	28	29	30	31	31	31	32	31
SOUTHERN SOUTH AMERICA	27	23	21	20	18	17	16	16	15	14	14	14	18	21	23	25	27	28	30	30	31	32	31	30
WESTERN EUROPE	15	13	12	12	11	10	12	11	11	14	16	18	19	20	21	21	21	21	21	21	20	19	19	17
EASTERN EUROPE	11	10	10	10	13	13	12	11	11	15	18	19	20	21	22	21	21	21	21	20	19	18	17	14
EASTERN NORTH AMERICA	10	9	9	8	8	7	6	6	5	5	5	5	6	7	8	8	9	9	9	10	10	10	10	10
CENTRAL NORTH AMERICA	21	21	20	19	17	16	15	13	13	12	11	11	13	15	17	18	19	20	21	21	22	22	22	21
WESTERN NORTH AMERICA	28	28	27	26	24	22	20	18	17	16	15	14	16	19	22	24	25	26	27	28	28	29	29	29
SOUTHERN NORTH AMERICA	22	22	21	21	19	17	16	14	13	12	12	11	12	15	16	18	19	20	21	21	22	22	22	22
NORTHERN AFRICA	21	19	18	16	15	14	14	15	14	15	19	21	23	25	26	27	28	28	28	28	27	26	25	23
CENTRAL AFRICA	19	17	16	15	14	14	15	15	14	15	19	21	23	25	26	27	28	28	27	27	27	25	22	21
SOUTH AFRICA	18	17	16	16	15	14	14	18	17	16	17	21	23	26	27	29	30	31	31	28	25	23	21	20
MIDDLE EAST	18	16	15	14	14	14	13	12	11	14	17	19	20	21	22	23	23	23	23	23	23	23	21	19
JAPAN	22	21	20	19	17	15	14	13	12	11	12	16	17	15	14	13	12	12	11	15	18	19	21	21
CENTRAL ASIA	21	21	20	18	16	14	13	12	12	11	15	17	19	20	21	21	19	17	16	15	14	14	18	21
INDIA	10	9	9	9	14	13	12	11	11	15	17	19	20	20	20	19	19	18	18	17	15	12	10	10
THAILAND	17	20	19	17	14	13	12	12	11	14	17	19	20	21	21	22	22	20	18	17	16	15	14	14
AUSTRALIA	32	33	32	31	30	27	25	23	21	19	18	17	16	19	18	17	16	15	15	14	19	24	27	30
CHINA	20	20	19	18	15	14	13	12	11	13	16	18	20	19	18	15	14	13	12	11	12	16	18	19
SOUTH PACIFIC	33	32	32	31	28	26	24	18	17	16	15	15	14	14	13	13	13	13	20	26	29	30	32	32

used mostly in designated tropical areas for domestic broadcasting. The entire 4-MHz band is set aside for domestic broadcasting in Asia, and some of this band is used throughout Europe. On all of these bands, during daylight, reception should be possible from up to 500 miles away. After sunset, until an hour or so after sunrise, reception of signals from 1,000 to a possible 2,000 miles away is possible. There will still be a high level of static during August, so these bands will be a challenge to those looking for long-distance DX of exotic tropical stations. The best time to search for these would be just before sunrise and an hour or so after daylight.

VHF Conditions

Es propagation is still expected to provide DX on the lower VHF spectrum. Statistical studies show that a sharp increase in *Es* propagation takes place at mid-latitudes during July and August. Short-skip propagation over distances ranging between approximately 600 and 1,300 miles should be possible on as high as 50 MHz, and an occasional surprise *Es* opening as high as 150 MHz could happen during periods of intense *Es* ionization, with stations up to 1,300 miles away. While *Es* short-skip openings can take place at just about any time of the day or night, statistics indicate that conditions should peak for a few hours before noon and again during the late afternoon and early evening. Openings may last from a few minutes up to hours.

In The Hospital

At the end of April, I took a road trip, during which I ate rather poorly and not very often. I felt tired most of the time, and was quite stressed out. I made it back home after the trip late Saturday night, exhausted, and I slept most of the next day. When I awoke Monday morning, I felt pain the likes of which I have never experienced in my life. I wondered how women could endure the joys of childbirth. I could not handle the pain. My wife took me to the emergency room.

The doctor immediately decided to test my blood and inject two medications. It took a while, but I finally began to feel like I could live again. Then the doctor came into the room with the news that my blood sugar was at 389. He decided to admit me into the hospital and confirm that I was diabetic. They shot me with insulin and drew gallons of additional blood.

What an experience! I never thought that I would become a diabetic. My mom was diagnosed years ago. My brothers are fine. Why would I get it? The whole thing was traumatic. As I began to learn more, I realized that for the last three years, I showed signs of diabetes. I never slept well and, lately, had the need to wake up almost every hour. My days were horrible, as I always had fatigue. My skin was dry and itchy, and my vision often blurry. I just discounted all of those symptoms with the idea that I was simply "stressed out."

Now, with medication and a change in my eating habits (like eating four smaller meals spread through the day), my sugar stays below about 180. Often, now, I am right in a normal range (about 70 to 110). Yeah, I have had to change a lot in my life. I have to test my sugar. I don't have to take insulin, though, just some pills during the day.

Why am I telling you this? In order to be a good communicator, shortwave listener, friend, family member, and citizen, you must be healthy. Go get a physical. It does not take a lot to have a checkup. You will find that if you have a hidden health problem, the earlier you find out and take care of it, the better off you and those who love you and enjoy your presence will be. Do it now.

I've been getting favorable comments from some of you, and I appreciate your questions. If you have any topics that you would like me to explore, please drop me a letter or send an e-mail. If you're an amateur radio operator, you might find me on the HF bands. I hope to hear from you. Happy DXing!

Until next month, 73. ■

global information guide

listening to what your world says every day

by Gerry L. Dexter

HCJB Discontinues English Programming To Europe And North America

As everyone is probably aware of by now, the shortwave community has taken another major hit. HCJB discontinued all of its English language programming to Europe and North America at the end of May, including the popular "DX Party Line," which was the oldest and longest running DXers' program. Supposedly, the main motive behind this change is to allow the station to focus more on its work in Latin America, but there are surely enough hints in the announcement to lead one to believe that money and budget played a significant role as well. (We sense the BBC mentality at work here.)

The new in-country transmitter site, once destined to replace the long-time site at Pifo, isn't going to be constructed after all, although the station is keeping the property as an option for some point down the road. They would like to receive your comments about all this—or at least the people at DX Party Line would—but they also say the decisions are final (so why bother?) Our view of the whole situation is short and sweet: pfui!

On a more positive note, Bahrain appears to have reactivated its shortwave service, using their old frequencies of **6010** and **9745**. If they are also following their former schedule, they'll be active from 0300 to 2115 (and, indeed, now appear to run until 2130). They were a very difficult catch when they were last active during the early to mid-'80s, and there's no reason to think things have changed much.

Another station returning to shortwave is **XEQM** in Merida, Mexico. They'll be carrying the programming of mediumwave 970-XEMH, Candela Tropicalimente, and/or their FM counterpart. It's been heard in Europe around 1130 but appears to be on the air around the clock, so late evenings local time may give everyone a good opportunity to hear this one. The station's address is Sistema RASA, Apartado 217, 97000 Merida, Yucatan, Mexico.

U.S. religious broadcaster **WJIE** is moving ahead with its expansion abroad. It has tested its new Liberian facility (on **11515**) so that station may now be fully active. The Liberian transmitter is one of three formerly used by FEBA in the Seychelles Islands. One of the other transmitters will be used in the United States and the third will go on the air from the Marshall Islands, which we mentioned a couple of months back. Unfortunately we couldn't "marshal" enough recall power to remember that there was, in fact, another station active from the Marshals after the armed forces station there closed down at the end of WWII. A station called WSZO was on from the Marshall Islands in 1987 but it was only active for a year or two.

Another new one from Peru is **Radio Macedonia** on **4890** from Arequipa. This one was still putting all the pieces together, but by now it may have all cylinders clicking. We're guessing that this station may be an easier log than the average low-band Peruvian.

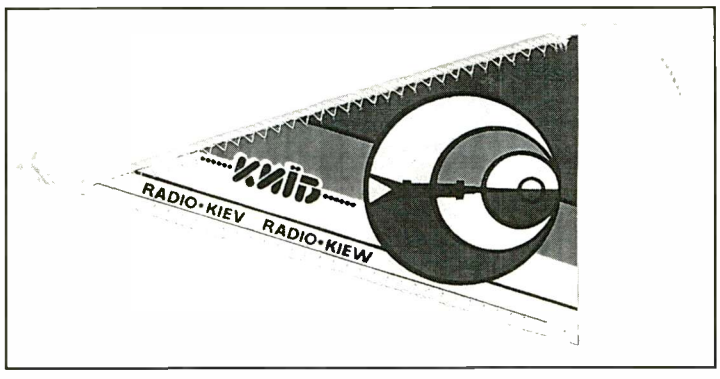
Equatorial Guinea on **5005** is said to be putting in good signals again, apparently the result of a new transmitter having been installed by Chinese engineers. Try it around 0500.

The **Radio Nigeria** regional outlet at Enugu (**6025**) is off the air, probably for good.

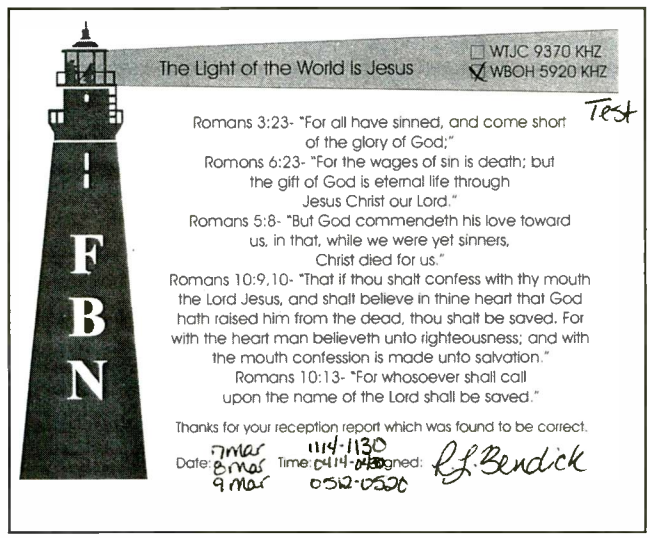
In an effort to conserve electricity, both **Radio Norway** and **Radio New Zealand** have cut power output from their transmitters by half; Norway down to 250 kW and New Zealand to 50 kW. New Zealand has also cut back on its schedule. The move by RNZI is said to be quite temporary, while Norway's situation is destined to last for the rest of the year.

Our book winner this month **Ray Paradis** in Pittsfield, Maine. Ray receives a copy of the "Official Shortwave Log and Call Book"—a reprint of a 1933 magazine, which listed then-active stations. It's a really nice dose of nostalgia and history from Tiare Publications Group, publishers of *Limited Space Shortwave Antennas* and "*Cop Talk!* More info on these books can be found at <www.tiare.com>.

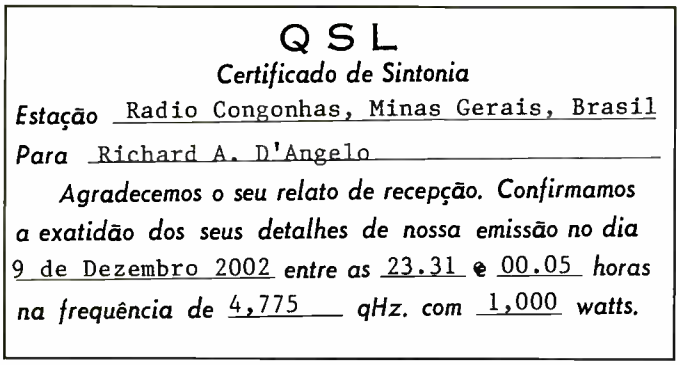
Here's our usual plea for your logs. Please remember to list



Here's a very nice pennant sent to D'Angelo by Radio Kiev.



The new religious broadcaster WBOH, part of the Fundamental Broadcasting Network, sent a QSL for its pre-launch test broadcasts. (Thanks to Rich D'Angelo)



Q S L

Certificado de Sintonia

Estação Radio Congonhas, Minas Gerais, Brasil

Para Richard A. D'Angelo

Agradecemos o seu relato de recepção. Confirmamos a exatidão dos seus detalhes de nossa emissão no dia 9 de Dezembro 2002 *entre as* 23.31 *e* 00.05 *horas na frequência de* 4,775 *qHz. com* 1,000 *watts.*

Brazil's Radio Congohas sent this QSL card to Rich D'Angelo in Pennsylvania.

them by country, double space between each, and include your last name and state abbreviation after each one. We're also seeking QSL cards, pennants, and station photos for use as illustrations—and that includes what has become a rare treat—photos of you in your shack How about it?

