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

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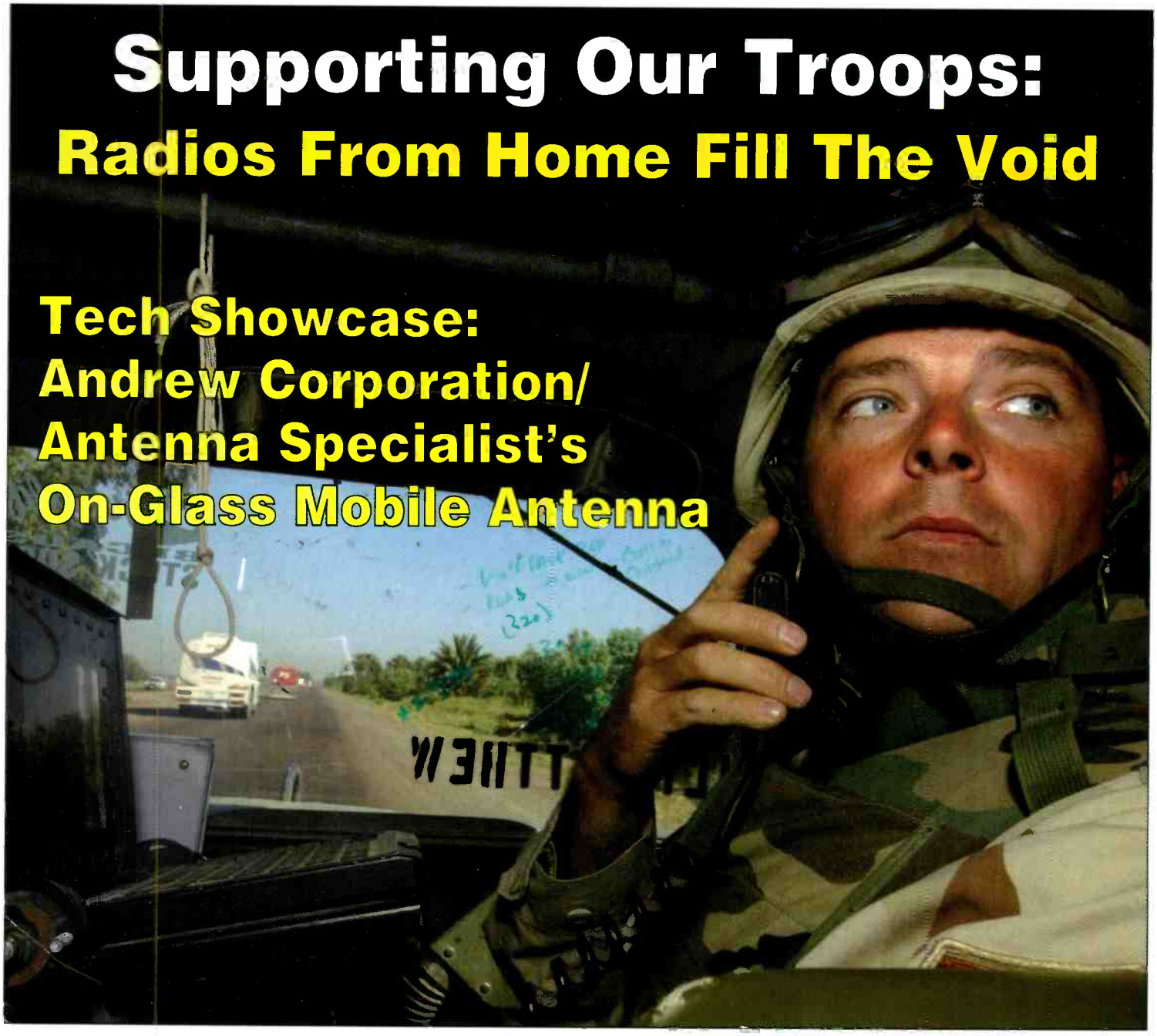
POPULAR COMMUNICATIONS

MARCH 2005

Supporting Our Troops:
Radios From Home Fill The Void



Tech Showcase:
Andrew Corporation/ Antenna Specialist's On-Glass Mobile Antenna

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Easy Steps To Home Computer Security...page 64

PLUS: **Dealing With Interference, Albania Cuddles Up With China, And An Exclusive "Black Project" Update**

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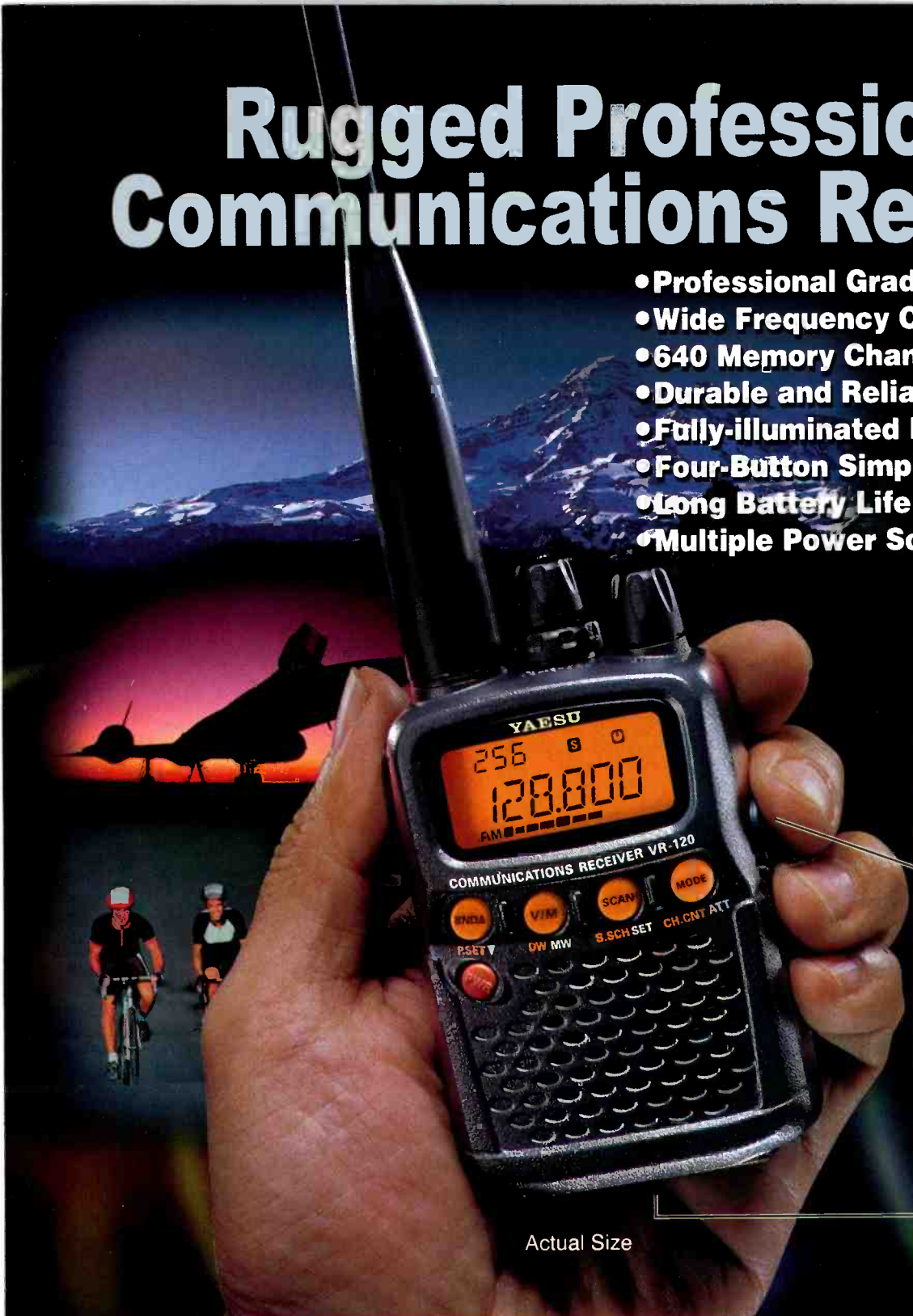

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ICOM

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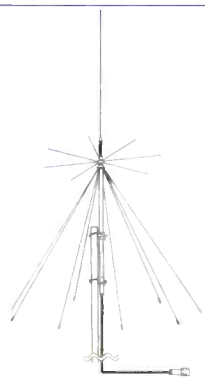

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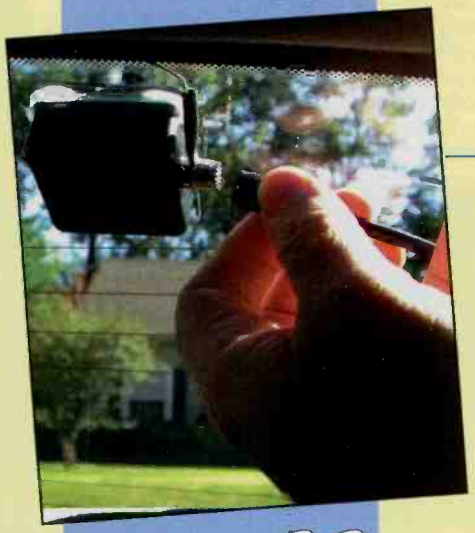

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Departments

On The Cover

Air Force Master Sgt. Theron Jones monitors the progress of a 67-vehicle convoy along the main supply route in Iraq.

Jones is the 3rd Platoon Commander from the 2632nd Air Expeditionary Force Transportation Company and is responsible for providing security to military and civilian convoys as they transport supplies to multiple Forward Operating Bases throughout Iraq.

You've heard news reports that many of our soldiers in Iraq and Afghanistan aren't equipped with adequate vehicle armor, but many troops also lack basic radio communications in their convoys. This month, beginning on page 8, read how one soldier got the radios he needed from the folks back home in "The Power Of One Voice."

(Photo by Tech Sgt. Scott Reed, U.S. Air Force)

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by R. K. Leef

Missing The Boat On Communications

Editor's Note: This month we give the keyboard to R.K. Leef (www.rkleef.com) for a special editorial that deserves your attention. As you read this, please keep in mind that we're now about two-and-a-half years post 9/11.

Bob has authored several petitions to the FCC relating to GMRS, FRS, and license fees. He has founded four radio organizations, including the Radio Communications Monitoring Association. He's a former communications responder for the Red Cross on national disasters and a 35-year radio volunteer in his California community. He has also spearheaded three collections of slightly used two-way radios, taking them to rural fire departments in Mexico.

The recently published *9/11 Report—The National Commission on Terrorist Attacks Upon the United States* makes great reading, especially for people interested in radio communications as we are. The following are just a few of the notable comments I have on the report. I ask for your thoughts.

The Port Authority police were poorly prepared, the Commission found, with officers responding from the agency's airports, tunnels, and bridges, but unable to find a common radio frequency or a command post for instructions. The Commission said that there had been "a lack of communications and coordination among responding agencies" and "information that was critical to informed decision-making was not shared among agencies." Technical difficulties with radios were only one factor that slowed the communication of orders.

Government Communication... Or Lack Thereof

Military and FAA leaders at senior levels had no effective communication with each other. In the fire department, the system was overloaded, commanders had difficulty communicating with their units, firefighters were tuned to the wrong channel, and others were without radios, according to the Commission.

It was recommended to make homeland security funding contingent on the adoption of an incident command system to strengthen teamwork in a crisis, including a regional approach. Also, it was recommended to allocate more radio spectrum and improve connectivity for public safety communications, ***and to encourage widespread adoption of newly developed standards for private sector emergency preparedness, since the private sector controls 85 percent of the nation's critical infrastructure.*** This is amazing!

Sometimes communications people don't communicate very well. Besides this magazine, do you also read *Mission Critical, Mobile Radio Technology, Homeland Defense Journal, 9-1-1 Magazine, APCO Bulletin, Association (Canada)*, or other similar publications? You will have noticed one thing in common regarding two-way radio. It was also the same thing heard after the 9/11 disasters, and heard in just about every post-event critique anywhere: "we had communications problems." In many cases this amounts to one agency or organization not being able to talk to another at the scene of a large-scale incident because of being on different frequencies.

Interoperability (actually the lack thereof) is the buzzword of the year. In an effort to overcome the problem, some new common frequencies are being established, protocols are being instituted, and some other ideas are being put into effect. What does this have to do with "popular" communications? Maybe we "ordinary" communicators could learn a lesson here. And maybe radio manufacturers could also learn an even more important lesson.

Interoperability Still Lacking

There are thousands of business licenses, agency licenses, and organization licenses issued by the FCC. Each of these accounts for numerous units, many on the UHF band from 450 to 470 MHz. Mobile and handheld models have been designed with *them* in mind. But wait, there's so much more! Just below 450 MHz is an amateur band. There are about 600,000 licensed hams in the United States. And within the 450- to 470-MHz band there are 54,188 GMRS licenses, many with multiple radio users. How about some interoperability here when we need it?

Lots of radio people I know are hams, have a GMRS license, and also use their handhelds and mobiles for business or belong to an agency or organization using a UHF frequency. Yet, few mobile units are designed to let the public user operate on all the frequencies he or she *could* use. *AND*, we're not talking about occasional emergency use, but daily communications that could be a great convenience.

A sample check of mobile radios available from manufacturers shows this interoperability is seriously lacking in most cases. For example, most mobile models are FCC certificated for Part 90 (business, etc. radio services) from 450 to 470 MHz, but not for Part 95A (GMRS)—right in the middle of that band! The few that are usually don't also include the amateur band from 450 down to 440 MHz that should require no further FCC certifications. If there are any radios that make it this far, some don't have the specifications to allow them to be used as a base station—as is, right out of the box—and hardly any have front-panel user-programmable CTCSS/DCS. While all models probably could easily meet these requirements, only very seldom does the manufacturer include these desirable features. Note: units not certificated at 2.5 parts per million (PPM) may still be used as base stations for GMRS if they are "maintained" within a frequency tolerance of 2.5 PPM.

Yes, manufacturers are missing the boat in making a moderately priced mobile radio that is marketable to a wider market. Maybe they never heard the advice "all aboard"?

Progress?

At issue deadline, we just found out about a new UHF mobile scheduled for delivery at the time this issue is to appear. It's offered by one manufacturer, Tekk, and should have almost all the desirable features, be user-programmable for tone, and sell at a consumer price! ■

by Harold Ort, N2RLL, Editor, and D. Prabakaran

News, Trends, And Short Takes

Dayton Hamvention To Remain At HARA Arena Through 2007

Dayton Hamvention General Chairman Gary Des Combes, N8EMO, has announced a new pact with the owners of the HARA Arena complex that will keep the world's biggest gathering of amateur radio enthusiasts at its long-time home, at least through 2007. "Last May we promised that our committee would do all it could to keep the Hamvention here in its birthplace of Dayton, Ohio. It was a promise we all took very seriously. Now this important goal has been fulfilled," said Des Combes. Soon after the close of Hamvention 2003, Des Combes, along with Assistant General Chairman Jim Nies, WX8F, and other members of the planning committee entered into negotiations with Hara Arena Management. The goal, said Des Combes, was to obtain an equitable long-term agreement with HARA that would ensure that the Dayton Hamvention would remain in the Dayton area. "Under the terms of the new contract, the HARA Arena will be the home of the Dayton Hamvention through at least 2007," said Des Combes, adding, "...and we hope it will be much longer than that."

The Hara Arena Complex in the Dayton suburb of Trotwood, Ohio, has unique history. It was named by founding brothers Harold and Ralph Wampler, who in 1956 built a dance hall named the Wampler Ballarena. It soon became the cornerstone of what is now a six-building exhibition center on what was once the location of a flourishing, family-owned fruit orchard. Today it has matured into a thriving, family-owned entertainment, conference, and exhibition facility. The arena building, built in 1964, ushered entertainment into the Dayton area of a degree the city had never seen before. The Rolling Stones, Elton John, The Who, Neil Diamond, and The Grateful Dead all played at this historic facility, and the Hamvention has made it its for almost four decades. But the Dayton Hamvention is the only annual show coming to the HARA Arena that uses every square inch of available space. In fact, the HARA has grown with Hamvention, with the East Hall and North Hall added to accommodate a growing yearly amateur radio trade show and exhibition. Over the years there have been persistent rumors that the Hamvention would leave the Dayton area. Nies said that this new three-year arrangement should put those rumors to rest once and for all. "Dayton is our home. It is where the Dayton Hamvention belongs and it is where the Dayton Hamvention will stay," said Nies.

The 2005 the Dayton Hamvention is scheduled for May 20 to 22. Hamvention 2005 will also host the ARRL National Convention, which means that there will be some special added attractions and very special guests in attendance. Full information for those planning to attend the 2005 Dayton Hamvention and ARRL National Convention is online at the event's newly redesigned, easy-to-navigate website at http://www.hamvention.org.

CQ To Celebrate 60th Anniversary On-Air With "CQ Gang" Event

CQ Amateur Radio magazine is inviting amateur radio operators around the world to join in its 60th anniversary celebration by taking part in an on-air event during the first 60 days of 2005. *CQ*'s first issue was published in January, 1945. During the "CQ Gang" activity, from January 1 to March 1, 2005, any ham who has ever had an association with *CQ* magazine—as a staff member, contributing editor, author, etc.—as well as current subscribers to *CQ, CQ VHF*, and *Popular Communications* magazines may sign "/60" after his or her callsign. Certificates will be issued for contacts with enough "/60" stations to garner a minimum of 60 contact points, based on number of contacts times the number of different position multipliers (for example, editor, columnist, etc.) worked. Shortwave listeners may also qualify by monitoring enough contacts for a minimum of 60 contact points. Endorsements will be issued for scores up to 600 points.

In addition, CQ club station WW2CQ will be activated from various parts of the United States during the event period. A separate certificate will be available for working WW2CQ in all call areas from which it is active. Details on that portion of the activity will be released later.

Complete rules for the CQ Gang 60th Anniversary activity are in the December 2004 issue of *CQ* magazine and are posted on the magazine's website at http://www.cq-amateur-radio.com (click on the link at the bottom of the home page).

Remember Billy? Report: Tauzin Raised Six-Figure Sum From Drug Makers

The Center for Responsive Politics sent us a special news release entitled, "Money In Politics Alert," which stated "The New Head of PhRMA enjoyed the financial support of pharmaceutical manufacturers while in Congress." Writer Steven Weiss continued,

Rep. W. J. "Billy" Tauzin (R-La.), who today was named president and CEO of the Pharmaceutical Research and Manufacturers of America (PhRMA), raised more than $218,000 in his campaign account from pharmaceutical manufacturers over the past 15 years.

He collected increasing amounts over time from drug companies, topping out at $91,500 in the 2002 election cycle. It was the fourth-highest total from the industry to a member of the House that cycle. It was also the first cycle for Tauzin as chairman of the powerful House Energy and Commerce Committee, which has jurisdiction over the drug industry.

Tauzin raised $41,500 from pharmaceutical manufacturers in the current cycle, even though he was not a candidate for reelection. He collected $9,000 from the PhRMA political action committee since 1997.

Drug companies have contributed $8.1 million since 2003 to federal candidates and political parties, 69 percent to Republicans. During the 2002 election cycle, when unlimited soft money contributions to the political parties were still allowed, pharmaceutical manufacturers gave $21.7 million, 80 percent to the GOP.

The industry spends millions lobbying the federal government each year—PhRMA spent more than $8 million on lobbying in the first half of this year alone. Drug makers also spend millions more on nonprofits active in federal elections. Public Citizen estimates that PhRMA poured $41 million into 501(c) groups in 2002. Such groups are not required to disclose their donors. ■

Each month, we select representative reader letters for "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.*

Peter's Wireless Connection Connects With Larry

Dear Editor:

Thanks to Peter Bertini for his great article on AC safety! There was so much valuable info there. I knew there were issues with these old radios, but I never paid much attention to why they were so dangerous. If certain conditions exist, you explained all the causes in detail and showed all the cures. Other things I have seen written on this in the past would not go into much detail like you did here. I sure learned a lot and am going to save this on the shelf by my old radios that I intend to work on someday.

I have an S-38C that I cleaned up and is now working, but it is just on the shelf for viewing right now. I remember getting a shock on the chassis. I put an isolation device in line for a while until I quit using it, not sure if this little device is useful or not (it is called a TV Lifesaver). I never split it open to see what's inside. It is very small, so can't be a transformer, and it is smaller than a wall-wart and plugs directly into the AC lines and then the radio is plugged into it. Maybe sometime you could mention what this could be and if it really works or not? Tapping on it, it sounds like there may be a coil or some caps in there, as I can feel something vibrate a little when I tap on it.

I also never really knew what the x and y caps where used for! I read his column every month.

Larry Shaunce, WDØAKX

Dear Larry:

Peter tells me the device you mentioned was intended for reducing the turn-on current surge of a TV set's tube filaments.

Wants More Than Reform

Dear Editor:

In reading your February "Tuning In," you're absolutely correct; if we hear about one or two communities left unprotected because of public safety radio failures, there are certainly dozens and dozens more. It's also possible, don't you think, that there are dozens more glitches that *don't* make headlines—in many cases because people aren't monitoring the channels? I've always believed that our government is there to serve the public's needs, but the past few years it looks like money rules and the public is left high and dry. I read *Pop'Comm* every month and thank you for bringing many issues to the public that otherwise go unnoticed.

Garry Fields
San Antonio, TX

Listening To What Shortwave Is Telling Us

Dear Editor:

I agree very much with what Robert Steele and Greg Hardison said in their letters to you [August 2004]. Too few of us, especially in our government, really listen to what foreign shortwave is telling us. I have been an SWLer for 31 years, but it took me a very short time to realize that most of the world doesn't like us, or, more correctly, our government. Our foreign policy literally isn't.

Walter S. Lemmon, the "Father of International Broadcasting," proposed that radio be used to foster universal understanding among the peoples of the world. And, as we know, he went on the air with this idea in mind with WRUL in 1930.

I saw in the same *Pop'Comm* that Iran has given up English-language broadcasts and the hint is "who cares?" We all should care. Here is yet another country that we no longer can hear and we should. Maybe we can understand why Iran is not friendly to us even if the government doesn't care. With the shortwave stations going off the air, we are losing the rich flavor of radio. It's like going to an ice cream store and finding the choices dwindling. On another note, I wonder if any foreign broadcasters might take the RFI of BPL as our government's deliberate jamming of their signals. And about BPL, whatever became of the great hoorah on the link between RF energy and cancer?

Robert Fraser
Belfast, ME

(Continued on page 53)

POPULAR COMMUNICATIONS

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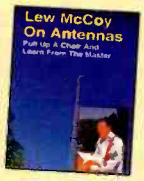

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The Power Of One Voice

Ordinary Americans Doing Donald Rumsfeld's Job: Helping Soldiers In Iraq Get CB Radios To Stay Safe

by Harold Ort, N2RLL, Editor

Decorated war veteran Senator John McCain (R. Ariz.) recently announced publicly in an interview that he has "no confidence" in Secretary of Defense Donald Rumsfeld. It's anyone's guess if that really *matters* to Secretary Rumsfeld, though. The week prior, Mr. Rumsfeld took a tough question from a soldier, "Why do we soldiers have to dig through local landfills for pieces of scrap metal and compromised ballistic glass to up-armor our vehicles?" (Whether or not the question was given to the trooper to ask by a member of the media isn't the issue here. The resounding applause from assembled soldiers in the aircraft hangar spoke volumes.) What *does* matter is how well equipped our troops are, given the fact that the war in Iraq was planned and conceived at *least* a year prior to our troops' deployment—and that we're well into the 21st Century. Then there's the Secretary's thought process.

It's a good bet that many other troops' convoys, whether they're using the PLS (Palletized Load System) vehicles or quarter-ton trucks, are going on front-line convoys in Iraq without radios.