Here are the logs. All times are in UTC. Double capital letters (FF, SS, RR) are language abbreviations (French, Spanish, Russian, etc.). If no language abbreviation is shown the broadcast is assumed to be in English (EE).

AFGHANISTAN—Radio Afghanistan, **18940** (via Norway) in unid language at 1400. (Paradis, ME) 1525 in Dari. (Charlton, ON) Pashto or Dari at 1541. (Foss, Philippines)

ALBANIA—Radio Tirana, **7160** at 0355 with ID and sign off. (Burrow, WA) **7270** at 0320 with folk songs and anmts in Albanian. (Brossell, WI) **9540** with Albanian history feature at 2251. (Miller, WA)

ANGUILA—Caribbean beacon with Dr. Gene Scott, **6090** at 0133. Again at 0618 in parallel to **5935** (WWCR) and **5755** (KAIJ) (MacKenzie, CA) **11775** at 1520. (Newbury, NE) 6090 at 0137 and 11775 at 1850. (Charlton, ON)

ANTIGUA—BBC relay **5975** at 0150. (MacKenzie, CA) 0200. (Newbury, NE) 2304. (Charlton, ON) **15100** at 1630 with soccer. (Paradis, ME) **15190** at 1310. (Brossell, WI) Deutsche Welle relay, **9670** at 0529 and **15410** at 2140. . (Newbury, NE)

ARGENTINA—Radio Rivadavia/Continental, **29810** at 1521 with soccer game in progress in SS. Tentative ID at 1524. (Montgomery, PA) RAE, **9665** in SS at 0320 with "Radio International Argentine" ID. QRM from Voice of Russia. (MacKenzie, CA) **11710** in EE at 0245. (Charlton, ON)

ARMENIA—Voice of Armenia, **9960** at 2038 with IS, anthem, ID, schedule, and news. (Burrow, WA) 2055, mentioned website. (Charlton, ON)

ASCENSION—BBC relay, **6005** at 0700. (Newbury, NE) **7160** at 0625 and **12095** at 2334. (MacKenzie, CA) 7160 at 0325. (Brossell, WI) 12095 at 0140 and **17830** at 2044. (Charlton, ON)

AUSTRALIA—Radio Australia, **9580** at 1200. 1514. (Newbury, NE) (DeGennaro, NY) 9580//**11650** at 1300 with time check, ID, news. (Brossell, WI) 9580//**11880** at 1122, **11650** at 1525 and **21740** at 2243. (Charlton, ON) **15240** at 0645, //**15515**, 17715 at 2118, //21740. Also 21740 at 2333, //**17795**. (MacKenzie, CA) **17580//17750** with news at 0500. (Barton, AZ) ABC Northern Territory Service, Alice Springs, **2310** at 1404. (Miller, WA) HCJB-Australia, **15480** at 1518 only partly audible, ID at 1518, music and EE talks. IDs again at 1527 and 1529. (Montgomery, PA)

AUSTRIA—Radio Africa Int'l via Austria, **17895** in FF at 1500. (Paradis, ME) 1528 with FF ID. (Charlton, ON) Radio Austria Int'l, **9870** at 0015. (Charlton, ON)

BANGLADESH—Bangladesh Betar, **4880** in unid language at 1438. (Miller, WA)

BELGIUM—Radio Vlaanderen Int'l, **5985** via Germany at 0808. (DeGennaro, NY) **11985** via Bonaire with "Flanders Today" at 0400.

Abbreviations Used In This Month's Column

//	—	Parallel frequency
ABC	—	Australian Broadcasting Corporation
AFRTS	—	Armed Forces Radio Television Service
AFN	—	Armed Forces Network
AIR	—	All India Radio
anncr	—	announcer
anmt(s)	—	announcement(s)
BSKSA	—	Broadcasting Service of the Kingdom of Saudi Arabia
CNR	—	China National Radio
GOS	—	General Overseas Service
ID	—	identification
Int'l	—	international
IS	—	interval signal
Lang	—	language
LSB	—	lower sideband mode
NBC	—	National Broadcasting Corporation
OA	—	Peru, Peruvian
PBS	—	People's Broadcasting Station
Pgm	—	program
RRI	—	Radio Republick Indonesia
sked	—	schedule
SIBC	—	Solomon Islands Broadcasting Corporation
TOH	—	Top of the Hour
unid.	—	unidentified
USB	—	upper sideband mode
vern	—	vernacular (any local dialect or language)
VOA	—	Voice of America
VOIRI	—	Voice of the Islamic Republic of Iran

(Miller, WA) **13650** at 1854 in Flemish (?) (Foss, Philippines) 1852 with CD give away. Also **13700** via Bonaire at 2237. (Charlton, ON)

BOTSWANA—VOA relay, **7340** at 0335. (Brossell, WI) **11835** at 0625. Also **15445** at 2100. (MacKenzie, CA) **12080** in FF heard at 1854 and **17895** with African music at 1952. (Charlton, ON)

BOLIVIA—La Cruz del Sur, **4877** in Quechua at 1032. (Miller, WA) Radio Malku, Uyuni, **4799.6** in SS and QQ at 1047 with religious broadcast. (DeGennaro, NY) Radio Mosoj Chaski, presumed, **3310** with Quechua talk heard at 0051. (Strawman, IA)

BRAZIL—Radio Clube do Para, Belem, **4885** with PP discussion at 0315. (Miller, WA) 0750 with talks, tangos. (DeGennaro, NY) Radio Anhanguera, Goiania, **11830** with apparent soccer match in PP at 2303. (Strawman, IA) PP sports at 2339. (Charlton, ON) Radio Nacional da Amazonia, Brasilia, **6180** at 0822 with PP call-in program. Also **11780** with long sports talk and soccer game at 0221. (DeGennaro, NY) 0200 with long PP talk. (Linonis, PA)Brazilian music and PP talk at 2337. (Miller, WA) 6180 in PP at 2344. (Charlton, ON) 11780 in PP at 2318. (Brossell, WI) Radio Brazil Central, Goiania, **4985** in PP at 0755. (DeGennaro, NY) **11815** in PP at 2342. (Charlton, ON) Radio Educacao Rural, Campo Grande, **4755** at 0921 with music, local ads in PP. (DeGennaro, NY) Radio Clube, **3375** at 0259 with music, deep-voiced PP anncr at 0303, anthem and off at 0306. (Montgomery, PA) Radio Universo/Radio Tupi, **6060** with religious talk in PP at 0746. (DeGennaro, NY) Radio Cancao Nova, Cachoeira Paulista, **9675** in PP with music at 0839. (DeGennaro NY) Radio Cultura, Sao Paulo, **9615** with music, PP talks at 2348. (DeGennaro, NY) Radio Alvorada, Londrina, **4865** with PP talks and vocals at 0946. (DeGennaro, NY) Radio Capixaba, Vitoria, **4935** at 0732 with religious program. (DeGennaro, NY)

BULGARIA—Radio Bulgaria, **7400** with folk music at 0055 and **9400** with news and weather at 0009. (Charlton, ON) 9400 with current events at 0020. (Barton, AZ) **9500** with news in Bulgarian at 0400. (Miller, WA)

CANADA—Radio Canada Int'l, **5960** with sports news at 2325. (Charlton, ON) **9515** with news at 1355. (Northrup, MO) **13650** open-

ing at 2100. (Barton, AZ) 2131. (Newbury, NE) CFRX, **6070** at 1814 with talk on political climate in Russia. (Charlton, ON)

CANARY ISLANDS—Full Gospel Las Palmas Church, **6715 USB** in KK/EE with religious service heard at 2345. (Linonis, PA)

CHAD—RN Tchadienne, **7120** very weak in FF at 2243. (Charlton, ON)

CHILE—Voz Cristiana, **15375** in SS at 0146. (Charlton, ON) with pops at 0200. (Barton, AZ) **17680** with talk and music segments at 2115. (MacKenzie, CA) Listener call-ins at 2310. (Wood, TN) SS songs at 2327. (Foss, Philippines)

CHINA—China Radio Int'l, **7360** at 1326 with traditional CC music, ID, and news. (Foss, Philippines) **7405** at 1515 with need for electric power in eastern provinces. (Newbury, NE) **9790** via Canada in CC at 1315. (Northrup, MO) **11640** via Mali at 2112 with news in EE. And **11790** at 2139. No listing found for this one with various EE features and IDs. Off at 2156. (Montgomery, PA) **11955** at 1310 and **17880** in FF at 1350. (Brossell, WI) **13680** at 2343. (Charlton, ON) China National Radio at 1340 with program one in CC on **9770**. (Northrup, MO) Nei Menggu PBS, **4785** at 1340 with vocal. (Foss, Philippines) Music Jammer, **11960//15150** at 0630. (MacKenzie, CA) **13625//11965, 11945** and **11785** at 1935. (MacKenzie, CA) **13800** at 2336. (Linonis, PA) **15550** at 2341. (Charlton, ON) CPBS/CNR, **17890** in CC at 2340. (MacKenzie, CA) Radio Canada Int'l, via China, **17860** heard with "Maple Leaf Mailbag" at 0232. (Foss, Philippines)

CONGO—Radio Congo, **5985** in FF heard at 2240. (Strawman, IA)

COSTA RICA—University Network, **9725** at 0140 with music and preaching. (Charlton, ON)

CROATIA—Croatian Radio, **9925** in Croatian at 0137. (Charlton, ON) (*Via Germany—gld*)

CUBA—Radio Havana Cuba, **6000** with news in SS at 1106. (DeGennaro, NY) 0130. (Newbury, NE) 0131. Also **9600** in SS at 1130 and **9820** in EE at 0214. (Charlton, ON) **17705** in SS at 0010. (MacKenzie, CA) Radio Rebelde, **9600** with sports news in SS at 1204. (DeGennaro, NY)

CYPRUS—BBC relay, **9915** in AA at 2346. (Charlton, ON)

CZECH REPUBLIC—Radio Prague, **5915** via Slovakia in RR at 1538. Also **9435** with news in EE at 0313. (Miller, WA) **7345** in EE at 0121. (Charlton, ON) **7385** at 0305 and **9870** at 0303. (MacKenzie, CA) **9435** with multi-lingual ID at 2300 and into FF. (DeGennaro, NY) **9865//11600** at 0348 with news, ID. (Burrow, WA)

DENMARK—Radio Denmark, **7470** via Norway heard at 0231 in DD. (Charlton, ON)

DOMINICAN REPUBLIC—Radio Pueblo, **5009.8** at 1030 sign on with meringue music, ads, and anmts. Supposed to be a relay of Radio Cristal in Santo Domingo. (DeGennaro, NY)

ECUADOR—HCJB **9525** in SS at 0430. (Strawman, IA) **9650** in SS. Also **12040** in EE at 0254. (DeGennaro, NY) **9745** at 0144. (Charlton, ON) 0300. (MacKenzie, CA) **15115** with children's program at 1200. (Paradis, ME) 1117 with religious program. (Foss, Philippines) **15140** at 1357 with IS, sign on and into SS. (Charlton, ON) 1428 in SS. (Wood, TN) Radio Quito, **4919** with LA vocals at 1114. (DeGennaro, NY)

EGYPT—Egyptian Radio/Radio Cairo, **9475** with news in RR at 0308. (Miller, WA) 0315. (Barton, AZ) 0251 in AA and **9900** at 2314 with listener mail in EE. (Charlton, ON) 9900 with book and arts review at 2205. (DeGennaro, NY) 2137 with news, ID, "Spotlight on the Middle East." (Burrow, WA) **12050** in AA at 2335. (MacKenzie, CA)

EL SALVADOR—Radio Imperial, **17835v** in SS at 0055. (Strawman, IA)

ENGLAND—BBC, **9410** with war updates at 0410. (MacKenzie, CA) **9825** at 0036. (Charlton, ON) VOA relay, **9760** at 1310. (Northrup, MO) BFBS, **6135** with news, music at 0200. (Paradis, ME) **13680** believed via Armenia with news at 1402. (Strawman, IA) **15530** at 1534 and **17895** at 1402, both sites unknown. (Montgomery, PA)

ETHIOPIA—Radio Fana, **9640** with local vocals in Oromo heard at 0333. //6210. (Strawman, IA)

FINLAND—YLE/Radio Finland, **9715** in Finnish at 0532. (Miller, WA) **11660** in SS at 2312 and **17660** in Finnish at 1315. (Brossell, WI) **15400** in Finnish at 1645. (Charlton, ON)

FRANCE—RFI, **11615** at 1620. (Barton, AZ) **11665** in SS at 0131. (Charlton, ON) **17620** with news at 1400. (Paradis, ME) **21645** in FF at 1358 just before 1359 sign off. (Brossell, WI)

FRENCH GUIANA—Radio France Int'l, **17630** in SS heard at 2113. (MacKenzie, CA)

GABON—Africa Number One, **9580** in FF with African music at 0525. (Miller, WA) 2249. (Charlton, ON) **17630** in FF at 1340. (Brossell, WI) RFI relay, **11995** in FF at 2039. (Charlton, ON)

GERMANY—Deutsche Welle, **6100** in GG at 0213; **6145** in EE at 0126; **13780** in EE at 1900; **15515** via Canada in GG at 1518; **17730** via Antigua in GG at 1516 and **21840** in GG at 0213. (Charlton, ON) **11690** at 2320 in GG with ID at 2330 and 2332. Sounded as though it were beamed to Africa. (Montgomery, PA) 21840 at 1630. (Barton, AZ)

GREECE—Voice of Greece, **17565** in Greek at 2116 and **17705** in Greek at 2000, both via California. (Miller, WA) 17705 in EE heard at 1905. (Charlton, ON) VOA relay, **15205** with news. (Wood, TN)

GUATEMALA—Radio K'ekchi, **4845** at 0200 with SS religious talks and music. SS closing anmts and long anthem at 0305 to 0310 off. (Alexander, PA) Radio Cultural Coatan, **4780** at 0115 with talk in local language, brief music breaks, SS ballads and local ranchera type music. (Alexander, PA)

GUAM—Adventist World Radio/ KSDA, **11675** at 1730 with ID, addresses, folk-type music. (Newbury, NE) **11940** in Burmese at 1400. (Barton, AZ)

GUINEA—RTV Guineenne, **7125** in FF at 2328 and 0645 with interviews and background music. (MacKenzie, CA)

HAWAII—Armed Forces Network, **10319** at 0427. (Miller, WA) **10320** at 0346. (Brossell, WI)

HONDURAS—Radio Misiones, **5010** at 1048. (Miller, WA) Radio Litoral, **4830** at 0300 with SS religious programming, EE "Searchlight" program at 0423. Sign off routine at 0500. Some days they are on 4830, others on **4832**. (Alexander, PA)

HUNGARY—Radio Budapest, **6025** with "Inside Central Europe" heard at 2300. (Paradis, ME) **9835** at 0213, refugees can't get jobs in Budapest. (Charlton, ON) 0338 with news and ID. (Burrow, WA)

ICELAND—INBS, **13865** in Icelandic at 1859. Off at 1905. (Charlton, ON)

INDIA—All India Radio, **4760**, Port Blair, Andaman Is., with female vocals at 1219. (Strawman, IA) **4840** (*Mumbai—gld*) in unid language at 0130. (Paradis, ME) **4920** Chennai, at 0045 with male vocals and flute. Also **5040** Kolkata (presumed) at 1222. (Strawman, IA) **4970** (*Shillong—gld*) at 1421 with domestic vocals. (Foss, Philippines) **5040**—Jaypur with news at 1529. **9425** Bangalore, with mandolin and Eduard Grieg to closing at 1830. Also **11620** Bangalore at 0011 with news. (Miller, WA) 9425 with ID at 1545. (Barton, AZ) 2216 with news, talk on history. (DeGennaro, NY) **9495** at 2210, **11620** at 1845 and **13605** at 1905, all in EE. (Charlton, ON) **11585** in presumed Hindi at 1300. (Brossell, WI) **15075** in presumed Hindi at 0320. (Linonis, PA)

INDONESIA—Voice of Indonesia, **9680** at 1256 with II talk, bells, NA, and off at 1300. (Strawman, IA) **15150** at 1851 in GG with music, news, "Stimme Indonesia" ID. (Miller, WA) 1857 with talk, ID in FF at 1903. (Burrow, WA) 2035 with pops, "Love Ambon" at 2100 to 2103 and carrier off. (Strawman, IA) Radio Republik Indonesia, **3325**, Palangkaraya in unid language at 1141. (Foss, Philippines) **3345**, Ternate, in II at 1122. And **4605**, Serui, heard at 1152. (Miller, WA)

IRAN—VOIRI, **6120** at 0130 EE sign on with ID, anthem, and Koran. Suffering QRM from a second station. (Montgomery, PA) **9580** in EE at 0139. (Charlton, ON) **9830** with EE news at 2207. (Miller, WA) **13770** in presumed Farsi at 1320. (Brossell, WI) **15140** with news, ID at 1949. (Burrow, WA) **17560** in unid language at 1320. (Foss, Philippines)

IRELAND—RTE, **6155** via UK at 0152. (Charlton, ON) **13640** via Canada heard at 1848 with news and features. (Miller, WA)

ISRAEL—Kol Israel, **7545** with music, phone-in show at 2310. (DeGennaro, NY) 0336. Also **9390** in HH at 2244 and **11585** in HH at 0231. **11605** with news items at 1735. (Newbury, NE) with local weather, headlines, "Shalom from Jersulam," time pops ID and into FF at 1745. (Burrow, WA) (Miller, WA) 11585 in HH at 0204, 11605 in EE at 2001, **17545** in FF at 1632. (Charlton, ON) **15640**, //17535 in HH at 2105. (MacKenzie, CA) 17545 in HH at 1326. (Foss, Philippines)

ITALY—RAI, **6110** in II at 0224, **9675** in

II at 0110 and 11800 in EE at 0103. (Charlton, ON) **9745** at 1952 with music, ID and IS and end of broadcast to Europe. (Burrow, WA) **11800** in II at 0230. (DeGennaro, NY) 2320. (Brossell, WI)

JAPAN—Radio Japan/NHK, **6145** via Ascension at 2100, 6145 via Canada at 0009. (Charlton, ON) **9595** in JJ at 0620. 9835 with news, markets at 0608 and **11715** in RR at 0615. **17810** in CC at 2354 and into EE at 2359. **//13630** and **13650**. (MacKenzie, CA) **9695** in EE at 1225. (Northrup, MO) **9845** in JJ at 1546, **//9750**. (Newbury, NE) 13650//**17810** to close at 0015. Also **15355** at 1720. (Barton, AZ) **11705** via Canada at in JJ at 1300. (Brossell, WI) **15325** with "44 Minutes" program. (Foss, Philippines) Radio Tampa, **5985** in JJ at 0530. (Linonis, PA)

JORDAN—Radio Jordan, **11690** at 1550 to 1634 sign off, local pops, EE news, weather, ID, and more pops. Now goes off at 1630 instead of 1730. (Alexander, PA) 1622 with non-stop pop to 1647 when brief ID as "96.3 FM" and "Radio Jordan 96.3 FM" at 1655. Time pips and news at 1700. (Burrow, WA) 1648. (Charlton, ON)

KUWAIT—Radio Kuwait, **11675** in AA at 0014. (Miller, WA) 0430 in AA. (Linonis, PA) **11990** at 1939 with Kuwait history, dramatic music, ID at 1942. (Burrow, WA) 11990 at 1830 in EE with time and website address. (Charlton, ON) **13620** in AA at 2003. (Wood, TN) **15495** in AA at 2348. (Brossell, WI)

LIBYA—Radio Jamahiriya, **11635//11715** in AA and occasional EE at 2005. (Charlton, ON) (*Both frequencies via France—gld*)

LIBERIA—Radio Liberia Int'l, **5100** at 2237. Surprised to find them back on the air—pop and African tunes, Liberian football scores, and newscast. (Montgomery, PA)

LITHUANIA—Radio Vilnius, **7325** in EE at 2333 and **9875** in EE at 2353. (Charlton, ON) 9875 at 2249 with ID "This is a primary audio circuit of Radio Vilna" repeated twice with a buzz in between. Broadcast started at 2300 with music and Slavic talks. (DeGennaro, NY) 2303 with EE news. (Miller, WA) 2333 with news, features, ID, sign off at 2359. (Burrow, WA)

MADAGASCAR—Radio Netherlands relay, **11655** at 2010. (Charlton, ON) **12080** at 1508. Writing music about AIDS (Newbury, NY) **15595** with EE features at 1507. (Wood, TN) Adventist World Radio, **3215** at 0255 with local African tune, presumed ID in Malagasy language. (Montgomery, PA) RTV Malagasy, **5010** with anthem and sign on at 0258, woman with what may have been schedule, short tune, long talk by man. (Montgomery, PA)

MALAYSIA—Radio Malaysia, **7295** at 1650 with music dedications, time pips and news from 1700 to 1723 and back to music. (Burrow, WA)

MAURITANIA—Radio Mauritanie, **4845** with ID, music heard at 2330. (Miller, WA; Linonis, PA) 0745. (DeGennaro, NY)

MALI—RTV Malienne, **4833.3** at 2345 with possible African music. National anthem at 0000 and off at 0002. (Montgomery, PA)

MEXICO—Radio Educacion, **6185** in SS with mention of Mexico. (Charlton, ON) with ballads in SS at 0315. (Linonis, PA) 0611. (Newbury, NE)

MONGOLIA—Voice of Mongolia, **12015** with news and music bits between items, ID "This is the Voice of Mongolia" at 1509 and 1516. Off at 1531. (Wood, TN) **12085** with news in EE, anthem, I, IS. (Newbury, NE)

MOROCCO—RTV Marocaine, **15240** at 2102 and **15420** at 1714. (Charlton, ON) **15335** with Middle Eastern music at 1459. (Wood, TN) **15345** with AA music at 1730. (Paradis, ME) Radio Medi-Un, Nador, **9575** in AA at 0159. (DeGennaro, NY) 2339 in AA. (Charlton, ON) VOA relay, **15410** at 1950, **//17740** (Philippines) and **17820** (Philippines)

MYANMAR—Radio Myanmar, **5985** with EE light music, woman with sign off at 1559. (Miller, WA)

NIGERIA—Voice of Nigeria, **15120** with African news heard at 2104. (Charlton, ON)

NETHERLANDS—Radio Netherlands, **11655** at 1848 and **15220** heard at 1532. (Charlton, ON)

NETHERLANDS—Radio Netherlands, **5955** with news in DD heard at 0805. **9895** in SS at 2245. (DeGennaro, NY) **9845** at 0115. (Charlton, ON) **11720** in SS at 2315. (Brossell, WI)

NEW ZEALAND—Radio New Zealand, **11675** at 0259 with soccer game. (Charlton, ON) 0711 with a radio play. (Newbury, NE) News at 0907. (DeGennaro, NY) **15265** with Pacific news at 1905. (Miller, WA) **15340** at 0650. (MacKenzie, CA) 2311 with NZ and international news. (Foss, Philippines) **17675** with time pips, ID, news at 0500. (Burrow, WA)

NIGERIA—Voice of Nigeria, **7255** with African news at 0605. (Newbury, NE) 2257 in sign off routine. (Charlton, ON) **15120** with news in unid language at 2105. Also heard at 0500 sign on. (Miller, WA)

NORTH KOREA—Radio Pyongyang, **9325** with national anthem at 1348. (Foss, Philippines) Voice of Korea, **7140//9435** at 1240 with choral music and praise of their leader. Also **9665** at 0705. (Barton, AZ) **9335** at 1355 with "Please wait for the next time. This is Pyongyang. Goodbye." (Foss, Philippines) **11335** at 1827 with talk, organ and vocal music, ID 1933. (Burrow, WA) **11710** at 1305 with QRM from Radio Japan via Canada on **11705**. (Brossell, WI)

NORWAY—Norwegian Radio, **7530** in NN at 2314. (DeGennaro, NY) **7490** at 0102, **13800** at 1910 and **15705** at 1835, all in NN. (Charlton, ON) **11635** in NN at 0000. (Linonis, PA)

OMAN—Radio Sultanate of Oman, **9515** in AA at 0342 and **15140** in AA at 1741. (Miller, WA)

PAKISTAN—Radio Pakistan, **11570** at 1557 with IS, ID, time pips, ID at 1600, and news. (Burrow, WA)

PALU—KHBN, **9985** with religious program in poss. Farsi at 0315. (Linonis, PA)

PAPUA NEW GUINEA—Radio Manus, Lorengau, **3315** at 1107 in Pidgin. (Miller, WA) Radio East Sepik, Wewak, **3315** in Pidgin at 1116. (Miller, WA) NBC, **4890** with news at 1200. (Miller, WA) Radio Sanduan, Vanimo, **3205** with ceremonial music at 1139. (Miller, WA) Radio West New Britain, Kimbe, **3235** in Pidgin with local singers at 1142. (Miller, WA) Radio Gulf, Kerema, **3245** in Pidgin at 1148. (Miller, WA) Radio Southern Highlands, Mendi, **3275** with music at 1210. (Miller, WA) Radio Manus, Lorengau, **3315** in EE with country-western things at 1220. (Miller, WA) Radio Western Highlands, Daru, **3305** at 0600 with mentions of elections in PNG and local weather. (Linonis, PA)