Part of Mr. Rumsfeld's response was, "As you know, you go to war with the Army you have." I respectfully ask the Secretary to pick up his phone and tell *that* to Bill Taylor of Sandy, Utah. His son, Mark, a 20-year-old transportation specialist, is in Iraq with the 445th Transportation Company and frequently convoys throughout Iraq. And, until now, he did it without radios.

Mark's Reserve unit, based in Waterloo, Iowa, deployed in October to Mosul. Before they left Ft. Riley, Kansas, they were, according to Bill Taylor, "advised that if they wanted to keep in touch in convoys delivering supplies they should pick up a CB radio before they deployed." Mr. Taylor continued, "Mark went out and got one, but frankly it's not much good if no one else has one." Mr. Taylor said that once overseas the unit deployed to Kuwait and convoyed up to Mosul in two- to three-mile-long convoys with no way to stay in touch. It was at this point that one of the soldiers sent a note to a family member, and that's where our story begins.

I spoke with Mr. Taylor after learning of his son's unit's radioless vehicles, ones like those large military palletized load vehicles you see in the photo. He told me that they've been using their *turn signals*—even without night vision goggles—to convey messages from one end of the convoy to the other. He said, "I'm appalled. You don't believe things like this until you have a family member there, then you realize the media isn't lying—it's reality—what the press is saying is very understated." He continued, "My son loves his job, but the politics is another matter."

In an effort to help his son and the other troops, Mr. Taylor sent e-mails to Uniden, Cobra, Midland, Wal-Mart, and RadioShack asking a simple question: "Do you provide a military support or discount program?" His intention was to get some CB radios at a discount and send them to the troops. He told us, "I sent a note to the *Salt Lake Tribune* explaining the situation thinking they might have a contact, then suddenly something was actually *published* in the *Salt Lake Tribune*. I got calls from lots of folks offering help, including the radio station KUDD, Power 107.9."

Everyone Involved, Except Uncle Sam

Once the radio station got involved radios started coming in from everywhere. The station has even set up a credit union; they're accepting batteries, CB radios, and all kinds of equipment the troops don't have.

One fellow, Neil Staley of Alpine, Utah, a 77-year-old ex-Marine donated some handheld CBs he used years ago at construction sites. Mr. Taylor enthusiastically told us, "The outpouring has been absolutely amazing..." He continued, "The public support from just Salt Lake City has been tremendous...many people tell me how much they want to help the troops...I'm simply overwhelmed at how much support they have from our people in the country. I remember how my

friends had to come back from Vietnam and had to hide. The support here has been phenomenal!"

The government that sent young Mark to combat was also apparently ready to do combat with his father at one point. Mr. Taylor told me, "I got a call from someone with 89th Readiness Group in Wichita, Kansas, saying essentially if you pursue this we'll go to JAG—I know now that's the Judge Advocate—they told me 'you can't do this—can't accept donations.' The only way you can get it is to raise money to buy the stuff." One could speculate that the 89th thought they were dealing with a soldier, not a civilian! Mr. Taylor said that around December 2 he got another call from the 89th Readiness Group and called them back to find out, as he put it, "What I supposedly can and can't do...I didn't get a call back until a week later when a different person called me, taking a different approach. I was told I can't send CBs because they're not secure and commanders don't want them."

They might not be secure, but since it's not also very "secure" to allow the troops you command to travel without proper communications, Mr. Taylor told me, "At the end of the day if this fills the void until the military can step up and provide what they need, *we'll* give them what they need to bring them safely home to us."

Mr. Taylor continued, "The more I thought about it all, the madder I got and I called Senator Orrin Hatch's (R-Utah) office. Then I called the newspaper and radio station [KUDD], thinking to hell with them, our family members need this, let's move ahead!" Interestingly, Mr. Taylor told me the Senator's people said they'd get back to him in an hour. He said, "It's now over a week and I still haven't heard from them."

What the Senators and Pentagon don't seem to understand, and can't—or won't—do, the people of this great country can do. As Mr. Taylor said, "they're basically saying 'this is unbelievable—we're *doing* this!' "

In Iraq, Mark has arranged with his First Sergeant to help other units as far away as Mosul obtain some of the radios they're receiving—so far, without repercussions. His son has told him that "something is better than nothing. We'll take what we can get."

One Voice

Mr. Taylor made a point in a follow-up e-mail to me, saying, "It's not about my efforts or my son. It's about two aspects of communication—electronic and the voice of one person. We all rely on electronic communication to keep informed; our men and women in harm's way rely on it to give them the needed edge over those who wish to do them harm, and to make sure we give them everything they need so that they will return home to their loved ones. In this case, something as simple as a CB radio can help give them that edge." He continued, "Communication is about the power of one voice, using electronic means or face-to-face conversation. The issue of the need for CB radios surfaced because of the collection of 'one voice' using phones, e-mails, and in-person meetings."

Mr. Taylor's note to me further stated:

It started with the one voice of that soldier in the 445th Transportation Company (my son's unit) that e-mailed his wife saying that they could use 12 CB radios

-It was the one voice of his wife that put it on the 445th Family Readiness Group website

-It was the one voice of a person that sent e-mails to Wal-Mart, RadioShack, others, and the newspaper

-It was the one voice of the person at the *Salt Lake Tribune* that wrote the article

-It was the one voice of that person at the radio station, Power 107.9, who decided to take up the cause

-It was the one voice of the employee at Centurion Tactical Systems that arranged to donate the 12 CBs that the 445th needed

-It was the one voice of the employee at Cobra that got her management to donate six radios and offer a discount on the other six

-It was the one voice of the employee at the Jordon Credit Union in Salt Lake City that decided to partner with the radio station, Power 107.9, to accept donations, batteries, and CB radios

- It was the one voice of the employee at an Albertson's that decided to start a collection and challenge other Albertson's stores to "buy a CB for our soldiers"

-It was the one voice of Neil Staley, a retired Marine, who wanted to still do something for his country by donating his radios

-It is your one voice that will write the article that will inform thousands of "one voice"

-It is the collective one voice of everyone who donates money, batteries, CB radios, or writes letters.

-It is the one voice of that soldier that asked Rumsfeld the question about equipment for our soldiers

--It is amazing what one voice can do.

Originally, Mark's Reserve orders had him committed to duty through February 2006, but they're hearing that by Christmas 2005 they'll be back home. With one voice, let's pray for all of our troops' safety and return home—that time can't come soon enough. ■

December 6, 2004

To all those working to keep America safe!

I read an article in the Salt Lake Tribune this past week about your desperate need for two-way radios to keep in touch with one another during your assignments wherever your are.

I am a 77 year old ex-marine and wanted to help in anyway that I could.

I remembered the set of two-way radios that I had used during my construction days that were packed away and felt that I would be honored to donate them, to hopefully, in some way fulfill part of the need that you have to stay in touch with your fellow comrades.

We are all so proud of all of you and what you are doing. We want you to know that our thoughts and prayers are with you for a job well done and a safe return home to your loved ones.

Please accept my small donation with my sincere respect for what you are all doing in serving our Country.

Gratefully,

Neil Staley

Neil Staley

Ex-Marine Neil Staley's letter to Mr. Taylor says it all.

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Better Batteries For Hobbyists, Thanks To Consumer Electronics!

Batteries Are Improving, But You've Still Got To Be An Educated Consumer—Here's What You Need To Know

by Gordon West, WB6NOA

Rechargeable AA batteries have caught up with the long-life characteristics of alkalines! Until recently, rechargeables might only run your radio gear for about half the time of traditional alkalines. But thanks to the consumer electronics (CE) demand for the rechargeable AA and AAA cells, rechargeable battery manufacturers have gone from the 500-mAh AA battery capacity of the 1970s to the 3000-mAh capabilities we saw at the 2005 Las Vegas Consumer Electronics Show.

Top quality name-brand batteries won't leak like the poor-quality one's we see here.

"Nickel metal hydride chemistry is now comparable to alkaline running time for a piece of equipment like a scanner, pocket GPS, or small shortwave receiver," said Ron Halston, a battery rep at CES '05. "By comparison, the older nickel cadmium battery plays only two-thirds as long as a comparable AA alkaline," he continued. But even the non-rechargeable alkaline has some big competition for running life from the lithium battery—its chemistry provides nearly one-and-a-half times greater running time for radio equipment over any conventional chemistry competitor.

But battery manufacturers were all quick to point out that the chemistry of an AA or AAA cell is load specific. That is, some batteries, including the old nickel cadmium (NiCd), may be better suited to running a 5-watt HT than newer rechargeable chemistry that only runs longer if the current remains constant under, let's say, 300 mA (the current typical of the new Uniden 246 TrunkTracker scanner which we'll feature next month in *Pop'Comm*). Nickel metal hydride (NiMH) and lithium cells have a flat discharge curve, giving you a false sense of security when you're looking at the battery icon on your equipment that still shows plenty of reserve power left. When they're near exhaustion, they still hold their voltage until the *very last minute*, and then drop out quickly. The alkaline cell always lets you know where you are if you have a sensitive voltage indicator. The alkaline has a faithful discharge curve where a voltage check might quickly determine how much juice you have left in the cell.

Ham radio manufacturers typically ship rechargeable NiCd batteries with less expensive HTs, and may offer NiMH with much longer-lasting chemistry in their step-up HTs. A few manufacturers of ham HTs have even created their own unique battery system and charger for lithium chemistry, which is most popular with cell phone and laptop battery packs that are unlike typical AA cell construction. Lithium is a great way to keep your battery pack running your radio equipment over a longer time than any other battery technology can provide, but be prepared for a high price tag if you need to add additional lithium batteries to your radio system.

Additional Considerations

There are other considerations for emergency responders when it comes to the battery chemistry in their HTs and radio receivers. NiCd batteries work best with plenty of exercise, and they can take some moderate abuse in the field where you may be "jump starting" a depleted 12-volt NiCd battery pack off of a 13.5 power supply. Just monitor their warmth during field charging, and immediately remove the charging voltage when the battery pack begins to become noticeably warm. Always use protective goggles when "jump starting" rechargeable batteries.

NiMH batteries may not be capable of running your emergency radio if you haven't put them on charge over the last couple of months. These batteries self-discharge about 30 percent per month and, after three months, they are nearly flat and out of juice. Ski patrols would do well to have their emergency equipment powered up with disposable alkaline or disposable

New battery chemistry pumps in more than 2500 mAh into this AA cell. AAA cells now offer over 1000 mAh capacity!

lithium batteries, which also work much better in cold conditions than either NiCd or NiMH. Of course, keeping that radio close to your body will keep the batteries warm, giving you longer performance in the snow.

Testing, Testing

During my battery testing with scanners and ham HTs, I quickly discovered there were *big* variations in playing power among the common AA disposable cells. Import AA cells found at the counterfeit-goods swap meet played only a fraction of the time that professional U.S. name-brand AA cells did. Just by holding them in your hand you'll easily detect which cell weighs more and, therefore, which would undoubtedly play longer. *STAY AWAY FROM CHEAP IMPORT AA CELLS*. One I encountered even began to leak immediately after discharge!

And don't be misled by batteries indicating "heavy duty"—if they don't FEEL heavy, chances are they won't play as long as the trusted alkaline made by a U.S. battery company you recognize. And guess what? During some marine electronics testing of alkaline cells under a constant load, the RadioShack Enercell lasted longest, with Duracell Ultra and Energizer e2 coming in a close second and third. But in this same test, a lithium non-rechargeable cell lasted longer than the *best* alkaline, with NiMH coming in a close third.

Smart chargers are brand specific. Don't expect your current fast charger to work a 15-minute charge on those new chemistry batteries.

What about the rechargeable alkaline? In my tests, they played about the same time as conventional rechargeable NiCd chemistry in an AA cell. And just as important as battery playing time is "smart" charging systems that are specific for each type of chemistry. In fact, we're now finding strong warnings by suppliers of AA rechargeable chemistry; they recommend that *ONLY* a proprietary charging system be used with their offered AA cells. This means you should be very careful if you ditch the battery charging system that came with your radio and plunk the batteries into another recharger—it might cook the batteries their first time in (see box).

Now, imagine this: Ray-O-Vac with a 15-minute charger system that can pump up a pair of Ray-O-Vac AA 2000-mAh NiMH cells without cooking them! Ray-O-Vac claims that a pressure-control mechanism within each Ray-O-Vac IC3 individually senses its own internal pressure and controls its own charge, eliminating any internal pressure build up. All this in 15 minutes! Later this spring, there will no doubt be additional battery and charger revelations, all geared to low-draw consumer electronic products that rarely pull more than a couple hundred milliamps when turned on. So keep this in mind if you think the new technology is going to be the perfect answer for that big brick HT that draws up to *2 amps* during transmit. You may find traditional NiCd chemistry or NiMH is the best way to go for this application.

Important Revelation!

But the most important revelation I discovered during my testing was how poorly the import imitation AA and AAA batteries performed. Well, that and their immediate propensity to begin oozing chemical as soon as the battery went flat over a couple of weeks inside the equipment. Again, *STAY AWAY FROM JUNK CELLS*. And if you're working with AA and AAA batteries in your scanner or HT, go with a U.S. name brand you recognize! Better safe than sorry, as they say!

As new and improved battery technology emerges, look for news and reviews right here in *Pop'Comm*. As always, I welcome your battery questions and comments. Send them to me at *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801. ■

Charging Tips For New Batteries

Battery experts tell me they are cautious about saying it's okay to charge a new type battery with your older existing charger. However, the same experts say that NiCd and NiMH are close enough in type that the typical wall-wart with 100 mAh won't ever get the newer cells hot enough to cook them if overcharged.

But be cautious in hooking up your new NiMH battery to some sort of NiCd fast charger. Fast chargers have different cutoff points with different chemistries, and the fast charger *might* not recognize new chemistry it wasn't designed for and just might accidentally cook your new pack.

The best way to check for overcharging is simply feeling how warm the pack is getting with the wall-wart. Do this on a regular basis when first charging up a different chemistry pack, every five minutes if your charger is cranking out more than 250 mAh. But if your pack is receiving a charge 10 percent less than its total amp-hours, and you're switching from NiCd to NiMH, you'll probably be okay.

The simple warm test is a good indicator of a battery nearing a full charge, so when it feels warm, take it off the wall-wart soon. Leaving any battery with its wall-wart constantly under charge may shorten battery life and run time.

Capitol Hill And FCC Actions Affecting Communications

FCC Approves First Software-Defined Radio

The FCC has announced it has approved, for the first time, use of a software-defined radio (SDR) device in the United States. This new class of equipment allows users to share limited airspace, increases flexibility, and reduces interference concerns. "This is the first step in what may prove to be a radio technology revolution," said FCC Chairman Michael K. Powell. "The industry's pioneering work to find more creative and efficient use of our airwaves will continue to bring benefits to consumers." The Laboratory Division of the Commission's Office of Engineering and Technology issued a Grant of Certification to Vanu, Inc., a software development company, for a cellular base station transmitter. Software-defined radios can change the frequency range, modulation type, or output power of a radio device without making changes to hardware components. This programmable capacity permits radios to be highly adaptable to changing needs, protocols, and environments. Vanu, Inc. has demonstrated that its device complies with the Commission's rules, and has shown that its software has sufficient controls so that the device cannot be modified to operate outside its Commission-approved parameters. The Commission currently has a rule-making pending that will further streamline the software-defined radio requirements, and it is working with each applicant on a case-by-case basis to facilitate compliance with the current rules. For questions regarding the SDR proceeding, contact Mr. Hugh Van Tuyl at the FCC's Office of Engineering and Technology at 202-418-7506. For questions regarding the certification of SDRs or the Vanu applications, contact Mr. Joe Dichoso at the FCC Laboratory at 301-362-3024.

Commission Issues Forfeiture Order

A $14,000 forfeiture order has been issued against VIA Technologies, Inc. (VIA), for importing and marketing in the United States unauthorized radio frequency devices, specifically its model EPIA-M and EPIA-CL computer central processing unit (CPU) boards, in willful and repeated violation of Section 302(b) of the Communications Act of 1934 and Section 2.803(a) of the Commission's Rules. Back in October 2004, the Spectrum Enforcement Division issued a Notice of Apparent Liability for Forfeiture (NAL) in the amount of $14,000 to VIA. VIA has not filed a response to the NAL. Based on the information before the Commission, they affirmed the forfeiture.

Uncle's Refunds

According to a news release from the FCC, consumers got refunds and credits totaling $7.8 million as a result of contacting the FCC during 2004. This figure includes more than $7 million returned to consumers as a result of informal complaints about phone company billing and rates, and about $800,000 returned to consumers who had been "slammed," that is, had their phone company changed without their permission. K. Dane Snowden, chief of the FCC's Consumer & Governmental Affairs Bureau (CGB), said, "These statistics demonstrate that the government stands ready to help. We at the FCC are proud of the success we have had in mediating on behalf of the American consumer to ensure that everyone can enjoy and benefit from the competitive telecommunications marketplace. We will continue to enforce the slamming rules vigorously and mediate consumers' complaints about rates and billing." During 2004, CGB's Consumer Inquiries and Complaints Division received more than one million inquiries and complaints and the $7.8 million recovered was the result of the Division's resolving informal consumer complaints involving more than 100 different phone companies. The bureau's slamming team issued orders resolving about 3,500 slamming complaints and involving more than 300 carriers.

Thirty-Two Million High-Speed Connections In Service—A 15-Percent Increase During First Half Of Last Year

The FCC has just released new data on high-speed connections to the Internet in the United States. Twice a year, facilities-based broadband providers must report the number of high-speed connections in service pursuant to the FCC's local competition and broadband data gathering program. For reporting purposes, high-speed lines are connections that deliver services at speeds exceeding 200 kilobits per second (kbps) in at least one direction, while advanced services lines are connections that deliver services at speeds exceeding 200 kbps in both directions. The FCC collected data from providers with at least 250 high-speed lines in a state. Statistics released reflect data as of June 30, 2004.

High-speed lines connecting homes and businesses to the Internet increased by 15 percent during the first half of 2004, from 28.2 million to 32.5 million lines, compared to a 20 percent increase, from 23.5 million to 28.2 million lines, during the second half of 2003. For the full 12-month period ending June 30, 2004, high-speed lines increased by 38 percent. Of the 32.5 million high-speed lines in service, 30.1 million served residential and small business subscribers, a 16-percent increase from the 26.0 million residential and small business high-speed lines reported six months earlier. For the full 12-month period ending June 30, 2004, high-speed lines for residential and small business subscribers increased by 46 percent. High-speed connections in service over asymmetric digital subscriber line (ADSL) technologies increased by 20 percent during the first half of 2004, from 9.5 million to 11.4 million lines, compared to a 24-percent increase, from 7.7 million to 9.5 million lines, during the preceding six months.

For the full 12-month period ending June 30, 2004, high-speed ADSL increased by 49 percent. High-speed coaxial cable connections (cable modem service) increased by 13 percent during the first six months of 2004, from 16.4 million to 18.6 million lines, compared to a 20-percent increase in the second half of 2003, from 13.7 million to 16.4 million lines. For the full 12-month period ending June 30, 2004, high-speed cable modem connections increased by 36 percent. The remaining 2.5 million high-speed connections in service are accounted for by satellite or wireless, wireline other than ADSL, and fiber high-speed connections.

Of the 32.5 million high-speed lines, 23.5 million provided advanced services, that is services at speeds exceeding 200 kbps in both directions. Advanced services lines increased 15 percent during the first half of 2004, from 20.3 million to 23.5 million lines. For the full 12-month period ending June 30, 2004, advanced services lines of all technology types increased by 44 percent. About 21.2 million of the 23.5 million advanced services lines served residential and small business subscribers.

Cell Phones On Planes?

About the time we went to press, the FCC voted to examine whether to modify its rule prohibiting the use of cellular telephones on airborne aircraft. To facilitate the submission of public comments in the upcoming review of this issue, the Commission provided the following instructions.

The Commission is permitted to begin accepting public comments in this matter as soon as it publicly releases the full text of its Notice of Proposed Rulemaking, the order that commences this review. That order was expected to be released in mid-January 2005, and will be posted on the Commission's website. You will know that the Commission has begun accepting comments when a link to the proceeding is available through "ECFS Express." To access "ECFS Express," go to www.fcc.gov, and click on "ECFS Express" on the left-hand side of the homepage. You will be directed to a listing of a number of the Commission's proceedings. Select the proceeding regarding the review of the ban on using cellular telephones in-flight, and you will be directed to a screen where you will be asked to fill in your contact information and your comments. If there is no link on ECFS Express for this issue, the Commission is not yet accepting comments, so try again at a later date. Once the Commission begins accepting comments, submissions will be accepted for several months, so you'll have time to file comments as you read this issue of *Pop'Comm*. More extensive comments may be filed through the regular ECFS process, also available through the FCC's website. All public comments received through ECFS are viewable by the general public at any time through the website. Those who do not wish to file electronically may file by mailing comments to the FCC, Washington, DC 20554. If filing by mail, you must clearly state the docket number WT 04-435 on your filing. ■

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

Reviewing Propagation And Space Weather Terms—Part II Coronal Holes And Coronal Mass Ejections

The atmosphere above the Sun's surface is divided into layers, much like Earth's atmosphere is divided into a troposphere and so on. The Sun's layers are the *corona* and, below that, the *chromosphere,* and the *photosphere*, the latter being where sunspots occur. Using an instrument called a *coronagraph* we can see the corona and the features that occur in that layer. The coronagraph is effectively a man-made eclipse and is used both in space aboard space vehicles (satellites and space stations) and at high-altitude solar observatories on the Earth. The devices allow us to see the pearly white crown of the corona surrounding the Sun whenever we want.

Using a coronagraph, we have discovered various features of the Sun's corona. *Coronal holes* an d *coronal mass ejections* (*CMEs*) are two such features, both of which can have a significant impact on space weather and radio propagation. These were discovered when x-ray telescopes were first flown above the Earth's atmosphere to reveal the structure of the corona across the solar disc.

Coronal holes are regions where the corona is dark. It is not a real "hole," as in a dip in some surface. Remember, the corona is not part of the Sun's surface, but instead part of its atmosphere (again, like our troposphere, stratosphere, and so on). Coronal holes are associated with "open" magnetic field lines and are often found at the Sun's poles.

A CME, sometimes also known as a centimetere, is created by one of several complex and dramatic events. When a bubble of plasma inside a coronal hole bursts, a huge cloud of that plasma spews outward away from the Sun. The bursting of the bubble is caused by the magnetic breakdown of the coronal hole. Another cause of CMEs is major impulsive solar flares punching through the corona, if the geometry and velocity of the flare-ejected material is sufficient to allow the gas to escape the solar

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 world-wide readings of Earth's geomagnetic field. High indices (Kp > 5 or Ap > 20) mean 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 trans-polar 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.

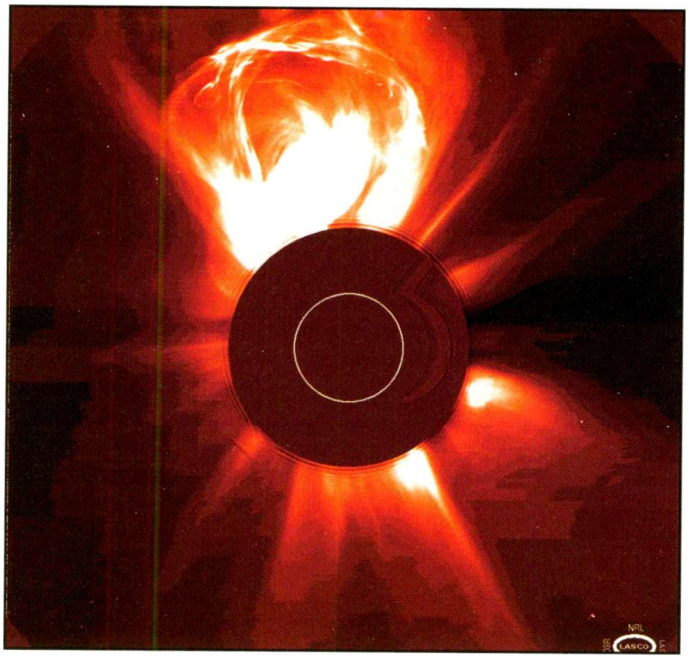
Sunspot Number (SSN): Sunspots are magnetic regions on the Sun with magnetic field strengths thousands of times stronger than the Earth's magnetic field. Sunspots appear as dark spots on the surface of the Sun. Temperatures in the dark centers of sunspots drop to about 3700° K (compared to 5700° K for 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").