PERU—Radio Libertad de Ju8nin, **5039** in SS at 1050. (Miller, WA) Radio Atlantida (presumed) **4790** with ballads, reverb at 0205. (Strawman, IA) Radio Huanta 2000, Huanta, **4747** with Quecha talks and music at 0917. (DeGennaro, NY) La Voz del Campesino, **6956.6** at 0021 with nice Peruvian music. (Montgomery, PA)

PHILIPPINES—Radio Pilipinas, **11730** in Tagalog at 1827. Also on **11890** and **15190**. (Miller, WA) 11730//11890 at 1923 in Tagalog. Talk with several IDs. (Burrow, WA) **12015** with original Philippine music at 0223. (Foss, Philippines) VOA relay, **6110** with news at 1405. (Foss, Philippines) **11895** in Asian language at 1310. (Brossell, WI) **17820** at 2350, **//17740**. Also **17765** at 0005. (MacKenzie, CA) 17820 at 2346. (Charlton, ON)

PORTUGAL—RDP Int'l, **9715//11655** in PP heard at 0043. (Charlton, ON) **9755** with songs from '30s and '40s and anncr in PP. Also **11980** with news in PP at 0246. (DeGennaro, NY) **17680** with sports in PP at 2036. (Miller, WA)

PUERTO RICO—Armed Forces Network, **6548** at 0238. (Miller, WA) 0618. (Newbury, NE)

QATAR—Qatar Broadcasting Service, **11655** in AA heard at 1606. (Charlton, ON)

ROMANIA—Radio Romania Int'l, **9510** with feature on Romania economy at 2300. (Paradis, ME) 2355. (Charlton, ON) **9550//11830** at 0433 with folk music, ID, and mailbag program at 0438. (Burrow, WA) **9690** with news in Romanian at 2215. (DeGennaro, NY)

RUSSIA—Voice of Russia, **6155** at 0228, 7180 (*via Moldova—gld*) at 0219, **9765** at 0204 and **9890** at 1929 with ID, IS, and sign off. (Charlton, ON) **6235** at 2138 with EE music program. Off at 2159 after IS. Also **11820** at 2048 with classical music program. ID at 2058, schedule, then off at 2100. (Montgomery, PA) **7180** (*via Moldova—gld*) with "Russian History" at 0200. (Paradis, ME) **7340** in CC at 1322. (Foss, Philippines) **9450** in RR at 0415. (MacKenzie, CA) **12055** in RR at 1313. (Brossell, WI) Radio Rossii (t) **13705** at 1435 with two male RR ancrs and musical interludes. (Gray, TN) Magadan Radio, **9530** in RR with man/woman talk, pops, folk, children. Time pips at 0700 and ID for Radio Rossii, into news. (MacKenzie, CA)

RWANDA—Deutsche Welle relay, **11965** at 0210. (Newbury, NE) **15275** at 1930, producer making a film in Africa. (Charlton, ON) **15410** with "News Link" at 2100. (Paradis, ME) **17860** in GG at 2125 (MacKenzie, CA) 2352 in GG. (Brossell, WI)

SAO TOME—VOA relay, **4960** at 0343 with news. (Montgomery, PA) **7290** at 0331. (Brossell, WI) **11665** in FF at 0610. (MacKenzie, CA) **11975** at 2109. (Charlton, ON)

SAUDI ARABIA—BSKSA, **9870** at 2208, **11820** at 2207, **15315** at 1934, and **15435** at 1928, all in AA. (Charlton, ON) 15435 at 1541 with AA talks, Koran. (Newbury, NE)

SINGAPORE—Radio Singapore, **6150** heard at 1533 with music dedications, ads, ID as "Perfect 10 FM" and "98.7 FM." (Burrow, WA)

SERBIA, MONTENEGRO—Radio Yugoslavia, **7115** with schedule at 0127 and 7130 with news heard at 0204. (Charlton, ON)

SLOVAKIA—Radio Slovakia Int'l, **5920** at 0107, **7130** at 0109 and **9440** at 0123, all EE. (Charlton, ON) 9440 in Slovak at 0149. (DeGennaro, NY)

SOLOMON ISLANDS—**5020** with BBC news at 1225. (Strawman, IA) EE news from BBC at 1416. (Miller, WA)

SOUTH AFRICA—Channel Africa, **11710** at 0504 with news, ID. (Burrow, WA) 0525, animal rights people active there. Also **15215** at 0614 and **17870** at 1801. (Newbury, NE) 17870 with sports item at 1724. (Charlton, ON) **21760** with ID at 1330, news, talk on HIV. (Paradis, ME) Trans World Radio relay, **7215** at 0325 with ID, IS, and repeat. (Brossell, WI) Adventist World Radio relay, **15295** at 2040 with ID as "AWR—The Voice of Hope." (Charlton, ON) **17695** with Voice of Hope broadcast at 1926. (Brossell, WI) 1956. (Miller, WA) BBC relay, **7120** at 0320. (Brossell, WI) **11765** at 0620. (Mackenzie, CA)

SOUTH KOREA—Radio Korea Int'l, **9560** (*via Canada—gld*) at 0215 with contest info. (Charlton, ON) **9650** via Canada at 1207 with news. (DeGennaro, NY)

SPAIN—REE, **6055** at 0000 with "Cultural Roundup" and "Eating in Spain." (Paradis, ME) 0014 in EE and **11815** at 0131 in SS. (Charlton, ON) 0135 in SS. Also **15110** with sports event in SS at 1946. (MacKenzie, CA) **9620** in SS at 0215 and **11880** via Costa Rica in SS at 0240. (DeGennaro, NY) **12035** in AA at 2135. (Newbury, NE) 15110 with live sports event in SS at 1920. (Brossell, WI) **17850** via Costa Rica in SS at 2045. (Barton, AZ)

SRI LANKA—Deutsche Welle relay, **11965** with DX talks heard at 0230. (Charlton, ON)

SWAZILAND—Trans World Radio, **7225** at 0300 with IS, ID, and into unid language. (Paradis, ME)

SWEDEN—Radio Sweden, **9495** in SS at 0203. (Charlton, ON) At 0347 with music live from Royal Opera House in Stockholm. (Brossell, WI) In EE at 0350. (Miller, WA) 0329 with IS, ID, economic topics. (Burrow, WA) **18960** with "60 Degrees North" at 1330. (Paradis, ME)

SWITZERLAND—Swiss Radio Int'l, **9885** in EE at 2331. Also 11660 at 2347. (Charlton, ON) **13660** at 1946 and **17660** at 1949, both in EE via French Guyana. (Charlton, ON)

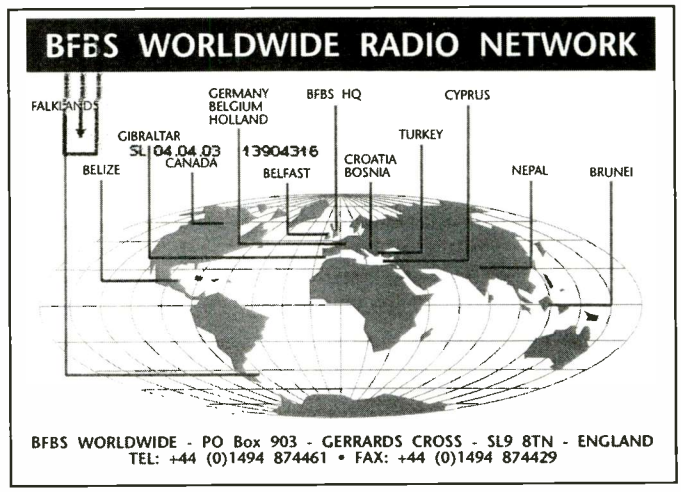
SYRIA—Radio Damascus, **113610** heard at 2005 with music, ID, news. (Burrow, WA)

TAIWAN—Family Radio via Taiwan, **9280** with religious programming in CC at 1230. (Barton, AZ) Radio Taipei Int'l, **5950** (*via Florida—gld*) with letters at 0238 and **11740** (*via Florida—gld*) with news at 0212. (Charlton, ON) **11605** in CC with QRM from the music jammer. Also with similar programming on **15265** at 1550. (Brossell, WI)

THAILAND—Radio Thailand, **9530** in Thai at 2143 and **13605** with sports and weather at 0057. (Charlton, ON) **9535** at 1900 with IS, ID, and news. (Burrow, WA) **11855** in TT at 1831. (Miller, WA) BBC relay, **17615** at 0015. (MacKenzie, CA) 0019. (Charlton, ON) VOA relay, **11785** with IS and into CC at 1300. (Brossell, WI) **15460** at 1505 with news. (Montgomery, PA)

TOGO—Radio Togo, **5046.7** at 2353 with man in FF. OK until 2255 when 5050 started up. (Montgomery, PA)

TUNISIA—RTV Tunisienne, **7190** in AA at 0638. (MacKenzie, CA) **9720** in AA at 2025 and **11730** in AA at 1528. (Charlton, ON) **12005** at 0300 with Koran. (Linonis, PA) **15450** in AA at 1452. Woman with "Welcome to Tunisia" heard at 1500, then news in AA. (Montgomery, PA)



British Forces Broadcasting broadcast to British troops during the war against Iraq. They sent this QSL to Rich D'Angelo.

TURKEY—Voice of Turkey, **7200** in TT at 0202 and **9655** at 2345 with music, website. (Charlton, ON) In TT at 2251. (DeGennaro, NY) 0420 in TT. (MacKenzie, CA) 0311 in TT. Also 9655 with news at 2310. (Miller, WA) **9460** and **11885** in TT at 0327 (MacKenzie, CA) 9655 at 2340 with talk, music, sign off with ID and schedule, ID at 2350. (Burrow, WA)

UGANDA—Radio Uganda (tent) **4796** with Afro-pops and vern at 0315. (Linonis, PA) 0322 with African tunes, program features by man in EE, more songs. (Montgomery, PA)

UKRAINE—Radio Ukraine Int'l, **7375** at 0132 with talk on regions in Ukraine. (Charlton, ON) 0426, ID at 0434. (Burrow, WA) **11770** in GG at 1843. (Foss, Philippines) **12040** in Ukrainian at 2340. (MacKenzie, CA)

UNITED ARAB EMIRATES—UAE Radio, Dubai, **12005** in EE at 0335. (MacKenzie, CA) **13675** in AA at 1844. (Miller, WA) **21605** at 1600 with talk on history of Morocco in their "Arab Centers of Civilization" feature. (Brossell, WI) 1609. Religious treasures in the Arab world. (Charlton, ON)

UZBEKISTAN—Radio Tashkent, **11905** in presumed Uzbek at 2130. (Linonis, PA)

VATICAN—Vatican Radio, **7305** at 0250 with excerpts from the Pope's Sunday message. (Paradis, ME) 0335. (Brossell, WI) **9605** in SS at 0210. (DeGennaro, NY) 0300 in EE. (Miller, WA) 9605 in SS at 0222. Also 9865 with schedule at 0104 and **15595** heard at 1716. (Charlton, ON) **13765** heard at 1530. (Barton, AZ)

VIETNAM—Voice of Vietnam, **6175** (*via Canada—gld*) at 0107. (Charlton, ON) **9840** with EE news at 1232. (Strawman, IA)

YEMEN—Republic of Yemen Radio, **9779.6** with apparent news in AA at 0320. (Strawman, IA) 1757 to 1801; then too weak to copy. (Burrow, WA) 2030. (Charlton, ON)

ZAMBIA—ZNBC, **5915** at 0242 with fish eagle IS, into local religious music at 0251, vernacular talk at 0300, and religious music. Co-channel and 5920 QRM. (Alexander, PA)

A mountain of thanks to the following good folks who came through for you this month: Ray Paradis, Pittsfield, ME; Marty Foss, Guinayangan, Philippines; Mike Miller, Issaquah, WA; Stewart MacKenzie, Huntington Beach, CA; Ciro DeGennaro, Feura Bush, NY; Jerry Strawman, Des Moines, IA; Joe Wood, Gray, TN; Jack Linonis, Hermitage, PA; Bruce R. Burrow, Snoqualmie, WA; Rick Barton, Phoenix, AZ; Robert Montgomery, Parkville, MD; Ed Newbury, Kimball, NE; Mark Northrup, Gladstone, MO; Bob Chandler, Windsor, ON and Brian Alexander, Mechanicsburg, PA. Thanks to each one of you.

Until next month, good listening! ■

by Joe Cooper <ur-review@provcomm.net>

How To Monitor Military Communications

While the war in Iraq has been declared "over" by the Pentagon, there's certainly lots of military action you can still hear on shortwave. This month contributor Alan Stern shares some hot frequencies for monitoring a wide variety of military services. Although a great deal of communications have moved to encrypted satellite up and downlink, there is still a lot to be heard on HF.

Alan's report is a good example of what I would like to see contributed by people reading this column (see "HF and Military Communications Report"). Logs are important and they will remain a major source of HF UTE activity. However, there is still a need to explain why certain frequencies are being monitored and how to do it. So, in that regard, I continue to welcome mini-reports from each of you.

I have also received some inquires from people who monitor below 500 kHz, particularly beacons. Is there an interest in sharing such logs? I've always had a special interest in VLF and would like to do a column on the techniques for monitoring such frequencies. Would anyone care to share their logs and monitoring experiences?

Let's get directly to the reader's logs for this month.

Reader's Logs

This month we have a good listing of aircraft and Coast Guard activity. You may want to make particular note of Al Stern's. (ALS) contributions in view of his report on Milcom and other services activities. Al is located near Satellite Beach, Florida, right in the middle of a lot of hot activity, ranging from the Space Shuttle program through Patrick AFB, the Avon Park bombing range, and general HF activity in the area.

Remember that all frequencies are in kilohertz and times are Universal (Z). See "Some Common UTE And Shortwave Listening Abbreviations" for a list of acronyms and abbreviations used in this column.

0000: STATION, Anytown, USA, summary of traffic heard in MODE at 0000 Z (Z), personal comments here. (JC)

68.0: GBY20, RN LONDON RTTY//50/N/85 UKSUBCAMS broadcast in support Swedish submarine *HSWMS Uppland* exercising in CASEX (A1, A6, B2) coordinated by FOST (Flag Officer, Sea Training) Deveonport. 1530Z. (DW)

518: ZSC/ZSJ Cape Town/SAN 0830Z fec Navtex. (RH2)

2680: 4XZ, IN HAIFA CW Marker "vvv de 4XZ==" 2153 2026 4530.0 FUE FN BREST RTTY//150/R/850 Marker "FAAA de FUE" o/wise poor copy 2026Z. (DW)

3476: Gander (MWARA) USB wkg NORTHWEST 56 for SELCAL ALEK check. 0539Z. (ALS)

3476: Gander (MWARA) USB wkg BURSA 44 (Ramstein AB LearJet) for Selcal BRCG check. 0550Z. (ALS)

3476: Gander (MWARA) USB wkg AIR FRANCE 6417, refused request for higher altitude. 0559Z. (ALS)

3476: Gander (MWARA) USB wkg BURSA 10 (Ramstein AB LearJet), handed off to Shanwick 6622.0. 0627Z. (ALS)

3476: Gander (MWARA) USB heard wkg VIRGIN 44, position report: 56 N, 50 W, is told to make voice reports instead of by data link 0634Z. (ALS)

4146: UNID Commercial fishermen to base and boat-boat comms. USB 1052Z. (ALS)

4149: WPE (Jacksonville FL Tugboat Base) USB wkg boat reporting ETA, engine rpm, course, sea state, WX. Other boats report cargo and position to "Greyhound." 0520Z. (ALS)

4426: CAMSLANT hailing cutter HARRY CLAIBORNE with No Joy at 0129Z (MC)

5425: Lima: 0245Z USB w/EF, Mike, in Link-11 tracking activity. Papa is ASA and in contact w/Alligator & Black Timber playground players Mike, Golf, Charlie, Delta, Echo Fox. ALE noted in background but too weak to break out. (RP)

5589: O/M (Hebrew) 0055Z USB w/aircraft (Hebrew). Chat mentions Amsterdam and probable fixes/VOR/NDBs VLM, OKG, FFM, along flight route. EL AL LDOC. 27/03 (RP3)

5696: REACH 9014 working CAMSLANT Chesapeake w/rdo chks. Then moved to 11175. (DS2)

5696: USCG Rescue 1711 working CAMSLANT Chesapeake w/flt ops and pos rpts. (DS2)

5696: CG 1502 (HC-130) p/p via CAMSLANT to LANT AREA COMMAND. CG 1502 reports they are on scene and receiving the ELT distress signal about 240 miles east of Virginia Beach. They do not have any contacts on radar. They will have a merchant in the area search with spotlights. Heard in USB at 0058Z. Later news reports stated this was a turtle that had gotten snagged in a distress beacon (MC)

5696: CAMSLANT wkg CG 2131 (Hu-25) with a request for Medevac ETA to Jackson Memorial. CG 2131 reports hoist operation just completed, ETA 42 minutes. Heard in USB at 0255Z (MC)

5696: CG 1503 heard at 2048Z (HC-130) p/p via CAMSLANT to District 5 Command Ctr. Report have located ELT distress beacon on S/V *KALBU*. Vessel is not in distress. Vessel has an Italian captain and they are unable to communicate very well. District 5 will have a translator call vessel on INMARSAT. CG 1503Z is RTB. (MC)

5708: REACH 8051 (C-17A) ALE initiated p/p to Charleston AFB Meteo for WX in USB at 0054Z. (MC)

5708: REACH 5205 ALE initiated p/p to HILDA EAST and Meteo with arrival info and WX request for Wright Patterson AFB. Heard in USB at 2344Z. (MC)

5732: CG 6001 (HH-60J) radio check with CAMSLANT in USB at 0021Z. (MC)

6407.7: ZSJ, SAN Silvermine 0955Z MFSK32 54.5bd. (RH2)

6622: GANDER (MWARA) USB wkg UNITED 706 for AQGR SELCAL check. 0148z. (ALS)

6622: GANDER (MWARA) USB wkg KLM 672 for AFHR SELCAL check; position report: 51 N, 50 W. 0228Z. (ALS)

6649: Atlantico 0510Z USB w/PT-WQS (Falcon 900EX-O/M Portuguese) w/position report & SELCAL check (AF-BQ). (RP)

6679: Honolulu 0538Z USB w/volmet. (RP)

6715: ADWSPR (Andrews SIPERNET) & JNRSPR (Roosevelt Roads SIPERNET): 2119Z ALE/USB sounding. (RP)

6739: Architect (RAF Flight Watch) 0102Z USB w/volmet, including WX for Salalah & Muscat. (RP)

6754: Trenton Military 0130Z USB w/volmet. (RP)

6783: MGJ: RN Faslane 1720Z RTTY 75/340 Carbs. (RH2)

7508: ZSJ, SAN Silvermine 1550Z fax 120/576 fax service suspended temporarily! SAWB/AFMET Pretoria office moving and budget cuts! (RH2)

7630: BB1 (Israeli Air Force) 2220Z ALE/USB sounding. (RP)

2670: CG Group Hampton Roads 0210Z USB w/MIB for Cape Fear, Cape Hatteras and local waters. (RP)

7657: PANTHER 400 (DEA, Bahamas) wkg 63A (HH-65 # 6563) on anti-drug mission at 0107Z. (MC)

7657: ATLAS (DEA contract facility) answering unid a/c in USB at 2343Z. (MC)

8107: Maritime Net (Caribbean and S. Pacific) USB with unid YL boater passing coordinates 20-42 N, 86-00 W. 1332Z. (ALS)

8126.4: NRUU (USCGC Neah Bay, WTGB-105, Cleveland OH), 2046 ALE/USB to CGD9 (CG District 9, Cleveland OH). (RP)

8135: UNID: CIS Mil/Rail 1700Z 36-50 50/500. (RH2)

8152: Private Yacht Net USB with MV *Destiny* entering Port Canaveral; MV *McGechie* underway; Unid MV to Berry Point, Andros; MV from Vero Beach to Anchorage Marina in Melbourne; MV *Shining Star* en route from Titusville to Vero Beach; MV *Aqua Viva* out of Annapolis; MV *Weedwacker* in Georgetown. 1240Z. (ALS)

8449: SITOR-A test tape from USCG cutter V5J at 0227Z. (MC)

8764: CAMSLANT wkg V5J (unid cutter) discussing SITOR broadcast problems in USB at 0225Z. (MC)

8825: NEW YORK OCEANIC (MWARA) USB wkg CORSAIR 868 for SELCAL check, position report, advises 6628 is secondary 0220Z. (ALS)

8825: NEW YORK OCEANIC (MWARA) USB wkg AIR FRANCE 633 for SELCAL check, position report 0224Z. (ALS)

8834: SA0317, Johannesburg-8 0653Z HFDL Lat/Longs + ACARS. (RH2)

8903: O/M (African accented EE) 0404Z USB w/unheard station passing five-letter groups, i.e., DABTL, DACVA using NATO phonetics. Each time O/M transmitted CW was riding on his xmitter. (RP)

8912: CG 6034 (HH-60J) establishes radio guard with CAMSLANT at 0118Z. (MC)

8968: E31605DAT (E-3B AWACS), 2218Z ALE/USB w/ICZSPR (Sigonella SIPRNET). 31/03. (RP)

8971: BLUESTAR (TSC Roosevelt Roads, PR) requesting ALPHA reports on contacts from BAT 01 (P-3C) in USB at 2311Z. (MC)

8971: TRIDENT 45 (P-3C, VP-26) wkg GOLDEN HAWK (TSC Brunswick) for SPARE GROUP 7 report. Heard in USB at 2141Z. (MC)

8971: TRIDENT 71C (P-3C, VP-26) wkg FIDDLE (TSC Jacksonville) in ANDVT encrypted comms then requests they come up on UHF. Heard in USB at 2103Z. (MC)

8980: USCG Rescue 1790 working Miami OPS via pp CAMSLANT ref SAR. (DS2)

8980: CG 1790 (HC-130) p/p via CAMSLANT to Miami Ops for search pattern for missing vessel in the Bahamas. Heard in USB at 2017Z. (MC)

8980: CG 1790 p/p via CAMSLANT to Clearwater Air. Report they are on scene of vessel taking on water. Vessel no longer in much distress. Request to know if they are to RTB or continue on previous search. Decide they will return to previous search. They have 1 hour search time left. Heard in USB at 0107Z. (MC)

8983: USCG CAMSLANT-Chesapeake USB wkg CG 2118 (HU-25B Falcon Jet, Mobile ATC), with position report. 1357Z. (ALS)

8983: USCG CAMSLANT-Chesapeake USB wkg CG 1790 (HC-130, CGAS-Clearwater), with position report. 1652Z. (ALS)

8983: USCG Rescue 1790 working CAMSLANT Chesapeake. (This was a long day for 1790). (DS2)

8983: USCG Rescue 2104 working CAMSLANT Chesapeake. CAMSLANT had to adjust ant. to rcv 2104 better. 2104 didn't hear ELT after completing search. CAMSLANT chking on further tasking. (DS2)

8983: CAMSLANT assumes radio guard for ARMY 26552 at 2130Z. (MC)

8983: CG Group Philadelphia conducting radio check with CAMSLANT in USB at 2339Z. (MC)

8983: CAMSPAC Point Reyes, CA with radio check in USB at 0317Z. (MC)

8992: REACH 93J p/p via Andrews HF-GCS to HILDA EAST and Meteo. Report ETA to Bucharest, Romania, and request WX in USB at 0143Z. (MC)

8992: REACH 6174 (C-141C) p/p via Lajes HF-GCS to Mildenhall AMCC and HILDA Meteo in USB at 0339Z. (MC)

8992: REACH 3082 (KC-10A) p/p via Sigonella HF-GCS to McGuire AFB CP and Meteo. Report inbound and request WX in USB at 0156Z. (MC)

9007: CANFORCE 4167 wkg TRENTON MILITARY for WX at Keflavik, Iceland and Shannon, Ireland in USB at 0141Z. (MC)

9010: TADIL A Link-11 data transmission at 0123. (MC)

9023: TADIL A LINK-11 data transmission at 2308. (MC)

9025: REACH 3081 (KC-10A) ALE initiated p/p to HILDA EAST and Meteo for WX at McGuire AFB in USB at 0032Z. (MC)

9025: AIRCRAFT 50103 (C-17A) ALE initiated p/p to HILDA EAST and DISPATCH reporting inbound Aden, Yemen in USB at 0044Z. (MC)

9025: REACH 372Y (self-id C-17A) ALE initiated p/p to HILDA EAST. Report late takeoff time. Need 16k fuel at 0250Z aerial refueling in USB at 0132Z. (MC)

9047: 004MERCAP (Middle East Region Civil Air Patrol) 1548Z ALE/USB. (RP)

9085: 1001, GUARDIA DI FINANZA LOC MIL.STD 188-141A ALE on LSB. Sounding. Also monitored at 1819, 1840, 1910 1759. (DW)

9145: CLS (Ft. Campbell KY), 1916Z ALE/USB sounding. (RP)

9165: UNID UNID CW Tfc in offline encrypt (5 fig grp), each grp rptd twice. Offair 1357 1445. (DW)

9224: O/M (SS) 0024Z USB w/Rafi (personal name-O/M SS) w/radio checks. Rafi has trouble hearing. O/M says there's a problem at his end. Rafi tells him that they will talk tomorrow. (RP)

10536: CFH, CF Halifax 0707 fax 120/576 Sea level pressures. (RH2)

10611.2: UNID: Moscow Met 1637Z FAX 120/576 Nice clean chart! // 13886.3 kHz. (RH2)