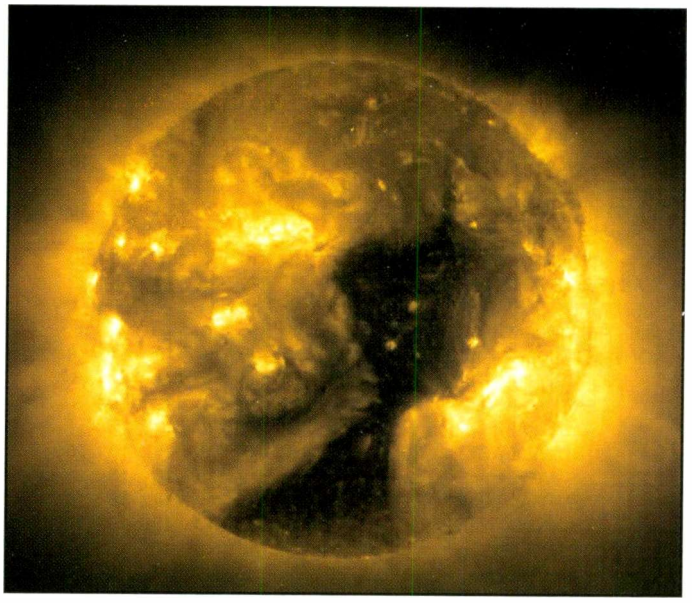
Galileo made the first European observations of sunspots in 1610. The Chinese and many other early civilizations have records of sunspots. Daily observations were started at the Zurich Observatory in 1749; continuous observations were begun in 1849.

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.



This x-ray image of the sun, captured on February 21, 2000 by the Japanese Yohkoh X-ray Observatory shows a coronal hole (the dark area) that has rotated into a favorable position to send high-speed solar wind particles toward Earth. The resulting gusts of solar wind strike Earth's magnetic field and trigger moderate geomagnetic disturbances. (Source: NASA)



On March 9, 2000, a coronal mass ejection, also known as a centimetere, erupted off the active solar surface and blasted this enormous bubble of magnetic plasma into space. Direct light from the Sun is blocked in this picture of the event, with the sun's relative position and size indicated by a white half-circle at bottom center. The field of view extends 2 million kilometers or more from the solar surface. While hints of these explosive events were discovered by spacecraft in the early 1970s, this dramatic image is part of a detailed record of this CME's development from the SOHO spacecraft. Near the minimum of the solar activity cycle, CMEs occur about once a week. (Source: SOHO Consortium, ESA, NASA)

gravitational field. However, a somewhat larger number of CMEs are associated with other phenomena than those produced by solar flares.

CMEs can occur at any time during the solar cycle, but their occurrence rate increases with increasing solar activity and peaks around solar maximum. Since the Sun completes a full rotation every 27 to 28 days, the same CME may recur every month. The exact processes involved in the release of CMEs are not known, but we do know a lot about how they affect the Earth. The result of a well-placed CME is a bombardment of plasma into our magnetosphere (the magnetic force field that in part protects us from lethal doses of solar energy), as well as an increase in the density, power level, and speed of the solar wind.

When the solar wind, which contains magnetic field lines, reaches the magnetosphere, one of two things may happen. If the magnetic lines in the solar wind are orientated just right, or in a southerly orientation, they will combine in a way that nullifies the magnetosphere at that point, causing a "window" to open, allowing solar plasma to enter into our atmosphere. If the magnetic lines in the solar wind are not orientated this way, they will combine with the magnetosphere in a way that enhances the magnetosphere, strengthening the force field. When plasma does makes it through, the geomagnetic fields as well as the ionosphere become highly disturbed, and you will see higher planetary A-Index (Ap) and planetary K-Index (Kp) readings. When the plasma and radiation is blocked, we have more quiet geomagnetic conditions with Kp readings less than 4.

Grayline Propagation

During the daylight hours, the energy from the Sun ionizes our upper atmosphere, causing distinct layers of ionized gas to form. These layers constitute what we call the *ionosphere*. The layer closest to the Earth is called the *D layer*. It generally absorbs some of the energy of a radiowave, hence the *D* layer is often called the *absorption layer*. Higher up in our ionosphere we find the *E layer*, which plays a role in *sporadic-E* (*Es*) propagation, as well as some absorption. Higher yet, we find the *F layer*. The *E* and *F* layers refract radio signals back to Earth if the signal's frequency is at or below the *Maximum Usable Frequency* (*MUF*). During the day, the Sun is ionizing these *D*, *E*, and *F* layers.

As a radio signal travels through the *D* layer, it gets attenuated. How much attenuation depends on how ionized the *D* layer has become. During solar flares, x-ray radiation increases the *D*-layer ionization. The more intense the x-ray radiation, the more dense the layer becomes, and higher frequencies get blocked. The rest of the time, without the increased x-ray radiation from a solar flare, the daytime *D* layer will only block the lowest HF frequencies, while higher frequencies will lose some of their energy. If the radio signal makes it through the *D* layer, it then reaches the *E* layer. If the *E* layer is highly ionized (say, during an *Es* condition) and the frequencies are low enough, the signal will be refracted back to Earth, much like a light beam from a flashlight is refracted by a mirror.

Lower HF signals tend to be refracted by the *E* layer, especially at night. During the day, the *D* layer generally blocks these lower HF signals. Higher frequencies, however, punch through the *E* layer and reach the *F* layer. If they are at or below the MUF, they too are refracted back to Earth, but at greater distances from their sources. This is called *skip propagation*. Since solar radiation has to travel the farthest to get the *D* Layer,

Optimum Working Frequencies (MHz) - For March 2005 - Flux = 80, SSN = 20- 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	21	20	19	16	15	14	13	12	11	11	10	10	10	11	16	19	20	21	22	22	23	23	23	22
NORTHERN SOUTH AMERICA	29	28	26	24	22	20	18	17	16	15	14	14	13	13	19	21	23	25	26	27	28	29	29	29
CENTRAL SOUTH AMERICA	28	26	24	22	20	18	17	16	15	14	14	13	13	14	21	24	25	26	27	28	28	29	29	29
SOUTHERN SOUTH AMERICA	30	29	27	25	23	21	19	18	17	16	15	14	14	13	16	21	24	27	28	29	30	31	31	30
WESTERN EUROPE	10	9	9	9	8	8	8	9	9	9	8	8	8	14	16	17	18	18	18	17	16	15	13	10
EASTERN EUROPE	9	9	10	12	13	10	10	9	9	9	9	8	8	12	14	15	15	15	15	14	14	13	13	11
EASTERN NORTH AMERICA	23	22	20	15	14	13	12	12	11	11	11	10	10	16	20	22	23	24	25	25	25	25	25	24
CENTRAL NORTH AMERICA	13	13	12	11	8	7	7	7	6	6	6	6	6	6	9	11	12	13	13	14	14	14	14	14
WESTERN NORTH AMERICA	7	7	7	6	5	4	4	3	3	3	3	3	3	3	3	5	6	7	7	7	7	7	7	7
SOUTHERN NORTH AMERICA	22	21	20	18	15	14	13	12	12	11	11	10	10	10	14	18	20	21	22	23	23	23	23	23
NORTHERN AFRICA	10	10	9	9	9	9	8	9	9	9	8	8	8	14	16	17	18	19	19	17	15	12	11	11
CENTRAL AFRICA	14	13	12	12	10	10	9	9	9	9	8	8	8	14	16	17	18	18	19	19	18	17	16	15
SOUTH AFRICA	19	18	17	13	12	12	11	11	10	10	10	10	10	17	20	21	22	23	24	24	24	24	23	21
MIDDLE EAST	9	9	8	8	10	10	10	9	9	9	8	8	8	13	15	16	17	17	15	11	10	10	9	9
JAPAN	20	20	19	19	18	16	14	10	10	10	9	9	9	8	8	8	9	9	8	8	14	17	18	19
CENTRAL ASIA	20	20	19	19	18	16	14	10	10	10	9	9	9	8	8	8	13	13	12	12	11	11	16	20
INDIA	12	13	13	13	13	13	10	9	9	9	9	8	8	8	8	8	8	8	8	9	10	11	12	12
THAILAND	17	19	19	18	17	16	14	10	10	9	9	9	9	8	8	8	13	15	14	13	13	12	11	13
AUSTRALIA	25	26	27	28	27	25	21	19	18	17	16	15	14	14	13	13	16	15	15	14	15	18	21	23
CHINA	18	19	19	18	17	16	14	10	10	9	9	9	9	8	8	8	9	9	9	8	8	8	14	16
SOUTH PACIFIC	29	30	30	29	28	25	23	21	19	18	17	16	15	14	14	13	15	14	14	19	22	25	27	28

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	24	23	21	19	18	16	15	14	13	13	12	11	11	16	20	22	23	24	25	26	26	26	26	25
NORTHERN SOUTH AMERICA	26	26	24	22	20	19	17	16	15	14	13	13	12	15	18	20	22	23	24	25	26	26	27	27
CENTRAL SOUTH AMERICA	28	26	24	22	20	18	17	16	15	14	14	14	14	20	22	24	25	26	27	28	28	29	29	28
SOUTHERN SOUTH AMERICA	30	29	27	24	22	20	19	18	16	15	15	14	14	16	20	23	26	27	29	30	30	31	30	30
WESTERN EUROPE	10	9	9	9	8	8	8	9	8	8	8	10	15	16	18	18	19	18	18	17	17	15	14	10
EASTERN EUROPE	9	9	9	8	8	9	9	9	9	8	8	8	14	16	17	17	17	17	16	16	15	14	12	10
EASTERN NORTH AMERICA	17	15	13	11	11	10	9	9	8	8	8	8	8	13	15	16	17	18	18	18	18	18	18	17
CENTRAL NORTH AMERICA	8	7	7	5	5	4	4	4	4	3	3	3	3	5	6	7	8	8	8	8	8	8	8	8
WESTERN NORTH AMERICA	13	13	12	11	8	8	7	7	7	6	6	6	6	6	9	11	12	13	14	14	14	14	14	14
SOUTHERN NORTH AMERICA	16	15	14	12	11	10	9	9	8	8	8	7	7	8	12	13	15	15	16	16	17	17	16	16
NORTHERN AFRICA	13	13	11	10	10	9	9	9	9	8	8	11	15	17	18	19	20	20	20	20	20	16	15	14
CENTRAL AFRICA	14	14	11	10	10	9	9	9	9	8	8	11	15	17	18	19	20	20	20	20	20	18	17	16
SOUTH AFRICA	19	18	17	16	15	14	14	14	14	13	13	12	20	24	27	28	29	30	30	29	28	25	23	21
MIDDLE EAST	9	9	9	8	8	9	9	9	9	8	8	10	15	17	18	18	19	18	16	12	11	10	10	9
JAPAN	19	19	18	17	15	11	10	10	9	9	9	9	8	8	9	9	9	8	8	8	14	16	18	19
CENTRAL ASIA	19	18	18	16	15	11	10	10	9	9	9	8	8	8	12	14	13	12	12	11	11	11	16	19
INDIA	8	8	9	9	9	9	9	9	9	8	8	8	9	9	9	9	8	8	8	8	8	8	8	8
THAILAND	17	18	17	16	14	10	10	9	9	9	9	8	8	8	14	16	16	15	14	13	13	12	11	12
AUSTRALIA	25	26	28	26	24	20	19	17	16	15	15	14	13	13	13	17	16	15	15	14	15	19	21	23
CHINA	17	18	17	16	14	10	10	9	9	9	9	8	8	8	10	10	9	9	9	8	8	8	13	16
SOUTH PACIFIC	30	30	29	27	25	23	21	19	18	17	16	15	14	14	13	15	14	14	16	21	24	26	28	29

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	20	18	17	15	14	13	12	11	11	10	10	9	12	14	16	18	19	20	21	21	21	21	21	20
NORTHERN SOUTH AMERICA	23	23	21	19	18	16	15	14	13	12	12	11	12	15	17	19	20	21	22	23	23	24	24	24
CENTRAL SOUTH AMERICA	28	25	23	21	19	18	17	16	15	14	13	13	18	21	22	24	25	26	27	28	28	28	28	28
SOUTHERN SOUTH AMERICA	29	28	26	24	22	20	18	17	16	15	14	14	16	20	22	25	26	28	29	30	30	30	30	30
WESTERN EUROPE	9	9	9	8	8	8	8	8	8	8	12	15	17	18	18	19	19	18	18	17	16	15	13	10
EASTERN EUROPE	9	9	9	8	8	8	9	8	8	8	11	15	17	18	18	18	18	17	17	16	15	14	10	10
EASTERN NORTH AMERICA	8	7	6	5	5	5	4	4	4	4	4	3	6	7	8	8	9	9	9	9	9	9	9	8
CENTRAL NORTH AMERICA	17	16	14	12	11	10	10	9	9	9	8	8	9	14	16	17	18	19	19	19	19	19	19	18
WESTERN NORTH AMERICA	23	22	20	15	14	13	13	12	12	11	11	11	10	16	20	22	23	24	25	25	25	25	25	24
SOUTHERN NORTH AMERICA	19	18	16	15	13	12	12	11	10	10	9	9	9	13	16	18	19	20	20	21	21	21	20	20
NORTHERN AFRICA	14	13	13	12	12	11	11	11	11	10	15	20	22	23	24	25	25	25	24	23	21	18	17	15
CENTRAL AFRICA	15	14	13	13	12	12	11	11	11	10	15	20	22	23	24	25	26	25	25	23	21	20	18	17
SOUTH AFRICA	19	18	17	16	15	14	14	15	14	14	13	19	23	25	27	29	30	30	30	29	28	25	23	21
MIDDLE EAST	12	11	10	10	9	9	9	9	8	8	13	16	18	19	20	20	20	21	20	18	15	14	13	13
JAPAN	18	17	14	11	10	10	9	9	9	9	8	8	10	10	9	9	9	8	8	8	12	16	17	18
CENTRAL ASIA	17	16	14	10	10	9	9	9	9	8	8	8	14	16	15	14	13	12	12	11	11	11	14	18
INDIA	8	8	8	9	9	9	9	9	8	8	8	13	14	14	14	14	14	13	13	12	12	10	9	9
THAILAND	15	15	11	10	10	9	9	9	8	8	8	12	15	17	18	18	17	15	14	13	13	12	12	11
AUSTRALIA	26	27	25	22	20	19	17	16	15	15	14	13	13	15	19	17	16	15	14	14	16	19	22	24
CHINA	17	15	12	10	10	9	9	9	9	8	8	10	15	12	10	10	9	9	9	9	8	8	9	15
SOUTH PACIFIC	30	29	27	25	23	21	19	18	17	16	15	14	14	16	15	14	14	13	19	23	25	27	29	30

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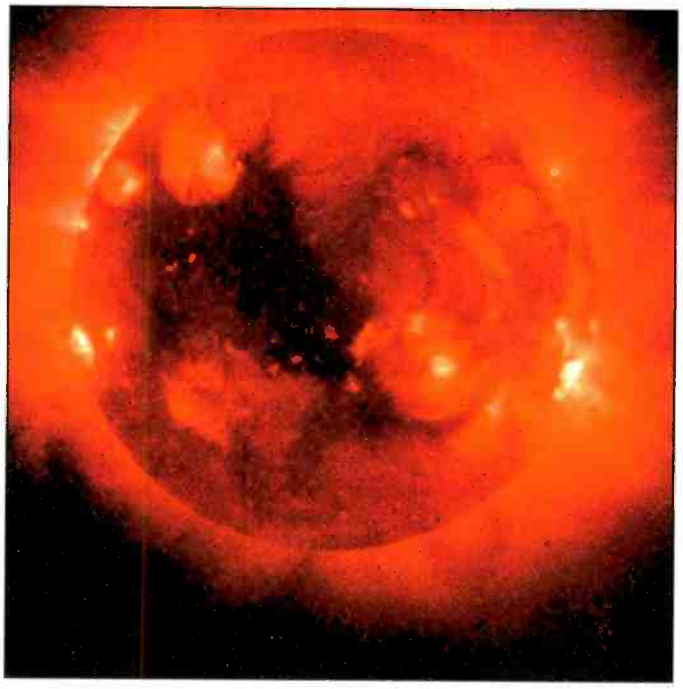


This image of the Sun, captured on February 7, 2002, by the presently operating SOlar and Heliospheric Observatory (SOHO) spacecraft shows a coronal hole (the large dark region) that has just rotated past the most favorable position to send high-speed solar wind particles toward Earth. Gusts of solar wind pour out of these holes and strike Earth's magnetic field and trigger moderate geomagnetic disturbances. (Source: SOHO-EIT Consortium, ESA, NASA)

absorption is usually minimal. Unless there is a major solar radiation storm, we have minimal daytime absorption and good skip propagation.

Then comes the end of the daylight hours. At sunset, solar radiation no longer strikes the ionosphere and ionization stops. Without this solar radiation, the layers of ionization decrease in density by a process called *recombination*. This causes the MUF to decrease as well, which is why by total darkness the highest HF bands close down. Those frequencies do not get refracted, but continue on out into space.

The *D* layer is the first layer where ionization stops. Since it is closest to the ground, sunlight no longer reaches it, while higher levels of the atmosphere remain in sunlight. Think about how you can see a passing satellite by the sunlight reflected off its surface, while you are standing in darkness; it's dark on the ground, but the satellite is still being illuminated. As the *D* layer goes into recombination, the electron density decreases as does the absorption rate.

During the twilight hours the *D* layer rapidly looses its ionization and does not absorb radio signals passing through it, while the *E* and *F* layers are still being ionized by sunlight. This makes for about 45 to 60 minutes of stronger signal propagation on a wide range of HF frequencies. As the ionization decreases, lower and lower frequencies start to punch through the *D* layer with almost no signal attenuation. Yet the MUF is still high, allowing long-distance skip propagation. Then, when the Sun is blocked from illuminating the *E* and *F* layers, the MUF can drop dramatically and very quickly (within minutes). This twilight zone, where the Sun is exactly 12 degrees below the horizon, is called the *grayline*, or in astronomical terms, the

terminator. The same principles apply at sunrise; the upper ionosphere begins to become ionized, while the *D* layer is still dark and low in density, offering free passage of very low HF signals, even MW signals.

Signals that are aimed along a path that stays within the grayline often experience significant improvements in propagation. This is what we refer to as *grayline propagation*, and it's a very exciting way to hear exotic DX signals. These signals may be coming in from the long path as well as the short path, but always along this grayline.

As we move closer to Solar Cycle 23's end, and the year or so of solar activity minimum, grayline propagation brings exciting DX from many rare areas of the world. Tune around the lower shortwave bands about an hour before sunrise and again right before sunset to look for these long-distance signals. Of course, grayline DX will occur on most of the HF spectrum, but is quite noticeable on these lower shortwave bands, since DX signals on these bands are rare.

Current Cycle 23 Progress

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-centimeter observed monthly mean solar flux of 113 for November 2004, quite a bit higher than 106 for October. The 12-month smoothed 10.7-centimeter flux centered on May 2004 is 109, just down from April's 112. The predicted smoothed 10.7-centimeter solar flux for January 2005 is about 80, give or take about 16 points.

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for November 2004 is 44, down four points from October's 48. The lowest daily sunspot value during November was recorded on November 21 at 26, which is considerably higher than the October 10 count of zero. The highest daily sunspot count was 76 on November 1. The 12-month running smoothed sunspot number centered on May 2004 is 44, down two points from April's 46. A smoothed sunspot count of 30 to 33 is expected for March 2005 by the SIDC. The SEC predicts the sunspot count to be 22, give or take about 12 points.

The observed monthly mean Ap index for November 2004 is 26, a very large jump up from October's 9, and even higher than July's 23. The 12-month smoothed Ap index centered on May 2004 is 14, down from April's 16. Expect the overall geomagnetic activity to be quiet to active during most days in March, though there is a possibility for a strong geomagnetic storm on a couple of days since we're getting close to the Spring Equinox.

HF Propagation

March is one of the optimal DX months. As the Spring Equinox approaches, the grayline begins to run straight north and south. The period of darkness is growing shorter, causing the average daily MUFs to rise a bit. Noise levels are still low, at the same time, making for reliable DX. The solar activity is moderate, and holds enough energy to keep the mid-HF spectrum alive with signals. General conditions are expected to be good to excellent for HF propagation throughout March.

Sixteen meters will only occasionally remain open into the late evening. Daytime paths will not degrade much until midsummer. You will see consistently early closures or completely dead conditions at times, if you live closer to the North Pole (high latitudes).

Twenty-two and 19 meters will remain in good shape. Both short and long path circuits will often be reliable and solid. Nighttime paths are rarer than last year at this time. If the flux is high enough, expect good openings during the evening hours in the United States, which are sunrise hours across Russia, Africa, and both the Near and Far East. Expect a fair amount of short- and long-path DX from these areas of the world.

Between sunset and midnight, expect occasional DX openings on all bands between 15 and 41 meters when solar activity is high. Conditions should favor openings from the east and south. These bands should peak for openings from Europe and Africa near midnight.

From midnight to sunrise, expect optimum DX conditions on 31 through 90

meters and, occasionally, 120 meters. Conditions should favor openings from the west and south. Some rather good openings on 19 and 22 meters should also be possible from the south and west during this time.

Noise levels are slowly increasing as we move toward spring. Geomagnetic storms will increase, disrupting the mid- and high-latitude ionosphere. During the Spring Equinox, Earth's magnetic field is sufficiently perturbed by solar wind particles flowing into the auroral zone (between 50 and 70 degrees north geographic latitude) to cause the ionosphere to be depleted. During days of typical post-solar cycle maximum disturbance (coronal hole mass ejections, high-speed solar winds with a southerly oriented interplanetary magnetic field), an increase in geomagnetic storms will degrade many paths, while VHF openings off the auroral zone may increase.

As spring and summer approach in the Northern Hemisphere, daytime MUFs continue to drop, while the nighttime MUFs will start to increase. At the same time, the Ap is on the rise, so take advantage of the current excellent conditions while they last, and listen to the world! Look for grayline DX in the mornings and evenings on lower frequencies.

VHF Ionospheric Openings

The possibilities for ionospheric openings on the VHF bands usually improve during March and the spring months. Many of the solar-ionospheric relationships that can produce ionospheric openings on the VHF bands tend to peak during equinoctial periods.

A seasonal increase in short-skip openings due to *Es* propagation generally takes place during March, and an occasional low-VHF opening may be possible during this month. *Es* openings most often occur during the daylight hours over distances between about 1,000 and 1,400 miles. There is also a good chance for an increase in widespread auroral activity during March, accompanied by auroral-scatter-type openings on VHF up to 2 meters.

Conditions should be optimal during March for transequatorial (TE) scatter propagation between the southern tier states and countries deep in South America. The best time for TE openings should be between 8 and 11 p.m. local time. Check TV Channel 2 for DX from South America.