10780: ASCENSION RADIO (USAF Eastern Test Range) 2226Z USB wkg AIR TRANSPORT 300 (USAF Contractor DC-8) re inbound ETA message. Acft had departed Patrick earlier in the day for Antigua. (ALS)

11039: DDH9 HAMBURG MET RTTY//50/N/850 Met tfc. Med fcst in GG. 1536. (DW)

11080: KVM80: Honolulu Met 0711Z fax 120/576 Surface Analysis. (RH2)

11090: KVM70, Honolulu Met 1250Z fax 120/576 Satpix. (RH2)

11175: HF-GCS Sta, Andrews AFB USB wkg SHARK 18 phone patch to DSN 779-4841; will pick up other crew at Dobbins. 1940Z. (ALS)

11175: HF-GCS Sta USB with CW 400 (New Orleans VR-54 "Revellers" Sqdn C-130T) clg Mainsail (any station) with no joy. 2005Z. (ALS)

11175: SHUCK 94 working Pease Control via pp Offutt. E3 inbound states from Mildenhall. Discussing customs and turn around capabilities at various locations. Decide to land at Pease. (DS2)

11175: REACH 9014 working Hickam w/rdo chk. (DS2)

11175: CHAOS Ops working unreadable aircraft via pp Ascension. Trying to get clearance into Saudi Arabia. (DS2)

11175: REACH 133Y (self-id C-141C) p/p via Lajes HF-GCS to HILDA EAST reporting inbound to Kuwait International Airport in USB at 0216Z. (MC)

11175: REACH 3076 (C-141B) p/p via Andrews HF-GCS to Charleston AFB CP reporting inbound for WX divert in USB at 0040Z. (MC)

11175: REACH 351Y (self-id C-17A) p/p via Puerto Rico HF-GCS to HILDA EAST and Meteo with ETA and arrival info for Frankfurt and WX request in USB heard at 0031Z. (MC)

11175: REACH 6174 (C-141C) p/p via Puerto Rico HF-GCS to Wright Patterson AFB CP and Meteo with arrival info and WX request in USB at 2350Z. (MC)

11175: AIREVAC 713 p/p via Andrews HF-GCS to Andrews AFB CP followed by p/p to Offutt Meteo. Report inbound with 24 ambulatory patients, 27 litters and 3 attendants in USB at 0039Z. (MC)

11175: REACH 170 (self-id C-141, gives a position south of Cuba) p/p via Offutt HF-GCS to Charleston CP and HILDA Meteo with arrival info and WX request in USB at 0153Z. (MC)

11220: Andrews HF-GCS hailing SAM 5864 in USB at 2034Z. (MC)

11232: USCG 1503Z working Trenton Military. Pos. rpt. (DS2)

11232: RAZOR 93 (E-8 JSTARS, 116 ACW) p/p via TRENTON MILITARY to PEACHTREE at Robins AFB. Discuss diplomatic clearance for overflight in USB at 2109Z. (MC)

11232: CANFORCE 1502 wkg TRENTON MILITARY for WX at Lajes and Santa Maria in USB at 1925Z. (MC)

11232: CANFORCE 4171 wkg TRENTON MILITARY for hockey scores and WX in USB at 0210Z. (MC)

11282: Navy RJ820 SELCAL chk w/ San Francisco Radio.

11300: Addis Ababa (MWARA AFI-3) 2138Z USB w/Khartoum (not heard) exchanging information on Ethiopian 0734 ID as B-767 from Addis Ababa to Frankfurt. 26/03. (RP)

11345: O/M (IT) 0258Z USB w/unheard station Marco (first name or callsign??). Lots of familiar style chat, chuckling, etc. Prob pirates & not official net. (RP)

11410: TADIL A LINK-11 data transmission in USB at 1943Z. (MC)

11498: UNID UNID CW Broken hand. "essai k" "UA amateur k" "de Luigi UA zpf gk" and repeats. 1354. (DW)

12178: DHJ-59 (German Navy, Wilhelmshaven) 0043Z USB w/unidentified German Navy vessel servicing RTTY traffic. (RP)

12790: NMG, New Orleans Met 0700Z fax 120/576 Clean WX chart. (RH2)

12890: GYA RN NORTHWOOD FAX// 120/576/N/800 Middle East svc. Sig WX chart, labelled SWA HWD. Grainy. 1430 Schedule (for N/Atlantic svc). 1406Z. (DW)

12932.3: UNID, SS Navrad 0530Z RTTY 100/850 Crypto, no callsigns seen! (RH2)

12932.3: UNID, SS Navrad 1712Z RTTY 100/850 Online crypto. (RH2)

13200: HF-GCS Sta USB with ARMY 70049 (Andrews AFB OSACOM Det C-20 #87-0049) for ph patch. 2027Z. (ALS)

13200: PUERTO RICO (HF-GCS) wkg CW 140 (New Orleans JRB NAS VR-54 "Revellers Sqdn" C-130T) inbound to Dobbins, for ph patch re ETA message for relay to DSN 925-4903 at Dobbins. 2301Z USB. (ALS)

13200: NAVY CW 140 (C-130T) p/p via Andrews HF-GCS to Dobbins ARB reporting inbound in USB at 2355Z. (MC)

13257: VAMPIRE 5 (CC-138 Twin Otter, 14 Wing) p/p via TRENTON MILITARY to Northern HQ. Requests pass to duty ranger and VAMPIRE ops ETA then requests WX for Yellowknife in USB at 0104Z. (MC)

13257: CANFORCE 3512 wkg TRENTON MILITARY for WX at Winnipeg in USB at 2017Z. (MC)

13563: UNID, Brit Mil Cyprus? 1655Z MFSK-4 tone 195.3/300 An old friend, offair for many months & paired again as usual with 18788.9 kHz. (RH2)

13926: UNID, CIS Mil 1643Z Crowd36 40bd. (RH2)

13927: AFA3AD (MARS Operator, Wisconsin) USB wkg REACH 1819 for ph patch. 0024Z. (ALS)

13927: AGA2PA (MARS Operator, Patrick AFB) USB wkg REACH 0463 (Dover AFB 436AW C-5 #70-0463) for M&W phone patch. 1322Z. (ALS)

13927: AGA2PA (MARS Operator, Patrick AFB) USB wkg GOFER 02 (MN-ANG 133AW 109AS C-130) phone patch to DSN 597-2120 & 597-4337 Keesler AFB. 1334Z. (ALS)

13927: AFA1YV (MARS Operator, Binghamton NY) USB wkg THUNDER 52 over the Middle East with M & W ph patch to 662 Area Code (Mississippi) 2135Z. (ALS)

13927: AFA1YV (MARS Operator, Binghamton NY) USB wkg JUMBO 62 (same acft as THUNDER 52, different caller) over the Middle East with mongle/welfare ph patch. 2138Z. (ALS)

13927: AFA1EN (MARS Operator, Shelbyville IN) USB wkg REACH 164Y for M&W phone patch. 0118Z. (ALS)

13927: AFA1EN (MARS Operator, Shelbyville IN) USB wkg GLIDE 74 for M&W ph patch; not patch quality 0120Z. (ALS)

13927: AFA3AD (MARS Operator, Wisconsin) USB wkg REACH 135Y for M&W ph patches; is offshore New England, en route Andrews, then Ohio. Also patches through operator AFA1RE 0129Z. (ALS)

13927: AGA2PA (MARS Operator, Patrick AFB) wkg REACH 150Y over Maine, for M&W ph patch. USB 1301Z. (ALS)

13927: AGA2PA (MARS Operator, Patrick AFB) wkg SENTRY 61 (E-3B AWACS acft) over St Louis MO, for M&W ph patch 405 Area Code. 1505Z USB. (ALS)

13927: AFA3HS (MARS Operator, Kansas City) wkg REACH 6953 for M&W ph patch 856 Area Code. USB 1517Z. (ALS)

13927: AFA2XZ (MARS Operator, Salt Springs FL) wkg MACE 99 (SC-ANG C-130H over NYC for ph patch. USB at 1531Z. (ALS)

13927: AFA1EN (MARS Operator, Shelbyville IN) wkg SHADOW 20 for ph patch 206 Area Code (Washington). USB 1659Z. (ALS)

13927: AGA2PA (MARS Operator, Patrick AFB) wkg SUMIT 21 (Peterson AFB C-130H) for ph patch 414 Area Code (Wisconsin) USB 1730Z. (ALS)

13927: AGA2PA (MARS Operator, Patrick AFB) wkg MUSIC 85 (Nashville TN-ANG 105AS C-130H) over N Arabia for M&W ph patch. 2334Z USB. (ALS)

13927: AGA2PA (MARS Operator, Patrick AFB) wkg TIGER 74 (poss Brunswick VP-8 P-3C), not patch quality. 2350Z USB. (ALS)

13927: AFA2XD (USAF MARS Operator, Melbourne FL) wkg MOTOWN 06 (C-130E, Selfridge ANGB MI-ANG 127W 171AS) ph patch to Metro for WX. 1555Z USB. (ALS)

13927: AFA2XD (USAF MARS Operator, Melbourne FL) wkg REACH 9004 (C-5 #69-0004, Kelly Field AFRC 68AS) M&W ph patch. 1617Z USB. (ALS)

13927: AFA1EN (USAF MARS Operator, Shelbyville IN) wkg JODY 905 (C-130E, Little Rock 314AW) over Kansas, ph patch to Rock Ops re 1945Z ETA, Maint Status Alpha 2 for both autopilots and radar. Then M&W ph patch. 1834Z USB. (ALS)

13927: AFA1EN (USAF MARS Operator, Shelbyville IN) wkg JAZZ 88 (C-130H #79-0480, New Orleans NAS JRB 159FW) phone patch to PTD re ETA in 2.5 hrs. 1848Z USB. (ALS)

13927: AFA1EN (USAF MARS Operator, Shelbyville IN) wkg KING 46 (HC-130, Gabreski ANGB NY-ANG 106RQW 102RQS) 100 mi west of Bahamas, ph patch to 288-0588 AWOS; after hearing WX, will divert. 1920Z USB. (ALS)

13927: AFA1EN (USAF MARS Operator, Shelbyville IN) wkg REACH 068Y for M&W ph patch. 1940Z USB. (ALS)

13927: AFA3BB (USAF MARS Operator, Kansas City) wkg MOTOWN 08 (C-130E Selfridge ANGB) phone patch re airborne 1405Z. (ALS)

13927: AGA2PA (USAF MARS Operator, Patrick AFB) 1554Z USB wkg RAID 11 (KC-135R, Grand Forks 319ARW), north of Nebraska, e/r North Dakota, M&W phone patch, AC 248 (MI). (ALS)

13927: AGA2PA (USAF MARS Operator, Patrick AFB) 1614Z USB wkg REACH 748, near Greenland, phone patch. (ALS)

13927: AGA2PA (USAF MARS Operator, Patrick AFB) 1705Z USB wkg KING 33 (HC-130N #69-5833, Patrick AFB 920RQW 39RQS), phone patch to DSN 487-3040 Randolph AFB re WX at 1830Z. (ALS)

13927: AGA2PA (USAF MARS Operator, Patrick AFB) 1723Z USB wkg RAID 11 (KC-135R, Grand Forks 319ARW), phone patch to DSN 362-4396 Grand Forks Metro re 1800Z WX at Offutt. (ALS)

13927: AGA2PA (USAF MARS Operator, Patrick AFB) 1729Z USB wkg KING 33 (HC-130N #69-5833, Patrick AFB 920RQW 39RQS), phone patch to DSN 487-1861 Randolph AFB. (ALS)

13927: AGA2PA (USAF MARS Operator, Patrick AFB) 1742Z USB wkg REACH 960, M&W phone patch to AC 502 (KY). (ALS)

13927: AGA2PA (USAF MARS Operator, Patrick AFB) 1750Z USB wkg REACH 874Y, off MD coast, M&W phone patches to ACs 850, 504, 708. (ALS)

13927: AFA1EN (USAF MARS Operator, Shelbyville IN) 1820Z USB wkg REACH 6160 (C-141 #66-0160), over Bahamas, phone patch to DSN 564-4735 Norfolk NAS ATOC re 2000Z ETA from Gitmo. (ALS)

7633.5: AFA1EN (USAF MARS Operator, Shelbyville IN) 1849Z USB wkg TEAL x1 (WC-130H, Keesler AFB 403W 53WRS), phone patch to DSN 597-2409 Teal Ops re 1945Z ETA. (ALS)

13927: AFA1EN (USAF MARS Operator, Shelbyville IN) 1900Z USB wkg KING 31 (HC-130P, Moody AFB 71RQS), phone patch to travel agency. (ALS)

13927: AGA2PA (USAF MARS Operator, Patrick AFB) 1910Z USB wkg REACH 054Y, M&W phone patch to AC 302. (ALS)

13927: AFA1EN (USAF MARS Operator,

HF And Military Communications Report

By Al Stern

Among the most interesting recent military HF comms, we'd have to include the comms of the victorious U.S. servicemen returning to the States. The frequencies bearing the heaviest traffic continue to be 11175-kHz USB, the primary GCS-HF freq, and 13927-kHz USB, the principal USAF MARS phone patch freq. B-52s returning to their Barksdale base from Fairford in the UK, B-1 bombers from Ellsworth AFB, and E-8 JSTARS surveillance aircraft were among my successful targets. Because of propagation conditions, lately many of the aircraft calling on the popular 13927 MARS phone patch primary are being shifted to other frequencies, so be sure to keep an ear on the alternates, especially 20992.5, 7633.5, and 4557.0 kHz USB.