I'd Like To Hear From You

You can join in with others in discussing space weather, propagation, and shortwave or VHF listening at http://hfradio.org/forums/. Be sure to check out the latest conditions, as well as the educational resources about propagation, which I have put together for you at http://prop.hfradio.org/. I also provide a WAP/WML resource for wireless devices. If you want the latest propagation information like the solar flux, Ap reading, and so forth, check out http://wap.hfradio.org/, the wireless version of my propagation site.

Please don't hesitate to write and let me know about any interesting propagation you've noticed. Do you have questions about propagation? I look forward to hearing from you. Turn on your favorite radio and enjoy the great DX season on the medium and short waves. Happy hunting! ■

by Harold Ort, N2RLL, Editor

Andrew Corporation/Antenna Specialist's APR143 On-Glass Mobile Antenna

Back in the "Power Up" (new products) department of the December 2004 *Pop'Comm* we said, "The Antenna Specialist's APR143 is great for mobile scanner use and transmitting on 2 meters!" That was after just reviewing the specs and quality of construction. It's in their Professional Land Mobile Radio Antenna catalog and is designed for 138-150-MHz public safety use. But I figured it would be a very good antenna for hobbyists, as well. It turns out I was right, a fact borne out by more than six months of testing in all kinds of environments.

The APR143 comes with the 21-inch whip and 15 feet of RG/58U cable terminated with a PL259 connector, so there's nothing else you need to buy. The antenna's hardware is high-quality stainless steel and the whip is made of black Dura-Coat. The whip also unscrews by hand in seconds for garage or car wash entry.

If you've been a ham for a while and also do even a minimal amount of radio monitoring, you'll appreciate the ease with which this antenna goes on your vehicle. There's nothing like not having to drill a hole in a new (or old!) vehicle or even use a magnet-mount antenna that can sometimes scratch your its surface. Don't get me wrong; I have several mag-mount antennas for all kinds of radio activity, and they're good to a point, but when I find a permanent antenna that requires little or no maintenance and works well, it's easy to get excited!

Here's the APR143 package: coax, inside coupler, the whip, and a small bag with the adhesive, grounding foil, and outside foot.

Easy Installation

From opening the package to using the antenna took only 20 minutes, and about five minutes of that time was finding just the right mounting location. You don't want to mount the antenna over embedded window defrosting wires or on tinted glass; the antenna either won't work or it'll yield a poor SWR (standing wave ratio).

As with all antenna installations, planning is essential. Just because you're holding a small antenna and it appears that installation is so simple you don't need to read the directions, don't be fooled into doing a sloppy installation—you'll regret it minutes after the glue has dried!

The APR143's directions are short, to the point, and easy to follow. I decided to mount it just above our vehicle's rear-window defrosting wires, at just the right distance from the vehicle's headliner so the coax could be neatly routed to the radio. To do it correctly you need to mount the antenna (the outside mount is about 1 1/2 inches square) on a flat windshield; and, please, not on the front windshield where you'll pick up engine noise and it might interfere with windshield wiper operation.

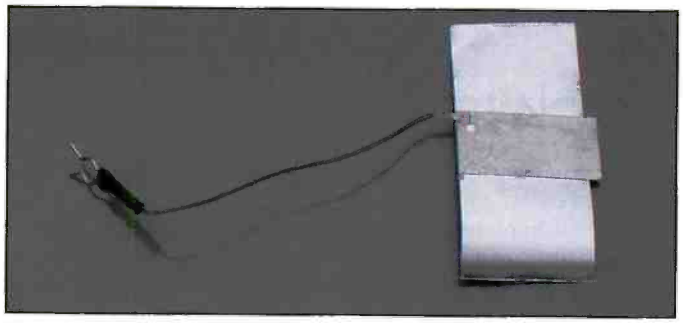
If you've used Rain X or another water repellent product you'll have to remove it with Soft Scrub Gel cleanser or other slightly abrasive cleanser. If you think you can ignore this step, you're mistaken—the antenna won't hold. Better to do it right the first time!

To ensure that my antenna ended up straight and in the location I chose, I drew an outline on the outside glass around the antenna mount using a thin black marker. That way when I was ready to place the antenna permanently on the glass there'd be no guesswork, because sometimes being "off" by an inch or so can have disastrous results.

When you're ready, clean the inside and outside of the glass with the provided alcohol cleaning pad (first wash the window with Windex or other good cleaner until it's squeaky-clean). Peel off the paper backing on the on-glass foot, verifying that the whip is perfectly vertical before removing the liner. Apply the silicone adhesive liberally to the designated areas of the foot and press it into place, holding it a minute or so. It's best to install it when the outside temperature is above 50 degrees, but if you can't wait heat the glass gently with a hair dryer.

Follow the same basic procedure for mounting the inside base coupling box, making sure the mini-UHF connector is horizontal in either direction in relation to the on-glass outside foot. Center it with the outside foot, hold it in place for a minute or so as before, and it's on to the next steps.

The specs for the APR143 say it requires no ground plane. That's true, although there's a small "but." There's no *visible* ground plane like you'll find on some on-glass antennas that sport either a wire or small wire rod. The Antenna Specialist's on-glass antenna does, however, have a grounding plate, a small piece of foil with a grounding strap. The antenna package includes a small piece of double-sided adhesive tape so you can attach the foil to an interior metal surface. I removed the



The grounding plate simply attaches to an inside metal surface and the short braid is clipped to the coupling box's mini-UHF connector before you connect the coax. Of course, proper planning is required so the short braid/strap is able to reach from under the headliner, or wherever you stick the plate, back to the coupling box.

The APR143's whip simply screws onto the foot; no fuss, no bother, and you are operating!

Attaching the coax to the inside coupling box is easy if you've done your homework and not made the installation a rush job. Note the short braid/strap coming out from the headliner and attached to the box.

Installation of athe on-glass antenna took only 20 minutes from opening the package to actual operation!

vehicle's rear headliner with a small screwdriver, just enough to get my fingers between it and the roof, and stuck the foil to the roof. The grounding strap simply clips to the inside coupling box. If you're thinking this sounds like a pain in the neck, it's not, really. When you consider the benefits of not having to route the coax through a trunk or door, or even drill a small hole for the coax in a non-glass-mount antenna, the minor inconvenience of loosening the headliner to stick a small piece of foil is no big deal.

After about 24 hours I attached the 23-inch cellular look-alike whip to the foot, routed the coax through the vehicle to my waiting ICOM 2100H (and Uniden handheld BC296D scanner using a BNC to PL-259 adapter).

A Happy Antenna User

This antenna has a small tuning screw on the inside coupling box that can be adjusted for a proper match, but I have no need to touch that screw—my match on 146.550 MHz is 1.5:1. Most of the time I using the rig on low power and am able to easily reach into all my area repeaters in central New Jersey. I know if it works that well on transmit and I can hear stations to my north on Staten Island and Brooklyn, I can use this antenna with my scanner and hear plenty! Fact is, the APR143 performs just as well as an older RadioShack mag-mount, with only a few exceptions. An on-glass antenna might not be for everybody, and there are certainly those folks who would only use an antenna if it were highly visible and stuck to the center of the roof or bolted to the vehicle's body. But I assure you from using this outstanding antenna for half a year in all kinds of weather and wind conditions, it's on the vehicle to stay unless I decide to remove it, or am crazy enough to run through the car wash with the small whip attached. (It removes from the outside foot in a matter of five seconds without tools).

I'd recommend the Antenna Specialist's APR143 on-glass antenna to any ham or mobile scanner enthusiast. It's not a trade-off antenna, unless you consider the trade-off as not having to constantly remove and reattach a mag-mount antenna in all kinds of weather and road conditions. My match was excellent, it's a good-looking antenna that won't attract anyone's attention, and it performs well for monitoring up into the UHF frequencies (my local police are on 460.300 MHz and I can hear them *well beyond* my hometown).

For more information on the APR143, which has an MSRP of $78.25, contact Andrew/Antenna Specialists at 31225 Bainbridge Road, Solon, OH 44139, visit them on the Web at www.antenna.com, or call 800-321-9977. Be sure to tell them you read about their APR143 antenna in *Popular Communications*. ■

by R.B. Sturtevant, KD7KTS

Radio Fun And Going Back In Time

Q. Is anyone still using and teaching Morse code for use other than amateur radio operation?

A. Yes, the British Army's Royal Corps of Signals in 2004 had to scrounge up sets of Morse Training equipment. Their Joint Communications Unit supplies communications support and training for the Defense Forces of the Republic of Sierra Leone. High frequency communications there is done by Morse and voice for long range. VHF is used for local comms and around the Free Town peninsula. Sierra Leone uses equipment received as gifts from the United States, Britain, Australia, and China. I'm not sure, but last I heard China was also using Morse in military communications.

Q. What part does Radio Traffic Analysis play in Military Intelligence?

A. In 1938 British Prime Minister Neville Chamberlain knew he couldn't trust Hitler, even while he was waving his Munich agreement and declaring "Peace In Our Time!" He needed to know if Hitler was going to make a move to war immediately or give France and Great Britain a few more months to arm and prepare. He got the information he needed from the Royal Navy. The Navy was unable to read any of the Nazi codes, but it could tell when and how much radio traffic was being sent out. The pride of the German Kriegsmarine was the pocket Battleship *Deutschland*, which was then on a courtesy visit to the Spanish port of Vigo. Naval Intelligence knew that if war was imminent, *Deutschland*, which was manned by a crew of cadets undergoing basic training, would have to return to Germany for an experienced crew. They also knew that the amount of traffic between the ship and home would have to increase dramatically from the time of the recall until *Deutschland* got home. Direction-finding (DF) equipment kept a close watch on the location of the ship while intercept operators monitored the indecipherable coded messages. When the intercept operators reported only routine traffic levels and the DF technicians reported that the ship was moving south—away from Germany—British Naval Intelligence had its answer. War was still some months off.

Q. Who keeps track of all the satellites and space junk in orbit around the planet so the astronauts don't run into it, or vice versa?

A. It surprised me to find out that the job is being done by the Navy. Their mission is part of the U.S. Space Command, and is called the Navy Space Command. They operate a passive radar system that keeps track of everything in space. Passive radar systems have transmitters sending continually from one location. The receivers are located in various places and also receive continually. This is different from a standard radar system where the transmitters and receivers are located together and turn on and off in sync with each other. The transmitters are located in Jordan Lake, Alabama, Lake Kickapoo, Texas, and Gila River, Arizona. Tune to 216.97 through 216.99 MHz and you'll hear their continuous transmission. There are also six receiver sites located across the southern part of the United States which receive the signals and evaluate them. The National UFO Reporting Center, a civilian group, wants to figure out how to enable radio amateurs to read the same signals. They hope to be able to pick up incoming alien craft. Check out their website at www.ufocenter.com/ for further information.

Q. When did firefighters first start using radio in the Fire Service?

A. Fire communications changed little from the invention of the fire trumpet of 1752 until December 1913 when the Fire Department of New York City established a two-way radio telegraph system between the Manhattan Fire Dispatcher's Office and the Fire Boat *Duane*. The system worked, but had to be abandoned because of the round-the-clock manning problems the system created. Boston had the same idea, and technology advances made it possible to install two-way radios between the dispatchers and that city's fireboats. Reliability of the radios and federal regulations made getting radio service for firefighters a slow process. Some departments started using radios in chief's cars, but the majority used police dispatching systems and frequencies, which started appearing about the same time.

Q. What is a "Ranger Key"?

A. To send Morse code accurately, especially for long periods, you need to rest your forearm on something like a tabletop. Special Forces radio operators don't always have a nice table to put their arms on, though. A Ranger Key is a regular telegraph key with a strap on it. The strap fastens around the radio operator's leg just above the knee. That way he can rest his forearm on his thigh. Sometimes a U-shaped yoke was placed

(Continued on page 78)

Looking Back...

Five Years Ago in *Pop'Comm*

The big radio news back in March 2000 was the ICOM IC-R2 receiver, which Ken Reiss reviewed, saying it was "barley larger than the average pager." The receiver had 400 memories organized into eight banks. ICOM was also advertising its new IC-R75 HF receiver which covered 0.03 to 60 MHz.

Ten Years Ago in *Pop'Comm*

Gerry Dexter's superb article, "DXing The Failed States," that appeared in our March 1995 issue is one of those features that should be re-read five or 10 years later. Surprise! There's still Afghanistan and 19 other hotspots, many, as you might imagine, are still "hot." The AOR AR8000 handheld scanner that covered AM/NFM, WFM, USB, LSB, and CW was the radio to own, with 1,000 memories and coverage from .5 to 1900 MHz. On the shortwave scene, the news was about the former Radio Moscow's name change to "The Voice of Russia." And again, from the "some things never change" department, there was news about the FCC taking action to prevent unauthorized switching of long distance carriers, or slamming.

Twenty Years Ago in *Pop'Comm*

Things sure looked different in the radio world 20 years ago. Uniden was advertising its 210XLT scanner, with a $35 rebate! World-Caller had just released its new "cellular phone in a briefcase" that featured, according to the news release, "...dial-in-handset operation, last number redial, 10-number memory, access to long-distance services like MCI and Sprint, and access via modem to mainframe and portable computers."

RSGB Books now available from CQ

Antenna Topics

by Pat Hawker, G3VA

RSGB. 2002 Ed. 384 pages. This book is a chronological collection of selections of G3VA's words over the years. Hundreds of areas and subjects are covered and many a good idea is included.

Order No. RSAT $29.00

HF Antenna Collection

RSGB, 1st Ed., 1992. 233 pages. A collection of outstanding articles and short pieces which were published in Radio Communication magazine during the period 1968-89. Includes ingenious designs for single element, beam and miniature antennas, as well providing comprehensive information about feeders, tuners, baluns, testing, modeling, and how to erect your antenna safely.

Order: RSHFAC $16.00

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.

Order: RSIOTA $15.00

Antenna Toolkit 2

By Joe Carr, K4IPV

RSGB & Newnes, 2002 Ed. 256 pages. A definitive design guide for sending and receiving radio signals. Together with the powerful suite of CD software included with this book, the reader will have a complete solution for constructing or using an antenna; everything but the actual hardware!

Order: RSANTKIT2 $40.00

Practical Projects

Edited by Dr. George Brown, M5ACN

RSGB 2002 Ed, 224 pages

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.

Order: RSPP $19.00

Low Power Scrapbook

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.

Order: RSLPS $19.00

The Antenna File

RSGB. ©2001. 288 pages. **$34.95.**

Order: **RSTAF**

50 HF antennas, 14 VHF/UHF/SHF antennas, 3 receiving antennas, 6 articles on masts and supports, 9 articles on tuning and measuring, 4 on antenna construction, 5 on design and theory, and 9 Peter Hart antenna reviews. Every band from 73kHz to 2.3GHz!

Order: RSTAF $32.00

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

HF Amateur Radio

RSGB. 2002 Ed.

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.

Order: RSHFAR $21.00

Amateur Radio Mobile Handbook

RSGB. 2002 Ed., 128 pages.

The Amateur Radio Mobile Handbook covers all aspects of this popular part of the hobby. It includes operating techniques, installing equipment in a vehicle and antennas, as well as maritime and even bicycle mobile. This is essential reading if you want to get the most out of your mobile station.

Order: RSARMH $21.00

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

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.

Order: RSPFXG $13.50

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by Gerry L. Dexter, gdex@genevaonline.com

Albania Cuddles Up With China, And Chad Reappears!

This column lacks a crystal ball so we cannot exactly predict what shortwave propagation conditions will be when you read this. But when these lines found their way into MS Word a few weeks ago, the ionosphere was a complete mess, having laid down some of the worst reception conditions in recent memory. Even the big guns in the Eastern Time zone were complaining, so you know it was *seriously* bad! Certainly it was an inauspicious start to the new B04 broadcast season when so many frequencies and sites go through their semi-annual shuffling and shifting. Stay tuned—change is inevitable!

China Radio International is now being aired via Albania's Cerrik transmitter site from 2000 to 2100 on **5960** and **7285** in English to Europe. The site is also said to be airing CRI in Turkish from 1600 to 1657 on **6165** and **7325**, 1600 to 1757 in German on **5970** and **7155**; 1800 to 1957 in French on 5970 and **7175**; and 1900 to 1957 in Turkish again on **7215** and **9655**. CRI (then Radio Beijing) used to broadcast via Albania half an eon or so ago before the Hoxha government kicked it out and went into a political isolation ward.

We've learned that **Adventist World Radio** has changed its approach to its programming direction. The focus has switched from a single service for all target areas to individual services designed for Africa and Asia/Pacific. This more specialized programming will be produced in regional studios. AWR has also added programming in Arabic and Turkish.

It's confirmed: **Radio Bahrain** is indeed active on their **9745** channel. Now the big trick is to hear it! The very few receptions in North America that we know of seem to have occurred during the late afternoon, local time. Bahrain's other channel, 6010, appears not to be in use.

Also unnoted in a long while, but recently confirmed as active, is the **Defense Forces Broadcasting Station** in Myanmar (Burma) on **5770**. Its schedule shows a 1330 sign on, which would offer the best shot at it for most of us.

Another station that hasn't been heard from in a while is **Radiodifusion National Tchadienne**, Chad, which has reappeared on **6165**. This is listed for 2200 to 2300 so East Coasters will have the best chance, although the dead of winter months give a bit of a break to those who live in the Midwest. At this writing some in the East are hearing it in the 0500 hour, but usually QRMed.

HCJB Australia has received official approval of its expansion plans, allowing the station to acquire additional land to erect several new antenna systems, which will broaden and improve reception in their target areas. Back in Ecuador, HCJB has begun the work of dismantling the Pifo transmitter site in preparation for a move to make room for Quito's new airport.

Bad News From Deutschland, And Iran Resumes English Broadcasts

There are reports that **Bayerischer Rundfunk** (**6085**) will have closed by the time you read this. And there's still more bad news from Deutschland, this time in the form of serious funding cutbacks for Deutsche Welle. We don't yet know what the fallout from that will be.

The Latvian transmitter on 9290 is an occasional host to broadcasts from European Music Radio, which QSLed Rich D'Angelo's reception of last September.

After a brief interruption **The Voice of the Islamic Republic of Iran** has resumed English language broadcasts for Europe and North America. These are scheduled from 0130 to 0230 on **6120** and **9580**; 1030 to 1130 on **15460**, **15480**; 1530 to 1630 on **9610** and **9940**; and 1930 to 2030 on **6110**, **7320**, 9855 and **11695**. So now we can more easily keep up with what the mullahs are up to.

The new PNG station, **Wontok Radio Light** could be on the air by now (it was scheduled to start on January 8) on **7210**. The station is a project of Life Radio Ministries, 100 South Hill Street, Suite 100, Griffin, GA 30223.

New from Peru is **Radio San Andres** on variable **5544**, from San Andres in Cajamarca Department and currently running to around 0415.

The **Armed Forces Radio** outlet in Key West has moved from 7507 to **7812.5**, though when we checked the other evening it wasn't there. But, then, it wasn't heard on 7507 either!

Remember, your shortwave broadcast station logs are always welcome. But please be sure to double or triple space items, list them by country, and include your last name and state abbreviation after each log. Also much wanted are spare QSLs you don't need returned, station schedules, brochures, pennants, station photos, and anything else you think would be of interest. And how about sending a photo of you at your listening post? Step right up and get your 15 minutes of fame in Pop'Comm!

Here are this month's logs. All times are in UTC. Double capital letters are language abbreviations (SS = Spanish, RR = Russian, AA = Arabic, etc.). If no language is specified the broadcast is assumed to be in English (EE).

Come on an' hit it!

ABKHAZIA (Georgia)—Radio Republic Abkhazia (t) **9494.8**, at 0245 with talk in possible RR, time pips at 0300. Some light instrumental music but mostly talk. (Alexander, PA)

ALBANIA—Radio Tirana, **6115//7160** at 0245 with local music to close with anthem at 0257. (Burrow, WA) **7160** with talk on Kosovo at 0149. (Charlton, ON)

ANTIGUA—BBC Relay, **5975** at 0416 and **15190** at 1522. (Newbury, NE)

ARGENTINA—Radio Nacional, **6060** with SS news at 0952. (DeGennaro, NY) **15345** in SS at 2300. (Brossell, WI)

ARMENIA—Voice of Russia relay, **9965** in GG at 1921 with IDs, IS, anthem and start of EE at 1925. (Burrow, WA) SS at 0223. (Brossell, WI)

ASCENSION ISLAND—BBC Relay, **6005** at 0413. (Newbury, NE) **15400** at 2220. (MacKenzie, CA) UN Radio (via) **17810** heard at 1729 sign on with instl music to EE program opening ID. Then news, features, and close at 1745. (D'Angelo, PA)

AUSTRALIA—Radio Australia, **9580** at 1008 and **9710** in Pidgin at 1010. (DeGennaro, NY) 9580 at 1058. (Brossell, WI) 1208 and **15515** at 0437. (Newbury, NE) 9580 at 1210. (Northrup, MO) **9475** at 1200. (Brossell, WI) **9590** with news and "Sound Quality" at 1203. (Jeffery, NY) **11750** at 1422 and **21470** at 2220. (Charlton, ON) 15515 at 2210. (MacKenzie, CA) ABC Northern Territory Service, Alice Springs, **4835** at 1304 with news, folk music. Audible until 1502. (Strawman, IA) The Voice, **11840** with pops and talks at 1515. (Barton, AZ) **11955** at 1006 with rock. (Foss, Philippines) HCJB-Australia, **11750** with Glen Campbell song monitored at 1025. (Foss, Philippines)

AUSTRIA—Radio Austria Int., **5945** in GG at 2159 and **6155** in GG at 0832. (DeGennaro, NY) **9870** at 0026. (Charlton, ON) 2330. (Brossell, WI) **13775** at 1520. (Newbury, NE) Adventist World Radio relay at 1805 on **15470** with religious talk, address in Uganda. (Brossell, WI)

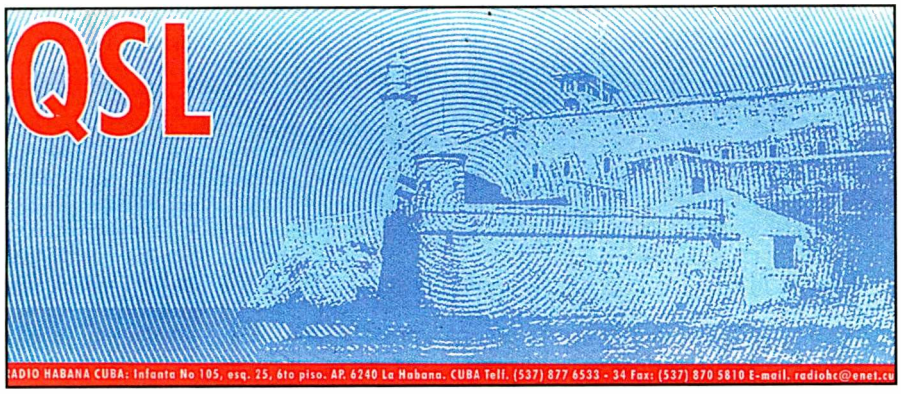
BELARUS—Radio Belarus, **7210** at 0300 with news, comment, local music, IDs. Better on **//5970** but still not very good. New time. (Alexander, PA)

BELGIUM—RTBF Int., **9970** to Southern Europe with news in FF at 1026. (DeGennaro, NY)

BOLIVIA—Radio Illimani, La Paz, **6025**

Abbreviations Used In This Month's Column

(p)	—	presumed
(t)	—	tentative
//	—	parallel
AA	—	Arabiv
AFN	—	Armed Forces Network
AFRTS	—	Armed Forces Radio TV Service
AIR	—	All India Radio
anmt(s)	—	announcement(s)
annor	—	announcer
AWR	—	Adventist World Radio
BSKSA	—	Broadcasting Service of the Kingdom of Saudi Arabia
CC	—	Chinese
co-chan	—	co-channel (same) frequency
comml	—	commercial
CP	—	Bolivia, Bolivian
CRI	—	China Radio International
DD	—	Dutch
DJ	—	disc jockey
DW	—	Deutsche Welle/Voice of Germany
EE	—	English
f/by	—	followed by
FEBA	—	Far East Broadcasting Association
FEBC	—	Far East Broadcasting Company
FF	—	French
GBC	—	Ghana Broadcasting Corp.
GG	—	German
HH	—	Hebrew
HH	—	Hungarian
HOA	—	Horn of Africa
ID	—	identification
II	—	Italian; Indonesian
Int	—	International
IRRS	—	Italian Radio Relay Service
IS	—	interval signal
JJ	—	Japanese
KK	—	Korean
LSB	—	lower sideband
LV	—	La Voz
NBC	—	National Broadcasting Corporation (Papua New Guinea)
ORTB	—	Office deRadiodiffusion et Television du Benin
PBS	—	People's Broadcasting Station (China)
PP	—	Portuguese
PSA	—	public service announcement
QQ	—	Quechua
RCI	—	Radio Canada International
Rdf	—	Radiodifusora, Radiodiffusion
REE	—	Radio Exterior de Espana
RFA	—	Radio Free Asia
RFE/RL	—	Radio Free Europe/Radio Liberty
RNZI	—	Radio New Zealand International
RR	—	Russian
RRI	—	Radio Republik Indonesia
RTBF	—	RTV Belge de la Communaute Francasie
relay	—	site not owned by broadcaster
Relay	—	owned/operated by the broadcaster
s/off	—	sign off
s/on	—	sign on
SIBS	—	Solomon Is. Broadcasting Corp.
sked	—	schedule
SLBC	—	Sri Lanka Broadcasting Corp.
SS	—	Spanish
TC	—	time check
TOH	—	top of the hour
TT	—	Turkish
TWR	—	Trans World Radio
unid	—	unidentified
USB	—	upper sideband
UTE, ute	—	utility station
v	—	variable
vern	—	vernacular (local language)
VOA	—	Voice of America
VOIRI	—	Voice of Islamic Republic of Iran
ZBC	—	Zambian Broadcasting Corp.