In addition to those comms, I was able to follow the arrival of nine F-16s and their KDC-10 tanker on 13200-kHz USB as they approached Melbourne IAP where they remained for a few days before continuing on to El Centro for low-level live-fire training.

Among some other interesting HF comms snagged were a military net operating in the Persian Gulf on 9.237 kHz and 7.9556 kHz, including callsigns Little Indian, Angry Tiger, and Barstool. There was also a very talkative BF Net on 4430.4, with not just the usual stream of trigraph callsigns. The "Alligator" consisted of Bravo-Foxtrot, Sierra, Hotel, Echo-Lima-Bravo, Delta, Lima, November-Tango-Romeo, Timber, and Black Timber discussing erroneous tracks, sonobuoys, etc., but including a lot of informal comms not usually heard on such nets.

The U.S. Coast Guard, of course, continues to be a wonderful source of comms, especially in the summer months when so many boats are afloat. Recently CGAS-Cape Cod was heard passing HF freq 4417.0 as "Night Guard Primary." Military comms were not the only ones heard. Sadly, there were the HF comms heard from the Shuttle Columbia recovery work, and those included the following freqs: 3860 Goddard Space Center comms rebroadcast (USB); 5696 US Coast Guard (USB); 6766 Texas National Guard (ALE Mode); 7290 Texas Amateur Radio Net (LSB); 7371 U.S. government SHARES Emergency Net; 7635 Texas CAP (USB); 8983 U.S. Coast Guard (USB); 12087 Texas National Guard (ALE Mode); 12129 Texas National Guard (ALE Mode); 14.292 Goddard Space Ctr; 14396.5 U.S. government SHARES Net (USB).

Here's a P-3C working the pattern at Patrick AFB. Its callsign is "Lima Tango 623" and it's based at NAS-Jacksonville's VP-62 "Broad Arrows" Sqdn. (Photo by Al Stern)

And, finally, looking to the future, the FCC has just granted five frequencies for amateur use on a secondary basis. The freqs are 5332, 5348, 5368, 5373, and 5405 kHz. These are available to General and higher-class hams in USB mode only, with a maximum effective radiated power limit of 50 watts relative to a 0-dB gain antenna—a half-wave dipole.

Be sure to pass along to me any reports you may have of interesting HF comms you snag. And, of course, you are welcome to pose questions if you are just getting started in our wonderful hobby. I can be reached at <AllanStern@aol.com>.

Shelbyville IN) 1918Z USB wkg KING 31 (HC-130P, Moody AFB 71RQS), phone patch Patrick AFB's Moody 71RQS ofc. (ALS)

13927: PYTHON 64 (in the Middle East) morale p/p via AFA1EN to a location in Alabama at 2334Z. (MC)

13927: REACH 6193 (C-141C) p/p via AFA1MH with arrival info and request for WX at Wright Patterson in USB at 2224Z. (MC)

13927: ORCA 50 (KC-10 over the Indian Ocean) morale p/p via AFA3AD in USB at 2127Z. (MC)

13927: TURBO 71 (KC-135 in the Middle East) morale p/p via AFA3AD in USB at 2339Z. (MC)

13927: DIXIE 39 (KC-135 in the Middle East) morale p/p via AFA1LJ to Nashville and Minnesota in USB at 2222Z. (MC)

13927: GUMBY 65 (in the Middle East) morale p/p via AFA1LJ to Nebraska in USB at 2254Z. (MC)

13927: REACH 789 (in the Middle East) morale p/p via AFA1LJ to Kansas in USB at 2317Z. (MC)

13927: REACH 693T (self-ID C-130) p/p via AFA1LJ to NAS Roosevelt Roads. Report ETA and request transportation for 13 crew in USB at 2339Z. (MC)

14408: AFN2AC (MARS Operator) USB wkg SUMIT 10 (Peterson AFB AFRC 302AW C-130H) for ph patch to DSN 238-2175 (Niagara Falls ANGB CP); having oil pump problem; Niagara Falls cannot assist. 2252Z. (ALS)

14408: AFN2AC (MARS Operator) USB wkg SUMIT 10 (Peterson AFB AFRC 302AW C-130H) for ph patch to DSN 273-5322 (Selfridge ANGB); having oil pump problem; Selfridge cannot assist; will RTB previous departure base. 2258Z. (ALS)

15750: MGJ, RN Faslane 1625Z RTTY 70/350 Carbs. (RH2)

15920: CFH CF HALIFAX RTTY//75/ N/850 Periodic (30sec) marker "NAWS de CFH zkr f1 2822 3394 4158 6242 8303 12386 16552 22182 ar." Nil QSO activity thru 1625Z 1557Z. (DW)

16014: RFQP: FF Djibouti 0931Z ARQ-E3 100/400 CdeV on RUN cct. (RH2)

16026.7: UNID EGYPTIAN DIPLO? ?LOC SITOR/A//100/E/170 Weak, in irs mode. 1302Z opchat briefly in AA(ATU80) and s/off 1257Z. (DW)

16038.7: UNID UNID SITOR/A//100/ E/170 Weak, in irs mode. Faded by 1713Z 1643. (DW)

16120: UNID, CIS Navrad 1655Z 36-50 50/240. (RH2)

16131.7: UNID EGYPTIAN DIPLO? ?LOC SITOR/A//100/E/170 In irs mode. 1331Z opchat in AA (ATU80) and offair 1330Z. (DW)

16200: UNID: CIS Navrad 1525Z 36-50 50/240. (RH2)

16207: UNID: CIS Navrad 1704Z 36-50 50/176. (RH2)

16213.7: UNID MFA CAIRO SITOR/A// 100/E/170 Tfc in AA (ATU80). Constant mark btwn bursts. Briefly drops into SELCALs XBVF/Madrid 1339Z. (DW)

16305.7: UNID FF NDJAMENA ARQ/E3//200/E/400 8rc. Poor/little sync at 1405Z. (DW)

16311.7: UNID CIS Mil 1226Z Crowd36 40bd. (RH2)

16318.7: UNID MFA CAIRO SITOR/A//100/E/170 Tfc in AA (ATU80) then into irs mode. 1534Z opchat and s/off 1524Z. (DW)

16331.9: S CISN ARKHANGELSK CW Single letter [S] HF beacon 1537Z. (DW)

16332: UNID C CISN MOSCOW CW Single letter [C] HF beacon 1536Z. (DW)

16332: UNID "C" Beacon heard at 1658 CW. (RH2)

16412.5: UNID BIAC Kinshasa 1225Z Pactor 100/200 Banking Stuff in FF. (RH2)

16421.5: RFTJ FF Dakar 0752Z ARQ-E3 48/400 CdeV on TJF cct. (RH2)

16627.7: UNID FF NDJAMENA? ARQ/E3//200/E/400 8rc. Betas. No app tfc thru 1117Z 1012Z. (DW)

16830.5: SVO Athens R 1651Z CW Marker. (RH2)

16985.7: CTP NATO Lisbon 1545Z RTTY 75/850 NAWS de CTP QSX 04 PI. (RH2)

17045.7: 9MR? Malay Navrad? 0650 RTTY 100/850 Online crypto & clean Baudot! MN normally at 50/850 on this freq and never seen online crypto! Perhaps a NATO VMGT station? (RH2)

17147: URL, Sevastopol R 1647Z CW CQ marker. (RH2)

17362: Y/L (EE) 1607Z w/marine WX forecast for Gulf of Mexico. (RP)

17441.5: 5YE, Nairobi Met 1220Z RTTY 100/850 WX in EE & FF (Meteo France relay fm Reunion). (RH2)

17925: ARINC-New York 2045Z USB w/AA 2160 (reports he is 50 miles west of Providenciales) w/request for pp w/Alliance Maintenance. ARINC advises there's a busy signal. (RP)

17982: HERMES (Brazilian Air Force), 1757Z ALE/USB calling BANDEIRANTES Brazilian Air Force). (RP)

18003: HAW USAF Ascension 1408Z ALE/USB SNG. (RH2)

18003: JDG Diego Garcia 1430Z ALE/USB SNG. (RH2)

18003: MPA Falklands 1436Z ALE/USB SNG. (RH2)

18003: ICZ Sigonella 1541Z ALE/USB SNG. (RH2)

18003: PLA Lajes Field Azores 1641Z ALE/USB SNG. (RH2)

18012: COTAM 1145 1844Z USB w/Circus Citron (FAF, CAYENNE, FRENCH-GUYANA) w/position report and departure time from Dakar. (RP)

18042.7: FF LIBREVILLE ARQ/E3//192/E/400 8rc. Betas. 1314Z cct[JDJ] c de v svc RFTYJ de RFTJ 1302Z. (DW)

18060.2: VMW Wiluna Met 1025Z fax 120/576 Wind charts. (RH2)

18060.2: VMW Wiluna Met 0653Z fax 120/576 Good chart. (RH2)

18183.4: UNID ALGERIAN EMB ADDIS ABABA COQ/8//26/E/, Tfc in FF heard at 0839Z. (DW)

18183.4: UNID Ambalg Bamako 1553Z Coq8 26.67 Msg\FF to MAE Algiers info Conakry, Lome, Dakar, Ouga, Abidjan & Niamey. (RH2)

18203.7: UNID MFA CAIRO SITOR/A// 100/E/170 Tfc (weak) on AA (ATU80), dropping into SELCALs KKXT/Nairobi then offair 1325Z. (DW)

18203.7: UNID MFA Cairo 0700Z ARQ Msg\AA about Afro-Asia Legal Union. (RH2)

Some Common UTE And Shortwave Listening Abbreviations

A	Approximate Frequency
AA	Speaking Arabic
AB	Air Base
ACD	Automatic Call Distribution
ADT	Airborne Data Terminal
AF	Air Force
AFB	Air Force Base
AFCC	Air Force Communications Center
ALLOC	Allocation
AM	Amplitude Modulation
ANG	Air National Guard
ANT	Antenna
ARQ	Automatic Request
ARR	Arrive
ATC	Air Traffic Control
BC	Broadcast
CALL TAPE	Repeated Recording
CH	Channel
Comms	Communications
CONUS	Continental U.S.
CW	Continuous Wave
DCS	Defence Communications System
DEP	Depart
DSB	Double Sideband
DX	Distance
EE	Speaking English
ETA	Estimated Time of Arrival
f/in	Fade in
f/out	Fade out
FAA	Federal Aviation Administration
FAX	Facsimile
FEC	Forward Error Correction
FF	Speaking French
FREQ	Frequency
FSK	Frequency Shift Keying (RTTY)
GMT	Now UTC
H	On the Hour
H+	Minutes Past Hour
HF	High Frequency
HQ	Headquarters
IAP	International Airport
ID	Identification
kW	kiloWatts
LA	Latin America
M	Meters (measure)
MAP	Municipal Airport
MARS	Military Auxiliary Radio Service
MEDEVAC	Medical Evacuation
METEO	Meteorological (Weather)
Mystic Star	Air Force 1 and 2 Communications
NA	North America
NASCOM	NASA communications
NBRS	Numbers
NDB	Non-directional Beacon
NG	National Guard
NTM	Notice to Mariners
NX	News Broadcast
OM	Male Speaker
OPR	Operator
OPS	Operators
PP	Speaking Portuguese
PT	Plain text
PX	Program
QSL	Verification Card
QTH	Home Base
R	Radio Station
RDO	Radio
RPTNG	Repeating
RF	Radio Frequency
RR	Speaking Russian
RS	Receiving Station
RTTY	Radio Teletype
RX	Receiver
s/on	Sign On
s/off	Sign Off
SAR	Search and Rescue
SEC	Secondary Frequency
SITOR	Error Corrected RTTY
SKED	Schedule
SS	Speaking Spanish
SSB	Single Side Band
TACOM	Tactical Communications
TFC	Traffic Communications
TX	Transmitter
UNID	Unidentified Station
USA	United States Army
USAF	United States Air Force
USB	Upper Side Band
UTC	Coordinated Universal Time
VY	Very
w/	With
WKG	Working (talking to)
WPM	Words per Minute (CW or RTTY)
WX	Weather
XMTR	Transmitter
Z	Same as UTC