Looks like Radio Havana Cuba has a new QSL. David Weronka of North Carolina got this one from RHC for reception a year ago.

in possible Quechua at 0958 to talk segment at 1000. (DeGennaro, NY) Radio San Gabriel, La Paz, **6080** at 1040 with children's choir. (DeGennaro, NY) Radio Santa Cruz, **6134.8** at 0250 with SS IDs, anmts, and nice CP music. Abrupt sigh off at later-than-usual 0329. Radio Japan via Ascension signed on at 0330. Also heard at 0915. (Alexander, PA) From 1021 tune to fade out at 1033. (Brossell, WI) Radio San Miguel, Riberalta, **4917.3** with brief ID at 1010. Better signal and more frequent IDs seemed the case when they were on 4904. (Wilkner, FL)

BOTSWANA—VOA Relay, **6035** at 0302 with "Daybreak Africa." (D'Angelo, PA) **9885** at 0416. (Newbury, NE) **17895** at 1930. (Paradis, ME)

BRAZIL—(all in PP) Radio Nacional Amazonas, **6185** with call-in program at 0851 QRMing Mexico. "Radiobras" ID at 0900. (DeGennaro, NY) **6190, //11780** at 2249 in PP and "Radiobras" ID. (Brossell, WI) 11780 with songs at 2318. (Charlton, ON) Radio Rural, Santarem, **4765** at 0811 with talk over background music, religious message. (DeGennaro, NY) Radio Educacao Rural, Campo Grande, **4754** with music and songs at 0029. (DeGennaro, NY) Talks at 0208. (Brossell, WI) Radio Apaecida, Aparecida, **6134.9** at 0200 with talk, local ballads. Off abruptly at 0211. **//9630** and **11855**. (Alexander, PA) Radio Difusora Acreana, Rio Branco, **4885** at 1003 with commercials, short religious message. (DeGennaro, NY) Radio Cancao Nova, Cachoeira Paulista, **9675** with ID at 2225. (Charlton, ON) Radio Clube do Para, Belem, **4885** with mostly commercials and songs at 0806. (DeGennaro, NY) Radio Difusora, Taubate, **4924.5** at 0911 with commercials, anmts, time checks and weather. (DeGennaro, NY) Radio Brazil Central, Goiania, **4985** at 0040 with hymns, religious message. (DeGennaro, NY) Radio Anhanguera, Goiania, **4915** with music and commercials at 0036. (DeGennaro, NY) 0244. (Brossell, WI) Radio Senado, Brasilia, and **5990** at 0922 with national news, ID at 0924. (DeGennaro, NY) Radio Nacional Roraima, Boa Vista, **4875** at 0920 with music, commercials and call-ins. (DeGennaro, NY) 0216 with continuous music. (Jeffery, NY) Radio Clube Paranaense, Curitiba, **6040** at 0221 with two men talking, IDs and ad string followed by a sports program. (D'Angelo, PA) Voz Coracao Imaculado, Anapolis, **4885** (p) with music and man annor at 0506. (Jeffery, NY) Radio Marumby, Florinapolis, **9665** with impassioned speech at 2350. (Paszkiewicz, WI) Radio Boa Vontade, Porto Alegre, **11895** with ID and talks in PP at 2310. (Brossell, WI)

BULGARIA—Radio Bulgaria, **9500// 11500** at 1723 with talk, music, IS and into EE at 1730. (Burrow, WA) **9700** at 0215 on supposed bias in Olympic judging and 11500 in SS at 0155. (Brossell, WI) 9700//**11700** with frequencies and newscast. (Charlton, ON) 11700 at 2315 with schedule; (would be moving to **9400**) and closing EE heard at 2359. (Barton, AZ)

BURKINA FASO—Radio Burkina, **5030** in FF monitored at 2208. (DeGennaro, NY) 2330 with FF talk, phone talk, Afro-pops. (Alexander, PA)

CANADA—Radio Canada Int., **13665** at 1344. (Newbury, NE) **15205** via Xi'an, China with news at 0030. (Jeffery, NY) CKZN, St. John's, **6160** at 0837 with news. (DeGennaro, NY) 1133 with CBC news and weather for Newfoundland and Labrador. (Brossell, WI) CBC Northern Service, **9625** in FF heard at 2238. (Charlton, ON)

CENTRAL AFRICAN REPUBLIC—Radio Ndeke Luka, via Wooferton, England, **11785** at 1830 sign on with African tribal music, man/woman with ID and sign on anmts in FF. Closed with children's chorus 1928. Ex-15470. (D'Angelo, PA)

CHIILE—Voz Cristiana, **6070** with music and religious messages at 0822. (DeGennaro, NY) **11745** with religious rock and SS talks at 0147. (Newbury, NE) 0017 in SS and **17680** in SS with closing in SS/EE. (Charlton, ON)

CHINA—China Radio Int., **7405** with ID and features at 1440. (Newbury, NE) **5965** with news at 2318 and Beijing weather. Also **9570** via Cuba at 1335 with listener mail and **11700**-Xi'an in presumed Malay at 1045 with URL and CC lessons. (DeGennaro, NY) **9440** in CC at 1120 and **9690** via Spain in CC at 0210. (Brossell, WI) **9790** via Canada at 0137 and **13680** via Canada at 2302. (Charlton, ON) **11640** via Mali at 2000. (Paradis, ME) **11750** with news at 1100 and website as www.crienglish.com. (Brossell, WI) **15100** from Xi'an in CC at 0012. (Jeffery, NY) CPBS, **9170** at 2132 with woman annor in CC. (Foss, Philippines) (*Your unid, Marty—gld*). Also **17625** in CC at 1038. (Foss) **9455** in CC at 1454. (Newbury, NE) **9675** in CC at 1120 and **11610** at 1220. (Brossell, WI) **11960** in CC at 2319. (DeGennaro, NY) Nei Menggu PBS, Hohhot, **4525** in listed Mongolian at 1110. (Brossell, WI) **7270** at 1212 in Mongolian. (Taylor, WI) Guangxi Broadcasting Station, Nanning, **5050** at 1529 with chorus and orchestra, perhaps Chinese opera. (Foss, Philippines) China Huayi Broad-casting Corp, Fuzhou, **6185** at 1201 with woman host, CC music, language lesson. (Taylor, WI) Voice of Jinling, **5860** with CC talks at 1200. (Brossell, WI) Voice of the Strait, **11590** with interview in CC heard at 1145. (Brossell, WI)

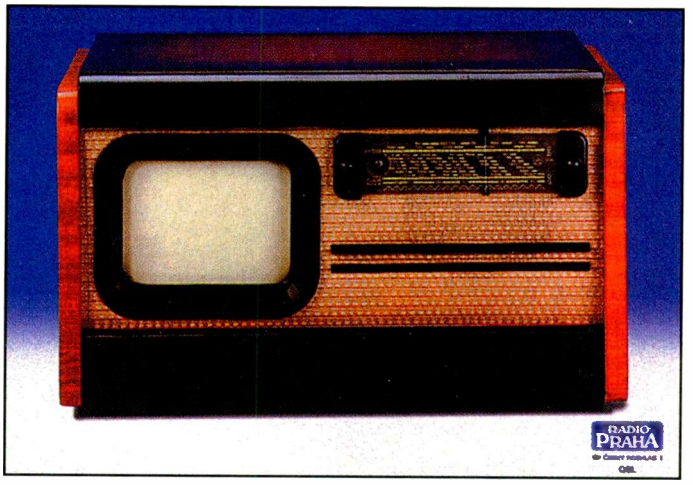
CLANDESTINES—Denge Mesopotamia, (to Kurdistan) **11530**, via Moldova at 1037, mostly music. (DeGennaro, NY) 1302 with Kurdish music. (Taylor, WI) Radio Solh (Peace) (to Afghanistan), (t) **11810** at 0200 sign on with Mid-East music, brief anmts in unid language. (Alexander, PA; D'Angelo, PA) **17720** via Wooferton at 1424 with multiple IDs, brief talk in Dari and Afghan music. (D'Angelo, PA) Radio Nile (to Egypt) **12060**, at 0427 with IS, multi-lingual ID, opening EE ID and sked, talk in unid language at 0430 with brief music breaks. Abruptly off at 0457. **//15320**. (Alexander, PA) Radio for Peace (to Western Sahara), **15665** via IRRS, Italy, 1144 mainly in SS with short music interludes. ID and closing anmts at 1159 f/by man in EE with IRRS ID and address. (D'Angelo, PA) Sedaye Mellat-e Iran, **15660** at 1430 sign on with woman and ID, opening anmts in Farsi, fanfare, ID by man, then mostly Farsi talks. Off at 1500. (D'Angelo, PA) Sudan Radio Service, **9625** via Wooferton at 0325 with EE drama; into AA at 0345. Also **11715** at 1700 sign on with woman annor and ID over string music, f/by AA ID and programming. (D'Angelo, PA) Radio Farda, (to Iran) **9435** (*via Greece—gld*) with man/woman talk at 1452. (Newbury, NE) (*presume in Farsi—gld*) **9775** at 0215 in presumed Farsi. "Radio Farda" ID. (Brossell, WI) Radio Sawa (to Iraq) via Morocco, **17780** with AA music at 0743. (Foss, Philippines) Voice of the People (to North Korea), **3912** in KK at 1516. Jammed. (Foss, Philippines)

CONGO REPUBLIC—Radio Congo, **6115** at 0643 with Afro-pops and man annor. (Taylor, WI) (*presume in FF—gld*)

COLOMBIA—La Voz de tu Conciencia, Puerto Lleras, **6009.8** at 0818 with religious messages. (DeGennaro, NY)

COSTA RICA—University Network,

Miracle! A shack photo appears! This is where reporter David Weronka does his radio thing. His equipment includes a Grundig S350 field radio and a Sangean ATS 404 portable. Thanks, David!



This Czech radio-TV combo featured on one of Radio Prague's QSLs dates back 50 years. It was the "entertainment center" of its day. (Thanks Robert Charlton, ON)

9725 at 0023 with Dr. Scott. Also **13750** at 2220. (Charlton, ON) Radio Exterior de Espana Relay, **6060** with pre-Baroque music at 0132. (Newbury, NE)

CROATIA—Voice of Croatia, **9925** with EE news at 0200. (Charlton, ON). 0220. (Brossell, WI) 2215 in SS, news at 2230. (Burrow, WA)

CUBA—Radio Havana Cuba, **6000** with EE news comments at 0403. (Newbury, NE) **11760** at 2148. (Charlton, ON) Radio Rebelde, **5025** in SS at 0112 and **9600** with news in SS heard at 1001. (DeGennaro, NY)

CYPRUS—Cyprus Broadcasting Corp., **6180** with Greek-type music at 2240. Abruptly off heard at 2245. (Brossell, WI)

CZECHOSLAVAKIA—Radio Prague, **7345** at 0059 with schedule, ID, news. (Burrow, WA) 0124. Also **11615** at 1045. (DeGennaro, NY) **9440** at 0008. (Chandler, ON) 17485 with news, ID, features at 1702. (Burrow, WA)

CYPRUS—BBC Relay, **9410** with business program at 0037. (Jeffery, NY) **9915** in AA at 2154. (Charlton, ON)

DENMARK—World Music Radio, **5815** at 0145 with '60s & '70s pops. Splatter from WEWN spur on 5816.7. (Alexander, PA)

DOMINICAN REPUBLIC—Radio Amanacer Int., **6025** with inspirational vocals hosted by man in SS. Full ID heard at 0204. (D'Angelo, PA)

ECUADOR—HCJB, **9745** in SS with music and talk by man at 2326 and **15140** in SS at 1425. (Jeffery, NY) **11960** in SS at 1235. (Northrup, MO) **12000** in SS at 2322. (DeGennaro, NY) La Voz del Napo, Tena, **3279.5** at 0725 with relay of Radio Maria in SS. (Taylor, WI) La Voz de Upano, Macas, **4869.2** in SS with church congregation. (Taylor, WI) Radio Buen Pastor, Saraguro, **4815** from 1045 sign on with national anthem, SS and QQ IDs and sign on anmts; then into easy inspirational music and talk in Quechua. (D'Angelo, PA)

EGYPT—Radio Cairo/Egyptian Radio, **9988** with music and talk in AA at 1813. (Brossell, WI) **9990** in EE at 2214 and **11725** in EE at 0010. (Charlton, ON) 9900 at 2156 with weak audio, music, time pips, ID and into news at 2215. (Burrow, WA) **12050** in AA at 1800. (Paradis, ME) 2333 in AA to Europe and North America. (DeGennaro, NY)

ENGLAND—BBC, **9410** via Cyprus to Europe at 2110. (DeGennaro, NY) **9825//11835** in EE at 0015, **15190** via Antigua at 1432 and **15400** via Ascension at 2215. (Charlton, ON) **15565** at 1533. (Newbury, NE) UN Radio via England, **15495** with "UN Today" at 1743. (Brossell, WI)

ETHIOPIA—Radio Ethiopia, **9561** with music at 1621, ID, bells and into news at 1630. (Burrow, WA)

FINLAND—YLE/Radio Finland, **15400** in Finnish at 1225 with talk program. (Northrup, MO)

FRANCE—Radio France Int., **11615** with IS and news at 1600. (Barton, AZ) **15310** very weak in FF at 1330. (Northrup, MO) **17515** with listener's letters at 1445 and **17620** in FF at 1414. (Charlton, ON)

FRENCH GUIANA—Radio France Int., **9830** in SS heard at 1015. (DeGennaro, NY)

GABON—Africa Number One, **9580** in FF with music and talk at 1608. (Burrow, WA)

GERMANY—Deutsche Welle, **6075** in GG to Europe at 0825, **9495** in AA at 2048 and **9545** in GG to South America at 2045. (DeGennaro, NY) 9545 in GG at 2300, **11865** in GG at 2202. (Charlton, ON) **15275** in GG at 1525. (Newbury, NE) Bayerischer Rundfunk, **6085** with news in GG at 2135. (DeGennaro, NY) Deutschland Radio, **6005** with news in GG at 2147. (DeGennaro, NY)

GREECE—Voice of Greece, **5865** with in Greek with music at 2326. And **9420** at 2108. (DeGennaro, NY) 9420 in Greek at 0114. (Jeffery, NY) **12105** with EE news at 1847. Also **15630** and **17705** in Greek at 1834. (Charlton, ON) (*17705 seems to have been discontinued—gld.*) **17565** via Delano in Greek at 2154 to sudden close without ID at 2159. (MacKenzie, CA) VOA Relay, **11715** at 1650 in unid language. Off at 1700. (D'Angelo, PA)

GUAM—Trans World Radio, **7455** in CC at 1135, **9430** in CC at 1210 and **9465** in unid Asian language at 1220. (Brossell, WI) Adventist World Radio, **11975** with Adventist and international news, e-mail address heard at 1638 and ID 1639. (Burrow, WA)

GUATEMALA—Radio Cultural, Coatan, **4780** with SS vocals at 1124. (Brossell, WI) Radio Verdad, **4042.5** with talks and songs in SS at 0236. (Brossell, WI) Radio Buenas Nuevas, **4800** with religious music and anmts in SS at 1105. (Brossell, WI)

GUINEA—RTV Guineenne, **7125** at 2315 with FF talk, variety of FF pops. Off with national anthem at 0000. QRM from Russian Radio's pre-sign on tones from 2350. (Alexander, PA)

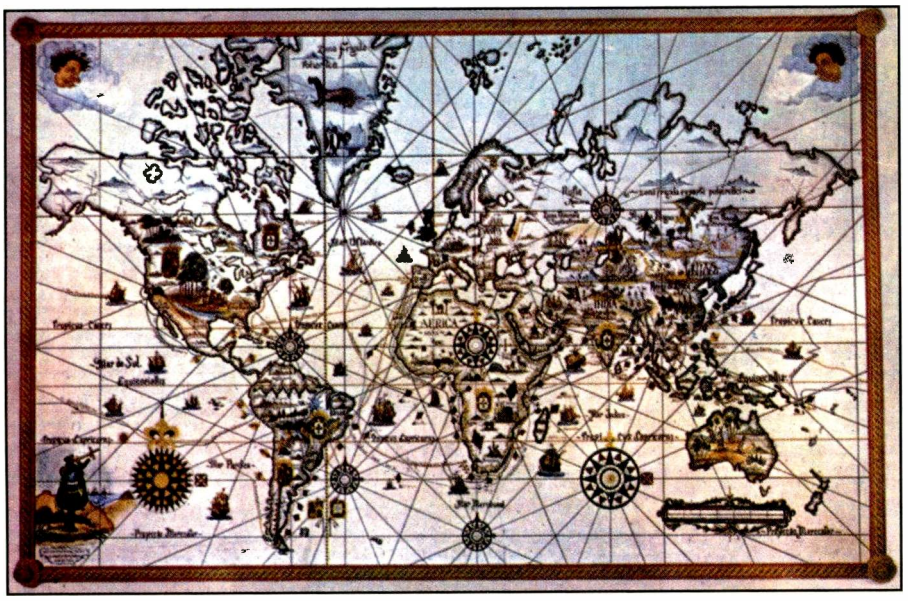
GUYANA—Voice of Guyana, **3291** with Hindi music and EE announcer at 0927. (DeGennaro, NY)

HAWAII—AFN/AFRTS, **6350 USB**, at 1141. (Brossell, WI) 0340 with sports, Paul Harvey. Mixing with Tigray IS at 0355. (D'Angelo, PA) 0413. (Newbury, NE) KWHR, **17510** with news monitored at 2304. (Jeffery, NY)

HUNGARY—Radio Budapest, **9570** in presumed Hungarian at 0210. (Brossell, WI) **9790** at 0230 with IS, ID, news. Also **11830** at 2101 with news, ID at 2104. (Burrow, WA) **11720** with "Hungary Today" heard at 1915. (Charlton, ON)

ICELAND—AFN/AFRTS, **7590 USB**, Grindavik, with car advice program at 0219. (Taylor, WI)

INDIA—All India Radio, **4820**-Kolkata with instl. music. Also **4895**-Kurseong with Hindi vocals at 1331. (Strawman, IA) **9425**-



A classy map card from Radio Portugal (now RDP) International confirmed Robert Charlton's reception on 9570.

Bangalore, into EE at 1600. (Taylor, WI) 9425-Bangalore with domestic service in Hindi at 2105 and **9445**-Bangalore with EE to Western Europe at 2217. (DeGennaro, NY) 9445 in EE at 2209. (Charlton, ON) **9470**-Aligarh in presumed Hindi at 0200, **10330** at 0225 and **11620** also in presumed Hindi at 0150. (Brossell, WI) **9705**-Panaji with Hindi vocals and tablas at 2250, EE ID and world news. (Paszkiewicz, WI) 11620 in Hindi (?) heard at 0115. (Newbury, NE)

INDONESIA—Radio Republik Indonesia, **3345**, Ternate, in II to 1459 sign off. Also **3961**-Palu, Sulawasi at 2117. (Foss, Philippines) **4605**-Serui at 1115 with soft vocals by female. Also **4870**-Wamena at 1137 with vocals and anmts in II. (Brossell, WI) 1148 with local music and II talks, into SCI prior to Jakarta news at 1200. And **4790**-FakFak 1147 with continuous mid-east type vocals, brief talk by man at 1155 and into Koran. (D'Angelo, PA) Voice of Indonesia, **9525** with songs, anmts and ID at 1130. (Brossell, WI)

IRAN—VOIRI, **9635//11650** with IS, ID and anthem at 1530, schedule and into Koran with EE interpretation. News at 1537. (Burrow, WA) **9655** in SS at 0208. Also **9905** in SS at 0219. (Brossell, WI) 9905 in SS at 0127, then ID and anthem at 0130. (Burrow, WA) 9905 in AA at 0030 and **11740** with Koran at 2149. (Charlton, ON)

ISRAEL—Kol Israel, **6280** at 0245 with continuous local pops/ballads. EE news at 0430, which was parallel to **7545**. Into FF at 0445 with 6280 and 7545 back into separate programming. 6280 abruptly off at 0503, 7545 continued in listed Hebrew. (Alexander, PA) **9345** in HH at 2344 and **17535** in SS at 1823. (DeGennaro, NY) **9390** in HH at 2250 and **11585** at 0154. (Brossell, WI) **15640**//17535 in HH at 1700, IS, time pips, talk, music. (Burrow, WA) 17535 in HH at 1746. (Charlton, ON) Galei Zahal, **6973** in HH at 2344. (DeGennaro, NY) 0211 and **15785** at 1803. (Brossell, WI)

ITALY—RAI Int., **7235** in II at 0433 and **9605** in EE at 1933 with IS, ID at 1935, and into news. Also **11800** with EE news at 0101. (Burrow, WA) **9840** in II at 0217. (Brossell, WI) 2337. (Jeffery, NY) **11765** (*Ascension—gld*) in II at 0215. (Barton, AZ) 11800 in II at 0032. (Charlton, ON) **11905** with II news at 2309. (DeGennaro, NY) IRRS, **9775** at 2135 with "Reaching Up" religious program. Closing anmts at 2200 with ID, address and light music to 2245. (Alexander, PA)

JAPAN—Radio Nikkei, **6055** in JJ at 1328. (Taylor, WI) Radio Japan/NHK, 6055 via UK in EE at 2139, **6180** via Skelton at 2127, **11710** via Skelton in JJ at 0913 and **11920** via Singapore in JJ to Australasia at 0936. (DeGennaro, NY) **6120** (*via Canada—gld*) at 1250. (Northrup, MO) **6145** at 0010. (Weronka, NC) 0045 via Canada and **11895** via French Guiana to 2259 close. (Charlton, ON) **9505** with news items at 1505. (Newbury, NE) **11740** via Singapore in JJ at 1215. (Brossell, WI) **13650** with news at 0010. (Barton, AZ) **17560** in EE at 0143. (Jeffery, NY) **17825** at 2137 and **21670** at 2133. (MacKenzie, CA) **21755** in EE heard at 1030. (Foss, Philippines)

JORDAN—Radio Jordan, **11690** with news at 1600. (Burrow, WA) 1601 to past 1700 with news, rock, IDs and time checks. The full news program is now at 1700 after recent time change in Jordan. (D'Angelo, PA)

KUWAIT—Radio Kuwait, **9855** with U.S. music, AA talks. (Charlton, ON) 2320. (Brossell, WI)

LIBYA—Radio Jamahiriya/Voice of Africa, **17635//17695** via France in AA at 1838. Also **21675** via France in AA at 1418. (Charlton, ON)

LITHUANIA—Radio Vilnius, **9875** at 2354 with pop tunes. (Charlton, ON)

MADAGASCAR—Radio Netherlands Relay, **9895** with talks in SS at 0220. (Brossell, WI) **12080** at 1504. (Foss, Philippines)

MALAYSIA—Radio Malaysia, **7295** at 1513 with music dedications and "97.4 FM, Radio 4" ID at 1559 before news. (Burrow, WA) Voice of Malaysia, **15295** at 1220 with CC instrumental music, CC talk by woman and ID at 1126. (D'Angelo, PA)

MAURITANIA—Radio Mauritanie, **4845** in AA at 0028. (Taylor, WI) 2202 with Koran recitations. (DeGennaro, NY)

MEXICO—XERTA/Radio Transcontinental, **4810** at 0258 with inspirational music, SS religious talk. Into pops at 0315 and formal ID at 0338 before program of ballads before a "live" audience. (D'Angelo, PA) 0310 with continuous contemporary Christian music, SS ID at 0400 and 0515. Minor QRM from Armenia from 0358 sign on. (Alexander, PA) 1130 with rock/bluegrass, ID at 1135, then "Dear XERTA listeners, you can now tune to music from across the borders." (Brossell, WI) Radio Mil, **6010** in SS at 1137 with ID at 1140. (Brossell, WI) Radio Educacion, **6185** at 0941 with piano solos, some QRM from Radiobras. (DeGennaro, NY)

MOLDOVA—Voice of Russia, **7125** with songs in RR. Also **9665** on terrorism in Iraq at 0215. (Brossell, WI) **7180** at 0404. (Newbury, NE)

MONGOLIA—Voice of Mongolia, **12085** with listener letters at 1014. (Foss, Philippines)

MOROCCO—RTV Marocaine, **11920** with AA talk and vocals at 0428 and **15345** in AA at 1910. (Newbury, NE) **15335** in AA at 1325. (Northrup, MO) Radio Medi-Un, **9575** with songs in FF, anmts in AA/FF. (Charlton, ON) 0120 in FF. (Jeffery, NY) 0205 with instrumental music and AA talk. (Brossell, WI) VOA Relay, **7155** closing with ID at 0159. (Brossell, WI) **15410** heard at 1826. (Charlton, ON)

MYANMAR—Myanmar Radio (t), **5985.8** at 1500 in heavily accented EE, older Western pops, ID and anthem at 1514 and into man anncr with possible news. (Burrow, WA)

NETHERLANDS—Radio Netherland, **9895** in DD to Southern Europe at 1024. (DeGennaro, NY) **17810** reporting on Afghanistan at 2047. (Charlton, ON)

NETHERLANDS ANTILLES—**9845** with an interview at 0010. (Newbury, NE) 2020 on the Congo's army in Africa. Also **15315** in DD with IS and into news at 2200. (Charlton, ON)

NEW ZEALAND—Radio New Zealand Int., **6095** at 1350. (Newbury, NE) **9870** carrying National Radio. Program summary at 1643, more music, ID and into "South Pacific Service of RNZI" at 1653. Also **11820** at 0537 encouraging people with minor criminal records to stand for election. Time pips and news at 0600 (Burrow, WA) **9885** at 1012 with weather for coastal cities. (Brossell, WI) 1021 with rock. (DeGennaro, NY) 1108. (Charlton, ON) 1123 on HIV in PNG. (Foss, Philippines)

17675 with domestic news at 0304. (Burrow, WA) 2150 on environmental concerns. (MacKenzie, CA)

NIGERIA—Voice of Nigeria, **15120** in EE monitored at 0610 and FF at 0702 check. Also 2130 in FF. Off at 2158. (Alexander, PA) 2154 with program times. (Charlton, ON) 2253 with news and ID at 2256 "You are listening to the Voice of Nigeria. Look for the good in every person and treat them well. See you next time." (Brossell, WI) **17800** monitored at 2105 with "high-life music from Nigeria." (Burrow, WA)

NORTH KOREA—Voice of Korea, **9335** at 1343 with orchestra, ID, mailbag, vocals, sked. (Paszkiewicz, WI) **9975//11735** at 1640 with ID, revolutionary songs and "Song of Korea, Land of the Morning Calm." (Burrow, WA) **11710** with sign on at 1500. (Newbury, NE) Korean Central Broadcasting Station, **11680** in KK at 2249. (Taylor, WI) 11710 in KK at 1216. (Brossell, WI) KNDP, **4450** at 1100 with time pips, ID, martial music. (Brossell, WI) (*ex-NK clandestine now simply relaying KCBS—gld*)

NORTHERN MARIANAS—KFBS, **11580** in CC heard at 1206. (Brossell, WI)

OMAN—Radio Sultanate of Oman, **15350** at 1528 with ID and man/woman in AA. (Newbury, NE)

PAKISTAN—Radio Pakistan, **11570** at 1557 with IS, and program start at 1600 but too weak to copy presumed newscast. **15100** at 1556 with IS, ID, time pips and into news. (Burrow, WA)

PAPUA NEW GUINEA—Radio East New Britain, Rabaul, **3385** at 1137 with island vocals in Pidgin/EE, appeared to be a countdown type program. (D'Angelo, PA) 1308 with pops. The only audible signal on 90 meters. (Strawman, IA) NBC, **4890** with religious service at 1015. (Brossell, WI)

PERU (all SS) Radio Huanta 2000, **4749** with music and talk in SS at 1040. (Brossell, WI) Radio Cultural Amauta, Huanta, **4955** at 1017. (DeGennaro, NY) Radio Victoria, Lima, **6020.3** with emotional preacher and Christian music at 0745. (Alexander, PA) Radio Melodia, Arequipa, **5939.4** at 0000 with continuous SS talk. Has been off the air for several weeks. (Alexander, PA) Radio Frecuencia VH, Celendin, **4485.9** at 0115 with anmts, talks, IDs, variety of OA music. (Alexander, PA) Radio Santa Maria, Cusco, **4965** with music, ID at 1022. (DeGennaro, NY) La Reina de Selva, Chachapoyas, **5487** at 1010 with beautiful OA vocals with pipes and flutes, "...desde la cinco el la manana Reina de la Selva...cinco y diez y seis minutos" by a man. (Wilkner, FL)

PIRATES—Radio Spaceman (Euro), **6305** at 0100 with rock program, male anncr mentioned 49-meter band. (D'Angelo, PA) WHYP, **6925 USB** monitored at 2327 with bits from President Bush's speeches, anti-Bush song. (D'Angelo, PA)

PHILIPPINES—Radio Veritas Asia, **9520** in CC at 1130. (Brossell, WI) FEBC Int., **9405** with talks in CC at 1218. (Brossell, WI) (p) at 1413 with CC talk, vocals, anmts at 1430. (Paszkiewicz, WI) **15435** at 0035 with religious programming in various Asian languages and choir vocals. Off at 0130. (D'Angelo, PA) Radio Pilipinas, **11720//15190** at 1732 with domestic news in Tagalog. (Burrow, WA) VOA Relay, **7215** with "Our Ocean World" at 2300. (Foss, Philippines) **9760** at 1203. (Newbury, NE) 1230 to East Asia. (Northrup, MO) **11825** in CC at 1220. (Brossell, WI)

PORTUGAL—RDP Int., **15575** with sports event in PP. (DeGennaro, NY) **17575** at 1822. (Charlton, ON) **17680** in PP at 2147. (MacKenzie, CA)

ROMANIA—Radio Romania Int., **6135** with East European news at 2313. (Paszkiewicz, WI) **7195** in presumed Romanian at 2053. (Foss, Philippines) **9590** at 2311 with ID at 2315, **9690** at 0127, **15380** at 1839. (Charlton, ON) 9690 with domestic news at 0118. (DeGennaro, NY) **11940//15380** with travel report at 1844. (Burrow, WA)

RUSSIA—Voice of Russia, **5940** in RR at 1158, anthem at 1200, **9470** from St. Petersburg in RR at 0205, **9480**-St. Petersburg in RR at 0200 and **13590** in CC at 1230. (Brossell, WI) **7300** at 0408, **15595** at 0135. (Newbury, NE) **9450** from St. Petersburg in RR at 2058. (DeGennaro, NY) **9860** at 0205 and **15605//17645** at 1431. (Charlton, ON) Magadan Radio, **7320** in RR at 1130. (Brossell, WI)

RWANDA—Deutsche Welle Relay, **17765** in FF at 1715. (Brossell, WI)

SAO TOME—VOA Relay, **4960** in unid language at 0518. (Jeffery, NY) **11975** at 2000. (Paradis, ME)

SAUDI ARABIA—BSKSA (*all in AA—gld*) **9555** to North Africa at 2042. (DeGennaro, NY) **11820** at 2219. (Charlton, ON) **11950** at 1900. (Paradis, ME) **15380** at 1230. (Northrup, MO) **21600** at 1500. (Paszkiewicz, WI)

SEYCHELLES—BBC Relay, **9630** in unid African dialect monitored at 1817. (Brossell, WI)

SERBIA & MONTENEGRO—Int. Radio of Serbia and Montenegro, **9580** with interview in EE heard at 0020. (Charlton, ON) 0430 with IS, ID, frequencies (**6100**, **7230**, 9580, only the latter noted) and into news. (Burrow, WA)

SINGAPORE—Mediacorp Radio, **6000** in CC at 1512. Also **7170** in Tamil at 1047. (Foss, Philippines) **6150** at 1553 with pops, local commercial, ID "This is the shortwave relay from Mediacorp Radio," f/by schedule for Radio Singapore and News Radio 9-3-8. (Burrow, WA) BBC Relay, **7135** in unid Asian language at 1115. Also **9740** with radio drama at 1118. (Brossell, WI) **15360** with world news at 0002. (D'Angelo, PA)

SLOVAKIA—Radio Slovakia Int., **5930** with ID at 0130. (Charlton, ON) **9440** in presumed FF heard at 0204. (Brossell, WI)

SOUTH AFRICA—Channel Africa, **15265** at 1713 with sports news, ID at 1715. (Burrow, WA) 1730 with African news, "We now continue with the news from Channel Africa." (Brossell, WI) 1755 with ID, music and sign off. (Charlton, ON) Radio Sondergrense, **3320** with conversation in Afrikaans at 2216. (DeGennaro, NY) 0215 in Afrikaans. (Brossell, WI)

SOUTH KOREA—Radio Korea

Help Wanted!

We believe that the "Global Information Guide," month after month, offers more logs than any other monthly SW publication! (Nearly 500 shortwave broadcast station logs were processed this month!) So why not join in on the fun and add your name to the list of "GIG" reporters? Send your logs in to "Global Information Guide," *Popular Communications*, 25 Newbridge Rd., Hicksville NY 11801-2953. Or, e-mail them to Editor Harold Ort at popularcom@aol.com or to your "Global Information" columnist at gdex@genevaonline.com (see the column text for formatting tips).

This Month's Book Winner

To show our appreciation for your loggings and support of this column, each month we select one "Global Information Guide" contributor to receive a free book. Readers are invited to send in loggings, photos, copies of QSL cards, and monitoring room photos to me at *Popular Communications*, "Global Information Guide," 25 Newbridge Road, Hicksville, NY 11801, or by e-mail to popularcom@aol.com. The e-mail's subject line should indicate that it's for the "Global Information Guide" column. So come on, send your contribution in today!

Our book winner this month is **Mark Northrup** who is quite likely the longest serving reporter to this column. Mark has received a copy of the 2005 edition of *Passport to World Band Radio*, courtesy of the great folks at Universal Radio. If you want to know what's up with the latest in radios, antennas, accessories, books, and other hobby radio stuff, you really do need to get hold of Universal's catalog (it's free!). Call them at (800) 866-4267, send an e-mail to dx@universal-radio.com, or drop a note to them at 6830 Americana Parkway, Reynoldsburg, OH 43068.

This is the Vatican Radio transmitter site at Santa Maria di Galeria. (Thanks Robert Charlton)

International, **5975** opening in CC at 1300. (Barton, AZ) 1638 with "Let's Learn Korean," travelogue, ID, schedule and off at 1657. (Burrow, WA) **9650** via Canada at 1225. (Northrup, MO)

SPAIN—Radio Exterior de Espana, **6055** in SS at 0407. (Newbury, NE) **15385** in EE at 0007. (Charlton, ON) **17560** in AA at 1832. (DeGennaro, NY)

SRI LANKA—SLBC, **11905** in Hindu at 0048 with Hindu-flavored music (DeGennaro, NY)

SWAZILAND—Trans World Radio, **6040** at 0255 sign on with IS, ID "This is Trans World Radio, Swaziland." Poor, mixing with the Brazilian and then blown away by Monte Carlo via Sackville at 0300. (D'Angelo, PA)

SWEDEN—Radio Sweden, **6010** via Canada at 0140: Saab workers to lose jobs. (Charlton, ON) 0130. Also **15240** at 1347. (Newbury, NE) **6010** with news heard at 0231. (Burrow, WA) 15240 asking for feedback at 1255. E-mail: intouch@rsweden.org. (Brossell, WI)

SYRIA—Radio Damascus, **12085** heard at 2023 with news, ID, music. ID again at 2029, then more news and comment. (Burrow, WA) 2325 in SS. (DeGennaro, NY)

TAIWAN—Radio Taiwan Int., **7130** at 1330 with classical CC music. (Barton, AZ) 1345 in JJ. (Newbury, NE) **9415** in unid Asian language at 1205. (Brossell, WI) **15600** via Florida at 2206 report about testing a new cancer drug. (Charlton, ON) CBS Taipei, **11635** in CC at 0909. (DeGennaro, NY)

TAJIKISTAN—Voice of Russia relay, **11500** at 1230 with talks in listed Hindi. (Brossell, WI)

THAILAND—Radio Thailand, **5890** (*via Greenville—gld*) at 0036. (Charlton, ON) 0424 with "Upcoming Events." (Burrow, WA) **7260** in unid Asian language from 1115 to 1130, then VOA ID. (Brossell, WI) **9680** at 2031 on avian flu there. (Burrow, WA) **9830** with "Information Thailand" at 1415. (Foss, Philippines) VOA Relay, **15150** in CC at 0023. (Jeffery, NY)

TUNISIA—RT Tunisienne, **9720** in AA at 0210. (Brossell, WI) **12005** in AA heard at 1830. (Paradis, ME) 0431. (Newbury, NE)

TURKEY—Voice of Turkey, **5980** with possible Koran at 1930. (Paradis, ME) **9460** with music at 2055. (DeGennaro, NY) 0201. Also **15225** with popular Turkish music at 1250. (Brossell, WI) **9785** at 1850 to close at 1920. (Burrow, WA) **9830** with times and frequencies at 2215. (Charlton, ON) **15350** in presumed Turkish heard at 1250. (Northrup, MO)

UKRAINE—Radio Ukraine Int., **7545** giving frequencies of various radio stations at 0021. (Charlton, ON) 0052 with music and close-down at 0058. (DeGennaro, NY) 0300 with IS, ID, news headlines. (Burrow, WA)

UNITED ARAB EMIRATES—Adventist World Radio, **17595** via Abu Dhabi in unid African dialect at 1712. (Brossell, WI)

UZBEKISTAN—Radio Tashkent Int., **9715** in UU at 0131 and **11905** in GG with ID and news at 2231. (Charlton, ON) 2043 with feature on an Uzbek singer. (Burrow, WA) 2130 with news, comment, local music, ID from 2130-2157 close. Weak but in the clear. //**7185** weaker with ham QRM. (Alexander, PA)

VATICAN—Vatican Radio, **9605** in SS at 0210. Also **11625** with ID at 2027, off at 2028, back with IS at 2029 and ID in FF at 2030. (Brossell, WI) **9650** at 0146 and **15235** heard at 1542, both in EE. (Charlton, ON)

VENEZUELA—Radio Amazonas, Puerto Ayacucho, **4939.6** at 0225 with SS talk, IDs, TC, and LA music. Brief transmission break at 0303, carrier back at 0314. ID, s/off anmts and choral anthem before 0320 close. (D'Angelo, PA) 1013 in SS. (DeGennaro, NY) 1015 with ID. (Brossell, WI) Radio Nacional, **11760** via Havana in SS at 2344. (Charlton, ON)

VIETNAM—Voice of Vietnam, **6175** (*via Canada—gld*) with features and music at 0123. (Newbury, NE) 0101 with news, economic features. (DeGennaro, NY) **7220//9550** at 1615 with talk, music, ID, more music. (Burrow, WA)

YEMEN—Republic of Yemen Radio, **9779.7** with news at 1802. "Press Review of Yemeni News" at 1812. (Burrow, WA)

And that puts a lid on it for this time. A gazillion thank you's to the following fine folks who did the right thing this time: Mark Taylor, Madison, WI; Robert Brossell, Pewaukee, WI; Bruce Burrow, Snoqualmie, WA; Robert Charlton, Windsor, ON; Jerry Strawman, Des Moines, IA; Sheryl Paszkiewicz, Manitowoc, WI; Ed Newbury, Kimball, NE; Dave Jeffery, Niagara Falls, NY; Robert Wilkner, Pompano Beach, Fl; Marty Foss, Guinayangan, Philippines; Stewart MacKenzie, Huntington Beach, CA; Rich D'Angelo, Wyomissing, PA; Rick Barton, Phoenix, AZ; Ray Paradis, Pittsfield, ME; Mark Northrup, Gladstone, MO; Brian Alexander, Mechanicsburg, PA; and Ciro DeGennaro, Fuera Bush, NY. Thanks to each one of you!

Until next month—good listening! ■

March 2005 Survey Questions

I've purchased a new scanner within the past year:
Yes 1
No 2

The reason I purchased a new scanner is:
(mark all that are appropriate)
Needed more channels 3
Agencies went to trunking system 4
Older scanner doesn't work 5
Wanted an additional scanner 6
Like features on new scanner 7

The reason I haven't purchased a new scanner is:
(mark all that are appropriate)
Cost 8
Don't need one at this time - old scanner works fine 9
Too complicated to operate/load frequencies 10
They don't have the features I want 11
Not as good as my other scanner/s as far as sensitivity and selectivity 12
No room in my shack 13
I use a handheld for home and mobile scanning 14
I prefer using alkaline batteries, not just a rechargeable pack 15

When it comes to getting frequencies for my scanner, I use: (mark all that are appropriate)
An online database 16
Police Call 17
Magazines 18
My friends' lists and local club publications 19
Lists obtained from public safety officials 20

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These 15 month calendars (January '05 through March '06) include dates of important Ham Radio events such as major contests and other operating events, meteor showers, phases of the moon, and other astronomical information, plus important and popular holidays. Great to look at, and truly useful!

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by Rich Arland, K7SZ, richard.arland@verizon.net

Confronting Terrorism: Nuclear And Biological

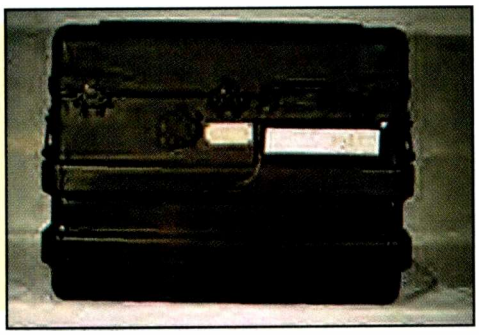
The world can be a very violent and scary place to live. For decades we have watched from afar the horrible violence occurring in third world and emerging countries, not believing that some monumental act of violence or terrorism could occur on American soil. We would shake our collective heads at the ongoing homicide bombings in Israel and the Middle East, watching the grotesque scenes on television of bloated bodies of Africans slaughtered in inter-tribal warfare floating down the Zambezi river, the devastating IRA bombing attacks on British soil, the ethnic cleansing and "war crimes" committed by all sides in the Balkans conflict, the ongoing problems that Russia is having in dealing with their former USSR allies, and the kidnapping and subsequent ransoming of innocent tourists and foreign business people in Mexico and Central and South America. All the while we were thinking that we were safe and sound within the boarders of the United States.

Nothing like that could possibly happen in America. Then came September 11, 2001, and we awoke from our dream to face a new reality.

Well, I have a news flash for many of you: It's gonna get worse. Despite all the good intentions of the Department of Homeland Security (DHS), the FBI, CIA, NSA, DIA, and the DoD, despite all the security procedures in place at airports and terminals across our land, the increased surveillance of our international borders and coast lines, without a doubt someone—or groups of someones—will get lucky and pull off another major terrorist act against us. Mathematically, it's virtually impossible to prevent more acts of violence and terrorism against America. The security/intelligence agencies have to be right 100 percent of the time. All the bad guys have to do is get it right once, just once. Do I have your attention? I certainly hope so, because as radio hobbyists we have a critical role to fill in the ongoing war on terrorism and in protecting our country. Information is the key, and training is the critical element in performing our role as emergency communicators.

The old saying, "the road to hell is paved with good intentions," can be directly applied to atomic weapons. Initially, America used the development of the atomic bomb in the early 1940s to hasten the end of World War II and save hundreds of thousands of lives. What we ended up with, though, was an almost unchecked nuclear arms race that lasted nearly 50 years, where the fate of the entire world rested in the insane idea of Mutually Assured Destruction. One slip, one little glitch in the human element controlling the atomic weapons of either the USSR or the US of A, would have meant the end of civilization. Thankfully that did not happen. However, there were some very close calls, if the truth be told (which it never will).

The spin-off of all this atomic weapons production is the cold, hard fact that there are a number of man-pack mini-atomic weapons that are unaccounted for! Can you say "nuclear terrorism"? Sure you can.



A suitcase nuke? If you think it's not possible, think again—dozens are "lost."

Lost Nukes?

Several years ago one of the television news magazine programs did an expo on these mini-nukes. One of the people interviewed was former Russian President Yeltsin's defense minister, Igor Rodionov, a former general in the Red Army in charge of their ultra-elite special forces. He admitted, on camera, that there were at least 20 or so of these suitcase nukes unaccounted for in former Warsaw Pact countries. It seems that these mini-nukes were "lost" due to some sloppy record keeping.

Having some sources within the "belly of the beast," I queried them and was told that it was not 20, but more like 100 man-pack nukes that were missing, most probably sold by former Red Army officers who had not been paid by their now defunct government for several years. Ain't Capitalism wonderful? Here you have a hungry Soviet Captain in charge of a nuclear weapons stockpile, selling off a couple of mini-nukes to the highest bidder. If you're a terrorist bent upon raising some hell with America, you just hit the mother lode!

Now before you tell me that I've been reading too much Tom Clancy, let me just explain a couple of things. The Ruskies weren't the only group to have these devices. We have them, also. These mini-nukes—they looked like small garbage cans and can be carried in a standard military ALICE pack (rucksack)—were specifically designed to produce a very small, low-yield atomic explosion, of around 1 kiloton, to neutralize specific hardened targets should we have gone to war with the USSR. Handled by specially trained Special Forces teams, these mini-nukes, called Sadam Devices (pronounced "Say-dum") could be deployed quickly, taking out embedded or hardened command and control bunkers, dams, communications sites, etc., disrupting the enemy's war-making capabilities. The resulting explosion would obliterate the intended target and the residual radiation from the direct explosion and the fall out would be "minimal" due to the low size of the yield.