18226.7: kdakrfr MFA Cairo 1626 ARQ Msg\AA to "Khartum." (RH2)

18261: GYA RN NORTHWOOD FAX// 120/576/N/80 Grainy pix. Middle East svc. Labeled SWA HWD. Looks like Sig WX chart thru 1357Z 1348Z. (DW)

18320.8: rftj FF DAKAR ARQ/E3//192/ E/400 8rc. Cct [TJD]. Tfc in offline encrypt. 0802Z. (DW)

18334.7: UNID EGYPTIAN DIPLO LOC SITOR/A//100/E/170 Stn in irs mode. 1550Z brief AA (ATU80) s/off 1537Z. (DW)

18370.3: WPC SEAWAVE MIDDLETOWN CW marker with CW ID "WPC" every three mins thru 1315Z 1235Z. (DW)

18378.7: UNID EGYPTIAN DIPLOLOC SITOR/A//100/E/170 Brief AA (ATU80) then into irs and offair 0942Z 0941Z. (DW)

18480: OLZ69 CZECH EMB CAIRO MIL.STD 188-141A ALE on USB. Sounding. Also at 1349Z 1148Z. (DW)

18480: OLZ69 CZECH EMB CAIRO MIL.STD 188-141A ALE on USB. Sounding. 1733Z. (DW)

18480: OLZ88 MFA PRAGUE MIL.STD 188-141A ALE on USB. Sounding Also 1532, 1838 1432Z. (DW)

18529.4: UNID ALGERIAN DIPLO LOC COQ/8//26/E/, Two brief bursts of opchat in FF. 1415Z. (DW)

18571.5: UNID Tunis Diplo monitored at 1730Z in FEC Always strong sigs but never much content! (RH2)

16951.5: 6WW FN Dakar 1208Z RTTY 75/850 RY/SG Testing. (RH2)

18571.5: UNID Tunis Diplo heard at 1527Z in FEC BSR Tamazirt QSA int QRK, etc. then Ry's. (RH2)

18605: OLZ84 CZECH EMB LOC MIL.STD 188-141A ALE on USB. Sounding. 1129Z. (DW)

18667.7: UNID EGYPTIAN DIPLO LOC SITOR/A//100/E/170 Tfc (weak) in AA (ATU80) and s/off 0925Z. (DW)

19131: Atlas (DEA Flight Watch) 1656Z USB w/Flint 940 (DEA pilot) who reports they are on final approach to an undisclosed airport. (RP)

19145.7: RFQP FF Jibouti 1208Z ARQ-E3 200/400 CdeV on DKJ cct. (RH2)

19724.5: UIW Kaliningrad R 1635Z RTTY 50/170 Navwarnings in RR. (RH2)

20047.7: D CISN ?LOC CW Single letter "D" HF beacon 0852Z. (DW)

20047.9: S CISN ARKHANGELSK CW Single letter "S" HF beacons 0851Z. (DW)

20048: C CISN MOSCOW CW Single letter "C" HF beacons 0850Z. (DW)

20133.7: ATV036 POLISH MIL IRAQ MIL.STD 188-141A ALE on USB. Clng LCR155 1807Z. (DW)

20179.7: UNID FF PARIS? ARQ/E3//100/ E/400 8rc. Betas thru 1045Z 1024Z. (DW)

20221.7: UNID EGYPTIAN EMB ABUJA SITOR/A//100/E/170 Tfc in AA (ATU80) and in offline encrypt. S/off at 1602Z. (DW)

20633.7: RFVI FF LE PORT ARQ/E3// 100/E/400 8rc. Betas. No app tfc, and virtually faded, by 0845Z 0755Z. (DW)

21964: CIU 200 (Cielos del Peru) heard at 2052Z USB calling Miami Radio w/no response. (RP)

23523: JMJ6, Tokio Met 1256Z fax 120/576 Lovely clean chart! Forecast by "Global Spectrum Mode." (RH2)

25186: ASI/KUW Brit Mil Ascension & Kuwait 1506 ALE/USB Both SNG at same time! (RH2)

27870: JDG USAF Diego Garcia 1246Z ALE/USB SNG. (RH2)

27870: JNSPR Salinas 1258Z ALE/USB SNG. (RH2)

27870: JDGSPR Diego Garcia 1317Z ALE/USB SNG. (RH2)

27870: CRO Croughton 1344Z ALE/USB SNG. (RH2)

This month's contributors are: Alan Stern (ALS), Day Watson (DW), Dwight Simpson (DS2), Mark Cleary (MC), Ron Perron (RP), and Robert Hall (RH2).

Again, thank you all very much. Each and every one of your contributions is appreciated, as always. There is a still a need for new contributors, especially for people who can keep us up to date on hot frequencies being used in the conflict in the Middle East, as well as the build-up of armed forces in the Pacific.

While the events in Iraq are still unsettled, the U.S. military and their allies still need your support and prayers. See if there is anything you can do to help keep the troops' spirits up—write a supportive letter to a serviceperson, indicating that it can be delivered to anyone in a particular service, and you'll make their day.

And don't forget that you can write to me as well at "Utility Radio Review," PMB 121, 1623 Military Rd., Niagara Falls NY 14304-1745.

So, until next month, may all your Utility Monitoring sessions be enjoyable and productive. ■

Tuning In *(from page 4)*

comments in this proceeding will be 45 days after publication of the NOI in the *Federal Register,* which occurred on May 23, 2003. The "Summary" at the Federal Register's website says, "This document requests comment from the public on the current state of Broadband Power Line (BPL) technology and to determine whether changes to the Commission's rules are necessary to facilitate the deployment of this technology. The Commission believes that BPL could play an important role in providing additional competition in the offering of broadband infrastructure to the American home and consumers because power lines reach virtually every community in the country."

All of this new infrastructure is yours, but for a price: not telling the public about the pollution issue. Act now or regret it later.

Rupert's Big Deal: The Stench Gets Unbearable!

News Corp. chairman Rupert Murdoch has been assuring lawmakers that the proposed acquisition of DirecTV wouldn't harm competition or limit the choices consumers would have. Of course Rupert is making Rupert bucks, so it stands to reason he want more greedy bucks, right?

DirecTV is our country's largest satellite television provider, and that fact coupled with how the acquisition would change the media landscape in the United States is counter to everything good old-fashioned competition (remember the little guys trying to start a company or successfully operate a radio or TV station?) stands for. We've either lost touch with reality with the 21st Century though process that says, "that's the way it is," we simply don't give a damn about what happens around us, or we've become so overwhelmed by Big Brother, corporate takeovers, and mergers that most folks can't seem to focus on issues that will affect their lives and their children's for years down the pike.

Murdoch says there will be "no decrease in the number of U.S. competitors." Right, Rupert, just like your bud, House Energy and Commerce Committee Chairman Billy Tauzin (R-LA) told lawmakers to oppose legislation that would require the FCC to keep the rule preventing any one company from owning TV stations that reach more than 35 percent of U.S. households. Incredibly (or perhaps not so incredibly) Michael Powell, FCC Chairman, wants to ease those ownership rules, while the two Democrats on the five-member commission say he's not advising the public and rushing it to a vote. Certainly the public needs more time to be properly advised, and there *needs* to be more public debate and discussion. Powell, in keeping with the current Administration's "my way or the highway" philosophy, says no. Amazing! You and I just got the bird from Uncle Sam. And *they* work for *us*!

Meanwhile, the Center for Public Integrity says FCC officials have taken more than 2,000 trips over the last several years, most paid for by the same industry the Commission oversees and regulates. Hmmm, something smells funny. But, rest assured, the trips in question will be deemed appropriate and nothing will come of the fiasco. Nothing, that is, except fewer choices for you and me.

Do the right thing, Chairman Powell and Mr. Tauzin. Come clean and start serving the Country you've sworn to serve. Can you say "ethics"? ■

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loose connection

radio communications humor

by Bill Price, N3AVY <chrodoc@earthlink.net>

A One-Page History Of Electronic Communications

If each of you had a friend like Doug Quinn, you too would have the inspiration to write magnificent canons (ka-blam!) to be safely kept in the liberrys of congress and the ARRL such as I'm about to set forth here. You see, Doug just sent me a synopsis of the decline and fall of the Roman empire in just *two paragraphs*. This gave me the confidence to proceed with this pile of Augean stable-stuff, which, in turn, will enable you to amaze your friends at all sorts of social events, SMPTE gatherings, and even the annual NAB convention.

Stay with me now.

First of all, before there could be wireless communications, there had to be wire. There were many bad jokes made about how copper wire was discovered or invented, and although the reports are all pretty vague, we do know that it was two guys who both spied an early coin, which I believe was a *scrouple* and was made of (all together now) copper! This would account for most of the people I've met in communications being without scruples, and could have been a harbinger of things to come in the industry. Shortly after wire was invented, long before the first dit or dah or bit of spark-gap noise, the FCC was formed on the North American continent and merely waited for Washington, D.C., to be chosen so that it could begin to hinder progress once the streets were laid out.

Now about this time, not far from Mesopotamia (near just a little bit of potamia, really), Guglielmo Macaroni was born (on a Wednesday, which soon became known as Spaghetti Day in nearby Boston). Little Google quickly invented capacitors and resistors and coils, and used up bread boards as fast as his mama could find them, while his family looked on in despair. He learned to solder when other kids were slobbering, and with an old dried fava bean on the sidewalk in front of the family home, he conjured up all sorts of stuff about radio propagation. Also, when other tykes his age were making baby noises, little Google made radio noises, such as 'weeeeeeeeeeooooooooouuuuuuuu, and bubbubbubbubbubbub, and rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr, and huuuuummmmmmmmmmmmm. If his house had been wired for AC, he'd have probably invented many interesting smells, such as the lovely ozone whiff that comes right after a power transformer goes "pfffffft," assuming you're quick enough to pull the plug before the drapes catch fire.

Okay, so give or take a few years, Hiram Percy Maxim had just perfected the machine gun (hah, you think I'm making this stuff up!) and was wondering what to invent next when a light bulb lit over his head. Okay, it was a D.C. light bulb, but a light bulb just the same. He said to himself, "Now that I've gotten this audio cassette (ooops, I mean Edison Cylinder Recording) "Learn Italian at Home" course, whoever shall I talk to?"

He grabbed what looked like a telephone and hit 411 and James Earl Jones told him he'd have to wait a while for digital dialing, and that the next information operator would not be available for a century or two, would he mind waiting? But Maxim recognized Jones' voice from a baseball film they'd once worked on together, "Field of Electrons" or something like that.

Anyway, Maxim asked Jones if he knew the phone number for someone in Italy, so he could practice his Italian with a native speaker, but all Jones could do was connect him to a kid named "Antny" somewhere in the north end of Boston, who had his mouth full of spaghetti at the time and asked Maxim to call back. With long distance rates what they were, Maxim decided not to hold on.

Maxim became more and more frustrated over the months, practicing his Italian by himself, with his sheep, the dog, his goldfish, and anyone passing on the street who would listen. Meanwhile, his radio transmitter just would not accept an audio input. He could send all the CW he wanted, but he could not use a microphone.

He had gone through his mother's kitchen, trying modulation scheme after modulation scheme, using frying pans, tongs, the ice box, the butter churn, until, finally, it hit him. He'd been staring at it all through supper. His PLATE! He rushed outside and began to use PLATE MODULATION on his transmitter and *voila*! (or whatever it was that they said in Italian)—he was on the air.

Little Google had grown up now and the first thing out of his mouth (in perfect English, as he'd been taking the Berlitz English course) was "Hey, Hiram, where'ya been?"

Poor Hiram was shocked. "WHATSA YOU NAME?" was all he could say, remembering the people at the docks in New York, but forgetting everything that Berlitz had taught him.

Compressing the rest so that it fits onto one page, the FCC soon took over 19th and M Streets NW, creating a market for Joseph A Banks Menswear, then moving away just as things got good. They were sure that the Communications Act of 1934 was plenty restrictive, but, just in case, they wrote a new one in the '90s. Newton Minow has retired to a vast wasteland, the useless frequencies above 30 Mc have been given to the amateurs, some guy in Mahanoy City, Pennsylvania, decided to share his hilltop TV antenna and charge for it, and, as predicted, no one's ever going to listen to broadcast FM radio. Sputnik goes round and round the earth going Beep! Beep!, but no one sees a use for that either.

...and they tell me that some day the Coast Guard will stop using Morse code. Ha! That'll be the day! ■

Editor's Note: Illustrator Dave Crews is a student in the School of Art at East Carolina University. He specializes in all forms of cartooning—comic strips/panels, illustrations, and caricatures. His website, <www.crewstoons.com>, features an online portfolio and offers custom caricatures. Dave also publishes a weekly comic strip, which can be found online at <www.leeandtheboys.com>.

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