These mini-nukes were classified as "surgical" strike weapons, if you could call an atomic weapon a "surgical" weapon. There is a certain stigma attached to a nuclear detonation, not the least of which is that idea that you couldn't inhabit the affected area for several thousand years. Yep, that's my idea of a "surgical" weapon, you bet.

Let's review. Allegedly we have approximately 100 mini-nukes which are unaccountable from former the Soviet Union and Warsaw Pact countries. Most probably they were sold on the international black market by one or more enterprising former Soviet Army officers to person or persons unknown, most probably terrorists. You still think I read too much Clancy? Somewhere out there are some really nasty man-pack nuclear weapons capable of around a 1-kiloton yield and weighing approximately 100 pounds, disguised as suitcases similar to a Samsonite three-suiter, that can be carried by a single person. No, this is not a Clancy plot. Oh, how I wish it were!

Here's a possible scenario: Terrorists manage to smuggle a dozen of these mini-nukes into the United States through gaping holes in our international borders with Canada and Mexico, or via our minimally protected coastlines. The bad guys take these suitcase nukes and place them at strategic locations across the United States, maybe including the subway station near Times Square in New York City, Independence Hall in Philadelphia, Tobyhanna Army Depot in northeastern Pennsylvania, downtown Atlanta, Dallas, Los Angeles (they get two, just because), San Francisco, Seattle, Orlando (near Disney World), Las Vegas, and Chicago or Detroit (take your pick). And they're all set to explode within minutes of each other in one grand cataclysmic act of nuclear terrorism against "The Great Satan."

What It Could Mean

Just one mini-nuke would cause unbelievable devastation and chaos, albeit extremely localized. Imagine what *12* of these man-pack nukes would do to the infrastructure of the United States. The end product would be catastrophic. Key communications links like cell phones would be instantly overloaded (just like in New York City during 9/11) or collapse entirely. The police and fire departments inside the affected areas would be instantaneously overwhelmed. Anarchy would reign.

The two airplanes that slammed into the World Trade Center Towers, the one that hit the Pentagon, and the one that went down in western Pennsylvania on 9/11 caused significant loss of communications and stretched disaster relief efforts in the affected areas to their limits. These four aircraft managed to ground every single airplane flying inside U.S. airspace. And the ripple effects were felt for months.

The New York Stock Exchange tanked like the *Titanic*. Some people on Wall Street believed this group of terrorists was sophisticated enough to buy positions in the market, called "long derivative positions," in the equities of insurance firms. These long derivative positions profited as the stock value of affected insurance firms dropped like rocks. This basically meant that as the planes were hitting their targets, the terrorists were getting even richer using our own economic system to their benefit!

As I've said for the past three years, our enemies in this war on terror are not stupid camel jockeys. They are extremely intelligent and well-educated adversaries who are very patient and learn quickly from their mistakes. They constantly try to subvert our way of life and our economic systems for their own benefit. They use our strengths against us. For them to resort to nuclear terrorism would only be a natural evolution of their thinking process. We need to respect them, if only for their tenacity and zealous devotion to the fanatic sect of their religion. Their thinking transcends rational thought processes.

Bioterrorism And Missing WMD?

As bad as the thought of nuclear terrorism is, there is something much more menacing on the terrorism horizon, namely bioterrorism. Dubbed the "a poor man's nuclear weapon," bioterrorism has only recently been paraded on the international stage. After the first Gulf War in 1991, it was no secret that Saddam Hussein used several forms of nerve gas (a bio-weapon) against Kurds in the northern reaches of Iraq. The facts were there, but no one paid close attention. All of a sudden, 10 years later, we again went to war with Saddam and Iraq, with the Bush Government beating the "Weapons of Mass Destruction" drum. We annihilated the Iraqi defenses, completely took over the country, and found no WMD. Imagine that! Now just where do you think these stockpiles of bio-weapons are? They are hidden, very well hidden, most probably in a neighboring country, that even now furnishes terrorist "freedom fighters" that infiltrate occupied Iraq to wage a gorilla war against our troops.

Bio-weapons have been around since World War I. The Germans made good use of mustard gas, along with a variety of primitive nerve agents, in those trenches. Of course, the United States and her allies could not be left behind, so what followed was a rush to produce similar bio-weapons to maintain equilibrium. Bio-weapons (nerve agents along with virulent types of viruses and bacteria), however, didn't receive the degree of limelight of their nuclear brothers. For the most part, bio-weapons were developed in "the dark" with no fanfare by the United States, her allies, or enemies.

It wasn't until several high-ranking scientists within the Soviet Union's bio-weapons program defected to the West in the late 1980s that we learned of the huge strides the USSR had made in bio-weapons development. They were literally light years ahead of the U.S. in the development of ultra-virulent strains of smallpox, anthrax, and other bio-weapons, which were virtually immune to normal regimes of antibiotics. The Soviets had managed to take a common disease like smallpox, which had been eliminated except for laboratory stockpiles, and genetically remake it into a much more potent killer, and then even incorporated anthrax into the mix, resulting in an ultra-potent bio-weapon of unprecedented deadliness. Launched against an enemy, these bio-weapons would be virtually 99 percent effective in killing all life! Nothing like success, I always say.

Had the Soviets not suffered the defections of several key scientists in their bio-weapons program, we in the West would have been almost defenseless against an onslaught of these super killers. Thankfully, we now have a handle on the problem. Research on how to deal with these ultra-virulent strains of bio-weapons continues, but the picture gets cloudy when you factor in the *terrorist* element. Obviously the data and information on how to manufacture these bio-killers is out there somewhere, readily for sale to the highest bidder.

Would Islamic extremists hesitate to use something like this against "The Great Satan"? Given the technology and the method to produce some extremely high-grade bio-weapons, I can just imagine Osama Bin Laden, rubbing his little hands together with glee at the thought of releasing these weapons against the United States and her allies. The outcome of such an event would be cataclysmic. There would not be enough vaccine available to inoculate even a small portion of the total population of the United States. Of course, the military and executive branch of the government would get their inoculations, but beyond that, there would be little hope of anyone surviving in an infected area.

But while bio-weapons are deadly, they are also very limited in scope. Widespread dispersal is a problem. Primarily delivered as an atomized spray, bio-weapons affect localized, not widespread, areas. The concentration of a bio-weapon in a drinking water reservoir would have to be massive in order to poison the water of all but a small town. That's the good news. The bad news is that these weapons are a lot easier to manufacture and transport than nuclear weapons, making them a prime implement in an enterprising terrorist's arsenal. Delivery still remains a problem, but remember, these bad guys are sharp, so I am sure they can solve the problem.

Our ecosystem is a very delicately balanced, highly tuned machine that provides for temperate climates in the major population areas around the world. According to some scientists, the recent past (as recent as a mere 10,000 years ago) witnessed the globe suffering massive shifts in the ecosystem, thought to be the result of a collision with an asteroid or meteor passing very close to Earth. Unleashing atomic weapons or bio-weapons could produce a similar effect by unbalancing the eco-machine and altering the reflective index of the Earth. So could global warming, something that is argued by experts on both sides of the fence on a daily basis. Listen to the "tree-huggers" and we are all doomed to extinction unless we rapidly convert to a non-dinosaur oil way of life. The other side argues that global warming is a hoax at best and there is no validity in the arguments about dangers of global warming.

Not long ago the movie "*The Day After Tomorrow*" depicted how a slight change in the ocean temperatures could have a massive effect on our global weather, including incidents of killer storms and extreme sub-zero temperatures that could literally freeze people in their tracks. This movie was one of those EOTWAWKI (End-Of-The-World-As-We-Know-It) type films meant for entertainment. After watching it, and being thoroughly entertained by the ultra-cool special effects, I had to question some of the "science" that was presented in the movie.

Now, before you classify me as a "tree-hugger" let me publicly state that I am *NOT* an environmental extremist-wacko. I do believe in intelligent use of our natural resources, to include converting to non-petroleum-based lifestyles, but I am not about to go out and start spiking trees and staging sit-downs in front of D-9 Caterpillar tractors in defense of wetlands! I have been a long-standing advocate of solar power, especially when it comes to radio gear. Being a ham radio operator for over 40 years I have been on the QRP (under 5-watt ham radio) bandwagon for almost that entire length of time. RF ecology matters, too.

While "*The Day After Tomorrow*" was great entertainment (I have been a long-standing fan of Dennis Quaid's), I seriously doubt that anything of the magnitude depicted in the movie could happen without sufficient advanced warning, not that we could or would do anything about it. That being said, how about those hurricanes in Florida this last year, huh? The "Sunshine State" got slammed hard in 2004. For an in-depth review of disaster communications and relief efforts during these catastrophic storms, read Bob Josuweit's, WA3PZO, two-part coverage in his "Public Service" columns in November and December issues of our sister publication, *CQ* magazine." Bob's outstanding coverage and insight into EmComm brings home the need for ongoing *realistic* training, and for being *constantly* prepared to deploy in support of your served agencies.

The Point

That, in a nutshell, is our role as emergency communicators and radio hobbyists. We have an obligation to our communities, our government, and most of all to our friends and neighbors to be prepared to aid in disaster relief. No matter what the cause of the disaster, whether a terrorist attack, a nuclear power plant event, or a natural disaster like a hurricane, earthquake, or flood, we need to be trained and ready to respond. It's our job.

That's a wrap for this month. If I managed to scare the heck out of you with some of the information I've provided in this issue of "Homeland Security" then I have fulfilled my mission. Remember, the key to doing a proper job of emergency communications is information and training. As my "Green Beanie" buddy, Sonny Womelsdorf, MSgt, USA Retired, always tells me, "What you do in training, you'll do in combat." Words to live by. ■

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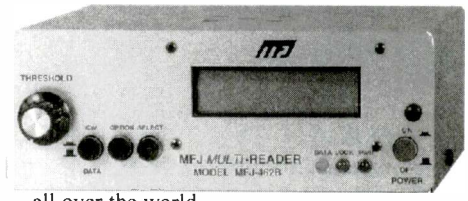

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You get MFJ's famous one year *No Matter What*™ limited warranty. That means we will repair or replace your MFJ *MultiReader*™ (at our option) *no matter what* for one full year.

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 elec- trical 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 in. Remote has 54" whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, $12.95.

MFJ-1024 **$139.95**

Indoor Active Antenna

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

MFJ-1020C **$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, $12.95.

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 to 200 MHz including low, medium, shortwave and VHF bands. Detachable 20" telescoping antenna. 9V battery or 110 VAC MFJ-1312B, $12.95. 3⅛x1¼x4 in.

MFJ-1022 **$49.95**

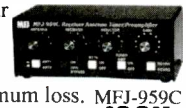
Eliminate power line noise!

MFJ-1026 **$179.95**

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

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



MFJ-959C **$99.95**

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, $12.95.

High-Gain Preselector

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, $12.95.

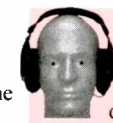
MFJ-1045C **$99.95**

Dual Tunable Audio Filter

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 inches.

MFJ-752C **$99.95**

MFJ Shortwave Headphones



MFJ-392B **$19.95** New!

Perfect for shortwave radio listening for all modes -- SSB, FM, AM, data and CW. Superb padded headband and *ear cushioned* design makes listening extremely comfortable as you listen to stations all over the world! High-performance driver unit reproduces enhanced communication sound. Weighs 8 ounces, 9 ft. cord. Handles 450 mW. Frequency response is 100-24,000 Hz.

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 in.

MFJ-956 **$49.95**

Super Passive Preselector

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.

MFJ-1046 **$99.95**

MFJ Shortwave Speaker

This MFJ *ClearTone*™ restores the broadcast quality sound of shortwave listening. Makes copying easier, enhances speech, improves intelligibility, reduces noise, static, hum. 3 in. speaker handles 8 Watts. 8 Ohm impedance. 6 foot cord.

New!

MFJ-281 **$12.95**

MFJ All Band Doublet

102 ft. all band doublet covers .5 to 60 MHz. Super strong custom fiberglass center insulator provides stress relief for ladder line (100 ft.). Authentic *glazed ceramic* end insulators and heavy duty 14 gauge 7-strand copper wire.

New!

MFJ-1777 **$49.95** Ship Code A

MFJ Antenna Switches

MFJ-1704 **$69.95**

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.

Morse Code Reader

Place this pocket-sized MFJ Morse Code Reader near your receiver's speaker. Then watch CW turn into solid text messages on LCD. Eavesdrop on Morse Code QSOs from hams all over the world!

MFJ-461 **$79.95** New!

MFJ 24/12 Hour Station Clock

New!

MFJ-108B, $19.95. Dual 24/12 hour clock. Read UTC/local time *at-a-glance*. High-contrast 5/8" LCD, brushed aluminum frame. Batteries included. 4½Wx1Dx2H inches.

Free MFJ Catalog

and Nearest Dealer . . . 800-647-1800

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(662) 323-5869; 8-4:30 CST, Mon.-Fri.
FAX: (662) 323-6551; **Add s/h**
Tech Help: (662) 323-0549

World News, Commentary, Music, Sports, And Drama At Your Fingertips

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	15150	Voice of America Relay,. Thailand	CC
0000	7545	Radio Ukraine International	
0000	15385	Radio Exterior de Espana, Spain	
0000	15360	BBC Relay, Singapore	
0000	9845	Radio Netherland	
0000	9440	Radio Prague, Czech Republic	
0000	5939	Radio Melodia, Peru	SS
0000	2390	Radio Huayacocotla, Mexico	SS
0000	9765	Gospel For Asia, via Germany	vern.
0030	9410	BBC Relay, Cyprus	
0030	11800	RAI International, Italy	II
0030	4985	Radio Brazil Central	PP
0100	6175	Voice of Vietnam, via Canada	
0100	9690	Radio Romania International	
0100	4485	Radio Frecuencia VH, Peru	SS
0100	11905	Sri Lanka Broadcasting Corp.	Hindi
0100	9420	Voice of Greece	GG
0100	5980	RTV Marocaine, Morocco	AA
0130	6185	Radio Educacion, Mexico	SS
0130	6025	Radio Amanecer International, Dominican Republic	SS
0130	5815	World Music Radio	
0130	6010	Radio Sweden, via Canada	
0130	7155	VOA Relay, Morocco	
0130	4052.5	Radio Verdad, Guatemala	SS
0130	5930	Radio Slovakia International	
0130	4875	Radio Difusora Roraima, Brazil	PP
0130	9630	Radio Aparecida, Brazil	PP
0130	11745	Voz Cristiana, Chile	SS
0130	7160	Radio Tirana, Albania	
0200	9720	RT Tunisienne, Tunisia	AA
0200	9460	Voice of Turkey	TT
0200	9605	Vatican Radio	SS
0200	4939.6	Radio Amazonas, Venezuela	SS
0200	9925	Voice of Croatia	
0200	3320	Radio Sondergrense, South Africa	Afrikaans
0200	9895	Radio Netherland Relay, Madagascar	SS
0200	9575	Radio Medi-Un, Morocco	AA
0200	7590	AFN/AFRTS, Iceland	
0200	9570	Radio Budapest, Hungary	HH
0200	9655	Voice of Islamic Republic of Iran	SS
0200	4885	Radio Difusora Acreana, Brazil	PP
0200	9700	Radio Bulgaria	
0200	6040	Radio Clube Pranaense, Brazil	PP
0200	11810	Radio Solh, via England, to Afghanistan	Dari
0200	9440	Radio Slovakia International	FF
0200	9965	Voice of Russia, via Armenia	
0200	4755	Radio Educacao Rural, Brazil	PP
0230	3279.5	Radio Maria/LV del Napo, Ecuador	SS
0230	7125	Voice of Russia, via Moldova	RR
0230	4915	Radio Anhanguera, Brazil	PP
0230	3250	Radio Luz y Vida, Honduras	SS
0300	6040	Trans World Radio, Swaziland	
0300	6973	Galei Zahal, Israel	HH
0300	6035	VOA Relay, Botswana	
0300	7210	Radio Belarus	
0330	4810	XERTA, Mexico	SS
0330	4965	Christian Voice, Zambia	
0345	4910	ZBC/Radio Zambia	
0400	11920	RTV Marocaine, Morocco	AA
0400	5975	BBC Relay, Antigua	
0400	4991	Radio Apinte, Suriname	DD
0430	5890	Radio Thailand, via US	
0430	9580	Int. Radio of Serbia & Montenegro	
0430	12060	Radio Nile (to Sudan), via Madagascar	AA/EE
0500	4950	Radio Nacional, Angola	PP
0500	6249v	Radio Nacional Malabo, Equatorial Guinea	SS
0600	4760	ELWA, Liberia	
0600	4783	RTV Malienne, Mali	AA
0600	4915	GBC/Radio Ghana	
0630	6115	RTV Congolaise, Congo (Rep)	FF
0700	6070	CFRX, Canada	
0800	6020	Radio Victoria, Peru	PSS
0830	6155	Radio Austria International	GG
0830	6010	La Voz de tu Conciencia, Colombia	SS
0900	11635	Central Broadcasting System, Taiwan	CC
0930	3291	Voice of Guyana	EE/Hindi
0930	5990	Radio Senado, Brazil	PP
0930	6060	Radio Nacional, Argentina	SS
1000	9600	Radio Rebelde, Cuba	SS
1000	4869	La Voz del Upano, Ecuador	SS
1000	4955	Radio Cultural Amauta, Peru	SS
1000	12085	Voice of Mongolia	
1000	6135	Radio Santa Cruz, Bolivia	SS
1000	6025	Radio Illimani, Bolivia	SS
1000	4917v	Radio San Miguel, Bolivia	SS
1000	9970	RTBF, Belgium	FF
1030	4749	Radio Huanta 2000, Peru	SS

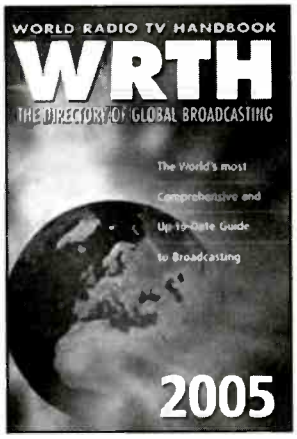
UTC	Freq.	Station/Country	Notes
1030	4965	Radio Santa Monica, Peru	SS
1030	9885	Radio New Zealand	
1100	4815	Radio El Buen Pastor, Ecuador	SS
1100	6010	Radio Mil, Mexico	SS
1100	4605	Radio Republik Indonesia	II
1100	4800	Radio Buenas Nuevas, Guatemala	SS
1100	4525	Nei Menggu PBS, China	Mongolian
1130	9440	China Radio International	CC
1130	6160	CKZN, Canada	
1130	7320	Magadan Radio, Russia	RR
1130	9520	Radio Veritas Asia, Philippines	CC
1130	5940	Voice of Russia	RR
1130	4890	NBC, Papua New Guinea	
1130	6350	AFN/AFRTS, Hawaii	USB
1130	4780	Radio Cultural Coatan, Guatemala	SS
1130	3315	Radio Manaus, Papua new Guinea	
1130	11590	Voice of the Strait, china	CC
1145	15665	Radio For Peace, via IRRS, Italy (to W. Sahara)	SS
1145	9920	FEBC, Philippines	vern
1200	11610	Central People's Broadcasting Station, China	CC
1200	9415	Radio Taiwan International	unid
1200	9760	VOA Relay, Philippines	
1200	3385	Radio East New Britain, Papua New Guinea	
1200	9650	Radio Korea International, via Canada	
1200	11580	KFBS, Northern Marianas	CC
1200	9465	Trans World Radio, Guam	unid
1200	15400	YLE/Radio Finland	Finnish
1200	9590	Radio Australia	
1200	6185	China Huayi Broadcasting Corp., China	CC
1200	6055	Radio Nikkei, Japan	JJ
1200	15295	Voice of Malaysia	CC
1230	11500	Voice of Russia, via Tajikistan	Hindi
1230	15240	Radio Sweden	
1230	15380	Broadcasting Service of Kingdom of Saudi Arabia	AA
1230	7295	Radio Malaysia	
1230	4835	ABC Northern Territories Service, Australia	
1230	12020	Voice of Vietnam	
1300	11530	Voice of Mesopotamia (clandestine to Kurds)	Kurdish
1300	6150	Mediacorp Radio, Singapore	
1300	5975	Radio Korea International, South Korea	
1330	9335	Voice of Korea, North Korea	
1330	15310	Radio France International	FF
1400	11750	Radio Australia	
1400	13720	Deutsche Welle Relay, Portugal	AA
1400	9405	Far East Broadcasting Co., Philippines	CC
1430	9534	Radio Farda, USA (to Iran)	Farsi
1430	11680	Radio Free Asia, USA, via Sri Lanka	unid
1500	11840	Voice International, Australia	
1530	15235	Vatican Radio	
1530	15350	Radio Sultanate of Oman	AA
1530	11650	Voice of Islamic Republic of Iran	
1600	11960	Radio Jordan	
1600	11570	Radio Pakistan	
1600	9425	All India Radio	Hindi/EE
1600	9580	Africa Number One, Gabon	FF
1600	9561	Voice of Ethiopia	
1630	11975	Adventist World Radio, Guam	
1700	17485	Radio Prague, Czech Republic	
1700	17595	Adventist World Radio, via UAE	unid
1700	11715	Sudan Radio Service, England	AA
1700	15190	Radio Pilipinas, Philippines	Tagalog
1700	17765	Deutsche Welle Relay, Rwanda	FF
1700	15640	Kol Israel;	HH
1730	15265	Cannel Africa, South Africa	
1730	15495	United Nations Radio, USA, via England	
1800	15470	Adventist World Radio, via Austria	
1800	9988	Radio Cairo, Egypt	AA
1800	17575	RDP International, Portugal	PP
1800	9630	BBCV Relay, Seychelles	unid
1800	12050	Radio Cairo, Egypt	AA
1800	17635	Radio Jamahiriya, Libya via France	AA
1800	9779v	Republic of Yemen Radio	
1830	9855	Radio Kuwait	AA
1830	11785	Radio Ndeke Luka, Central African Rep., via England	FF
1900	15345	RTV Marocaine, Morocco	AA
1900	11720	Radio Budapest, Hungary	
1900	9495	Radio Sedaye Zan (to Iran), via Germany	Farsi
1930	15255	Adventist World Radio, via South Africa	unid
1930	15545	YLE/Radio Finland	Finnish
2000	11975	VOA Relay, Sao Tome	
2000	12085	Radio Damascus, Syria	
2000	15485	Voice of Greece, via USA	Greek
2030	9545	Deutsche Welle, Germany	GG
2100	17800	Voice of Nigeria	
2130	6005	Deutschland Radio, Germany	GG
2130	17680	RDP International, Portugal	PP
2130	5774	Italian Radio Relay Service, Italy	
2200	15400	BBC Relay, Ascension	
2200	11820	Broadcasting Service of Kingdom of Saudi Arabia	AA
2200	9445	All India Radio	
2200	15515	Radio Australia	
2200	17680	Voz Cristiana, Chile	SS
2200	7285	China Radio International, via Albania	CC
2230	6180	Cyprus Broadcasting Corp., via BBC Cyprus Rela	Greek, wknds
2230	11680	Korean Central Broadcasting Station, North Korea	KK
2230	9705	All India Radio (Goa)	HH/EE
2230	9625	CBC Northern Service, Canada	FF
2300	9870	Radio Austria International	
2300	15345	Radio Nacional, Argentina	SS
2300	11895	Radio Boa Vontade, Brazil	PP
2300	6135	Radio Romania International	
2300	17605	Radio Japan/NHK via Bonaire, N.W.I.	JJ
2300	17510	KWHR, Hawaii	
2300	12115	INBS, Iceland	Icelandic
2330	11760	Radio Nacional, Venezuela, via Cuba	SS
2330	5030	RTV Burkina, Burkina Faso	FF
2330	9840	RAI International, Italy	II
2330	4845	Radio Mauritaine, Mauritania	AA
2330	9875	Radio Vilnius, Lithuania	
2330	7125	RTV Guineenne, Guinea	FF
2330	9665	Radio Marumby, Brazil	PP
2330	4716v	Radio Yura, Bolivia	SS

by Harold Ort, N2RLL

New, Interesting, And Useful Communications Products

World Radio TV Handbook 2005

Just as we went to press the new *World Radio TV Handbook 2005* became available. The *World Radio TV Handbook* continues to be the guide for the serious radio listener. About this the 59th edition for the year 2005, Publisher Nicholas Hardyman tells us, "We have again devoted our resources to the all-important task of obtaining and providing the most up-to-date information on mediumwave, shortwave and FM broadcasts and broadcasters available in any publication. *WRTH 2005* has articles on Ancillary Equipment, Managing the HF Spectrum, Digital Radio Update and World Music Radio; reviews of the latest equipment, including the best low-cost receivers; fully updated maps; and runs to 688 pages including 80 in full color." The book also has DRM International Broadcasts by UTC and language and an expanded reference section to include Domestic SW transmitter sites and Broadcaster Abbreviations. In response to readers' comments, the publisher has used a smoother and whiter paper to make the book easier to handle and use. You can order a copy from your retailer or visit www.wrth.com and order via the company's secure server. Wherever you order the book, please be sure to mention *Popular Communications*!



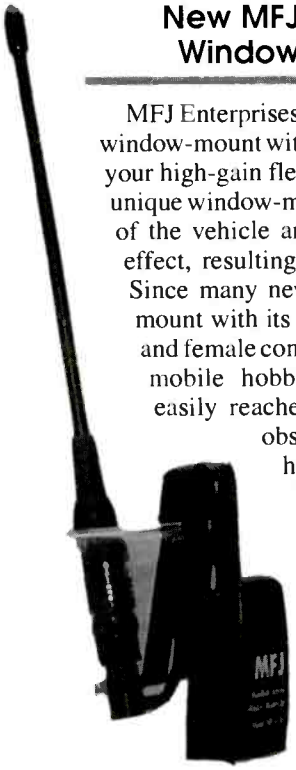
The 2005 World Radio TV Handbook *was just released at press time and is available from your favorite radio dealer or direct from the publisher.*

Cobra Electronics Announces Industry-Leading 12-Mile Range Two-Way Radios

Cobra Electronics just announced its 2005 microTALK GMRS/FRS two-way radio product line with extended ranges on all models, including its top-of-the-line model, the PR 4700-2 WX, which will feature a 12-mile range. Cobra's 2005 line has also been enhanced with an extended communication range of up to four, eight, and 10 miles. As the first and only two-way radio on the market with 22 channels and 38 privacy codes, as well as 83 DCS codes which will allow a total of 2,662 privacy combinations, the PR 4700-2 WX offers users unparalleled privacy code options. Cobra has redesigned its two top-line radios to make them more durable and rugged, and enhanced the overall features on the full line by adding functional buttons that can all be accessed with one hand. The complete line of new two-way radios will be available at major retailers beginning in the second quarter of 2005. Cobra was the first to introduce features now standard on many two-way radios, such as VibrAlert and Call Alert. All 2005 GMRS/FRS models are available in two-pack and value-pack offerings. Pricing hasn't been announced yet, but you can get more information on these and other Cobra products at the company's website, www.cobra.com.

Cobra's new PR-4700-2 WX microTALK two-way GMRS radio is a full-featured handheld that debuted in January at the Consumer Electronic Show.

New MFJ SMA Rubber Duck Window Mount, With Coax



MFJ Enterprises, Inc., announced its new MFJ-310S window-mount with SMA connector. You simply screw your high-gain flexible rubber duck right onto it! This unique window-mount gets your handheld antenna out of the vehicle and away from the inside shielding effect, resulting in increased range and reception. Since many new HTs have SMA connectors, this mount with its male SMA connector on the mount and female connector on the coax will answer many mobile hobby needs. The 10-foot-long coax easily reaches inside your vehicle and around obstacles to let you safely use your handheld while mobile. The new MFJ-310S is priced at $14.95 and available direct from MFJ Enterprises, 300 Industrial Park Road, Starkville, MS 39759; Phone: 800-647-1800; Fax: 662-323-6551; Web: www.mfjenterprises.com.

MFJ's new SMA rubber duck window-mount with coax is $14.95.

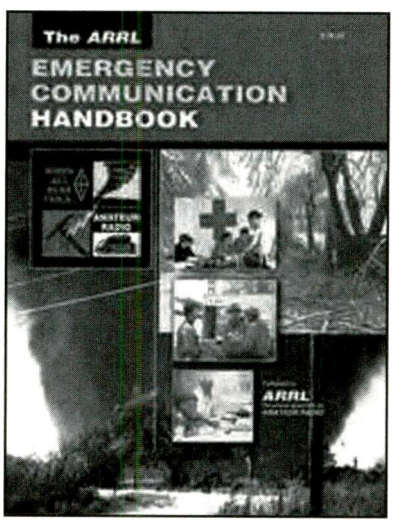
Midland's New GMRS/FRS Radio, The X-TRA Talk GXT550

Midland Radio Corporation just announced its new handheld GMRS lineup for 2005. The top-of-the line is the GXT550, which features 22 channels (seven FRS/GMRS, seven FRS, and eight GMRS), 5-watt output, 38 privacy codes, NOAA weather/All Hazards reception, five different call tones to notify you of incoming calls, two sensitivity-level VOX (voice operation,

no need for an external mic), vibrating alert, channel scan, auto battery save, a pair of headsets, and more. The radio is drop-in charger-capable (add the optional AVP4 charger system), but operates on four "AA" alkaline batteries (not included). Its dimensions are 4 1/8 x 2 3/8 x 1 3/8 inches (HWD). Remember, to use the radio on GMRS frequencies you need an FCC license (visit www.fcc.gov). A pair of the Midland GXT550s is priced at $84.99, carries a three-year warranty, and works with a variety of optional accessories, also available from Midland at www.midlandradio.com. The GXT550VP4 package is priced at $104.99 and includes a pair of the radios, headsets, drop-in charger, and rechargeable batteries.

New *ARRL Emergency Communication Handbook*

Intended for all hams who volunteer their skills in public service applications (or who are interested in doing so), the new *ARRL Emergency Communication Handbook* includes details on basic emergency communication skills, message handling, and more to help you understand what to expect and what to take along. The book encompasses the *Amateur Radio Emergency Communications Course—Level I* manual, but adds a substantial amount of additional material. Chapters include Amateurs As Professionals—The Served Agency Relationship; Network Theory and the Design of Emergency Communication Systems; Emergency Communication Organizations & Systems; Served Agency Communication Systems; Basic Communication Skills; and Introduction to Emergency Nets. It also includes a large appendix with more useful information about the ARRL Field Organization, the WinLink 2000 system, and more. The 176-page book is available from the ARRL for $19.95. Check it out online at www.arrl.org or call the league at 888-277-5289.



The new ARRL Emergency Communication Handbook *is $19.95 from the League at www.arrl.org.*

Hints & Kinks For The Radio Amateur, 17th Edition

Another new release from the ARRL is the latest edition of their popular *Hints and Kinks for the Radio Amateur.* It includes all the contributions published in the *QST* column from 2003 and 2004. In addition, you'll find articles included from the columns "The Doctor is IN" and "Hands-On Radio." Use these pages to learn more about a new mode or to find your next construction project. The 160-page book is priced at $17.95 and is available through www.arrl.org.

Grundig's New E1XM Receiver

Grundig just announced its new E1XM radio, which incorporates shortwave *and* XM Satellite radio into one receiver. The company says it's, "the finest portable in the world." The Grundig E1XM has a digitally synthesized PLL tuner with synchronous detector, passband tuning with selectable bandwidth filters, and single sideband (SSB). Offering 1,700 station presets and memory scan function, the E1XM features frequency coverage from 100 to 30,000 kHz (shortwave, mediumwave, longwave, and selectable 87- to 108- or 76– to 90-MHz FM and XM Radio. The radio receives AM, FM stereo, sideband, and CW modes. The large 5 3/4-inch square dot matrix display shows all modes and selected functions.

The new Grundig E1XM has 500 user-programmable memories with alpha

(Continued on page 78)

by Ken Reiss, radioken@earthlink.net

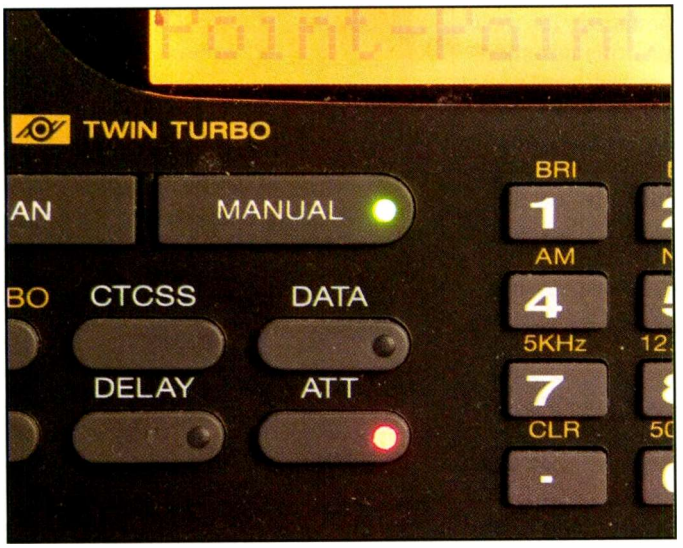
Dealing With Interference

Interference can come from any number of sources, including the inside of your own radio! Sometimes interference can be fixed with a simple tweak to your system, while interference that's inherent to the radio is simply not fixable without replacing the radio! Undesirable interference is often called "intermod," sometimes abbreviated IMD, and is short for intermodulation distortion. Technically, intermodulation *is* interference, but in most cases, it's very unlikely that this is what you're hearing on your scanner. Intermod occurs most often in a transmitter and is something that technicians work very hard to avoid at transmitter sites. If you're experiencing real intermod, someone else probably is, too, and it will be high on that someone's list to get it fixed!

Intermodulation occurs when two strong signals mix together to form an unwanted third signal on a different frequency. This signal is referred to as the "product signal" or simply "product." Any time two radio signals mix, four signals result: the original two signals, a frequency that represents the sum of the two that were mixed, and a frequency that represents the difference of the two. There is usually some obscure mathematical formula that will define how the mixing occurs, but finding that formula can be more difficult than eliminating the interference.

Mixing is usually a good thing; in fact, your receiver's design relies on mixing to do its job. If it weren't for mixing, your receiver wouldn't work, so it's not an evil plot. It's just the way radio signals work. The most common place for *desired* mixing is in the intermediate frequency stage (IF); one of the places that *unwanted* mixing can occur is in the transmitter of one, or both, of the offending signals.

Say the signal from another transmitter—often very close by so it's a strong signal—comes backwards down the second transmitter's antenna, just like it would for a receiver. The two signals mix in the transmitter and then both are broadcast out of the second transmitter's antenna. It's very efficient, unfortunately. The point is that if you have a real intermodulation problem, the users of the transmitters are likely to be quite aware of it and work very hard to get it corrected as soon as possible. Often, a device called an isolator, which only allows one-way traffic, is placed in the transmit line. This allows the outgoing signal through, but anything coming into the antenna and back down the system is shuffled off to a dummy load or ground.



Here's a 6-dB attenuator from RadioShack. It can be quite effective in reducing strong signals across the band. Note that it uses type F connectors, so make sure you get adapters too!

Another type of interference that may come from the transmitter end is known as a spur, short for spurious product. Essentially, this is usually the result of mixing within a single transmitter that doesn't get processed correctly and is allowed out the final amplifier stage and into the antenna. Spurs can be quite broadbanded and on a frequency a considerable distance from the desired transmit frequency. Once again, this is a transmitter problem and the folks who maintain that equipment are going to want to get it dealt with quickly to avoid possible fines and other problems with neighboring transmitters and the FCC alike.

What Are We Hearing?

So if it's not intermod that we're receiving on our scanners, what is all that stuff? More likely than not, it's front-end overload. In other words, it's the receiver's design failing in the environment we've put it into.

To better understand what's happening here, let's take a quick look at receiver design. Don't panic, we won't have to go any further than block diagrams, so it should be painless. In fact, we'll start with something we're all quite familiar with: the antenna.

The antenna is really the beginning of your receiver's signal processing circuitry. And that can be good or bad, depending on the types of signals you're trying to receive and what else is around. All the RF (radio frequency) energy around your radio hits your antenna. Everything from broadcast AM stations to microwave relay transmissions (if any are around) to TV stations and, oh yeah, that public safety stuff we're *TRYING* to listen to! So your antenna has two jobs, really. One is to pick up that signal you want and the other is as a first line of defense *against* picking up, or at least *minimizing* those unwanted signals, some of which are quite strong. You do that, of course, by tuning the antenna to the frequency range you want to receive, which helps maximize the signals you do want, while minimizing the reception of signals you're not interested in hearing.

But even a well-tuned antenna is going to pass more than the desired signal down the coax. Your antenna has no way of "knowing" what frequency you're actually trying to hear, and so it will pass all signals down to the receiver that fall within its range of operation. If you're trying to listen to 154.830, but other stations at 154.845, 154.860 and 154.815 are also transmitting at the same time, they're all going to wind up at your

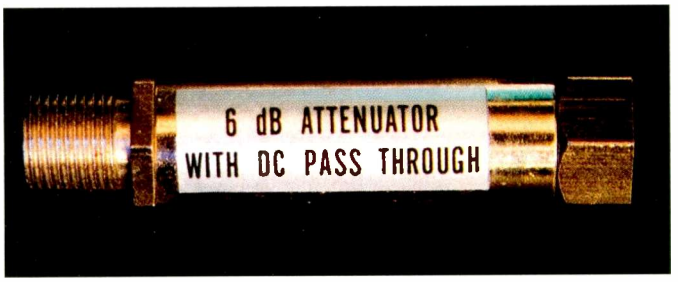
receiver. Most of us use fairly broadbanded antennas so that they can receive VHF/UHF and 800-MHz signals, so all of that is coming down into your receiver at once.

Once the signal travels down the lead to the receiver, the real work of deciphering begins. The signal from the antenna arrives at the first RF stage of your receiver. Received signals are relatively weak, and to extract the meaningful audio from them you have to amplify the desired signal while getting rid of undesired ones. Your receiver's ability to receive a weak signal is called sensitivity, and most modern scanners don't have any trouble with sensitivity—if anything, they receive too much. Amplifying a signal is the easy part, but remember, *a lot* of them came down the antenna lead at once. The ability of the receiver to pick out just one signal from all that stuff coming down the coax is known as selectivity, and here's where a lot of scanners begin to have a bit of a problem. You want a wideband receiver, that is, one that covers everything you might want to listen to. But to get that, especially at a price you're willing to pay, some filtering and other selectivity enhancing circuitry has to be left out or compromised.

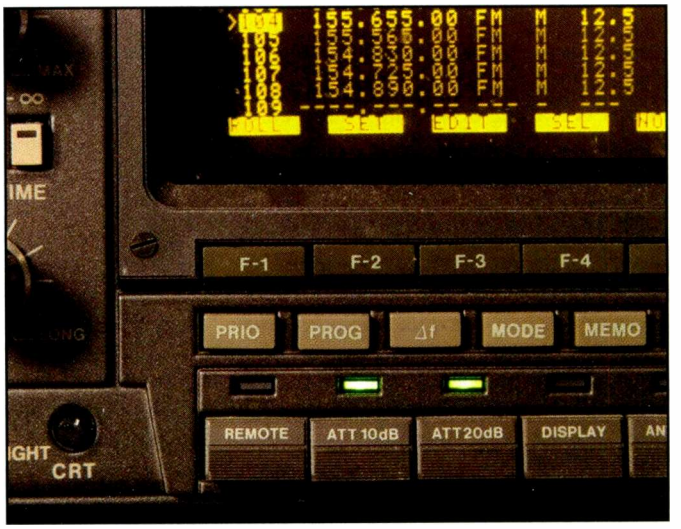
There are some other problems associated with the RF stage that you may encounter as well, particularly in an urban area. Let's suppose for a minute that you're downtown where all the transmitters are, and you're trying to listen to a car on 154.830 MHz. Since this signal is relatively weak, the RF amplifier needs to amplify it quite a bit. Circuitry in the receiver is designed to regulate the amplifier based on the incoming strength of the signal. So when the receiver sees this weak signal, it tells the amplifier to step up to full power and get that car's signal. Everything is wonderful and we hear the car's transmission. Now, suppose that only 15 kHz away, at 154.845, is a powerhouse base station located very close to you. Just at the same time the car on your desired frequency transmits again, this base station comes on, too. In an ideal world of perfect receivers, nothing would happen; the RF stage would still amplify your car's transmission and the filtering and selectivity would block the stronger base transmission. But, alas, this is not a perfect world, particularly when it comes to wideband receivers.

One of two things can happen here, both of which are very annoying. One is that the strong base signal can get through the filters and, since it's so strong, overload the subsequent stages. Then the audio stage will process the audio and you'd hear the resulting mess. This is what's happening most of the time when you hear paging transmitters on your local police frequency downtown. The second possibility is a bit harder to detect. Suppose that as the two stations transmit simultaneously, the signal from the stronger (but off-frequency) source makes it to the circuit that controls the amplification. It would throttle the amplifier back. But what happens to your weaker car transmission? It's gone, fallen below the noise as the stronger signal probably bleeds through or causes additional noise. This is an extreme case of a problem known as desensitization, and many consumer-grade radios exhibit its symptoms.

The radio's ability to process weak signals correctly in the presence of much stronger ones is called its dynamic range, a specification you'll rarely see published on most scanner equipment. It's actually the job of the second stage, the IF, to begin extracting just the one signal. This is done through a mixing process just like the mixing process that causes intermod, but this time it's a desirable, in fact required, mixing. The desired receive frequency is mixed with a locally generated frequen-



More and more scanners include some kind of attenuation setting. Once reserved exclusively for high-end receivers, they have become a necessary part of scanning in crowded areas. Many of the better receivers include a switch that can be set per channel, like this one on the BC-9000. This allows you to put attenuation exactly where you need it, not across the board.



Older receivers, including some very high-end ones like this ICOM R-9000, have attenuation settings that are either on or off. When turned on, it applies to every memory you scan, whether you need it or not. This particular receiver features a 10-dB and a 20-dB switch for a combined whopping 30 dB of attenuation!

cy to produce a third frequency, the IF. In most cases, the desired IF is the difference of the two, but there are also other frequencies produced. If all goes well, those extra frequencies are sent harmlessly to ground, never to be heard. But if the filtering and other circuitry doesn't do that, you'll hear audio from undesired signals. It may be poor filtering in your own receiver that's causing the problem, or it could be overloading of the RF or IF stages. Either way, the result is the same: stuff you don't want to hear.

Most scanners today offer at least dual conversion, many have triple and a few more than that. What that means in English is that the first IF frequency is passed to another IF stage where the whole mixing process is repeated. That helps to eliminate some of the undesired byproducts of the mix, and the incoming signal is filtered further. Of course, the more stages you run this through, the more immune the receiver will be to certain types of spurs and overload. The down side is that the extra circuitry required to add IF and filtering stages adds to your final cost. While it's possible to design an interference-free receiver, or at least one with a high degree of immunity, you'll pay top commercial equipment prices for it, making it out of reach for most of us hobbyists.

So What Can You Do?

You can start with the right radio. Generally speaking, you get what you pay for, although not always. If one radio costs $150 and the other goes for $300, there's probably more to it than just a few extra memory channels. Often that $300 set will be triple conversion, have additional filtering, or at least attenuators to help you deal with stronger signals.

As you go higher in cost, you move into communications receivers whose primary advantages show up as selectivity and dynamic range. If you can't find an acceptable scanner, you might consider one of these rigs. Radios like the IC-R8500 and the AR-5000 are much more immune to interference than are most scanners. The down side, of course, is that they are also three to 10 times the cost of most scanners, and may not offer as many scanning features as many lower priced radios. You'll have to decide just how bad that interference really is. And even at these prices, these radios aren't completely immune either. Under the right circumstances, both will desense, and probably overload if the signal gets strong enough, just not nearly as often as your average scanner.

Having said all that, this is one case where throwing money at the problem isn't always the answer. If you're suffering with a lot of interference problems and looking to upgrade your scanner, see if you can arrange with a friend to bring over one of the models you're looking at buying. Or at a minimum, make sure that you buy from a dealer who will allow an exchange if it doesn't work out. The interference that one receiver will be burdened with may not affect another receiver with a slightly different design. I've seen cases where, because of the frequencies involved and the IFs used in the receiver, a triple conversion receiver was simply blown away with interference (mostly overload) while a double conversion model with different IFs worked fine.

If you're having problems but aren't in the market for a new radio, what can you do? Well, there are a few things to try. First, try the built-in antenna. Often an outdoor or attic-mounted antenna increases the signal strength of the interference just as much as it increases the signals you're trying to hear. The receiver can't overload on signals that it doesn't hear in the first place, and if you're in a metropolitan area, the built-in or back-of-the-set antenna may be all you need. I often get letters that start out "Hi...I live in downtown (pick a major metropolitan city) and am having trouble with my scanner. I'm using a discone/ground plane/beam antenna up (20 to 50 feet) in the air. I just added a preamp and am getting all kinds of interference. Any ideas?" Well, you should already know the answer, right? This person has overloaded his scanner with way too much signal. Take out the preamp, and if that doesn't work, try less antenna.

A Few More Suggestions

If reducing the antenna doesn't do it, or if you're still having trouble, how about dropping the signal level overall with some form of attenuator. Many higher-end scanners have an attenuator built right in. Turn it to the -10 or -5 position (depending on what choices you have) and see if your performance improves. Radios like the BC-9000 from Uniden have an attenuator that can be switched in and out per channel, so you only have to turn it on where you're having problems. Note that if you've already discovered that your scanner works better this way, you've probably got a problem of some sort. In heavy metro areas, this is a

good way to go. You can also buy attenuators that go in-line with the coax and lose some signal for you. They're not very expensive, and if you don't have one built into the scanner, it's a tool you might want to have around anyway.

If the interference affects only one band, or only one favorite frequency, consider a dedicated radio. Lots of older crystal-type receivers only covered one or two public safety bands, and many of them had pretty good front-end design because of that; they didn't have to be left wide open to hear all the frequencies our modern receivers cover. Sometimes, these older crystal sets or early programmable models can be found very cheaply, and they make excellent monitors for those problem frequencies.

Another solution that might work if the interference is confined to a few frequencies is a CTCSS- or DCS-capable scanner. Of course, the transmitting station you want to listen to has to transmit a CTCSS or DCS tone, but many of them do these days in order to reduce interference in their own systems. If you don't know what these are, or have questions, check out the June 1999 "ScanTech" or drop me a line. As I get enough questions, I can revisit this topic in a future column.

Finally, you can resort to filters. We've talked a bit about filters in the past, but here's an excellent application for a band pass or band reject filter. If you're having trouble with just one transmitter, and it's not near the frequency range of what you're trying to listen to (say a paging transmitter in the 150 range is interfering with police and fire calls in the 154 to 156 range) a rejection filter for the offending range might be in order. Some manufacturers offer notch filters to allow you to filter out just a narrow band of frequencies around the offending transmitter.

On the other hand, if you're only interested in traffic on your city's 800-MHz trunked system, but you're getting interference or desensitization from nearby transmitters in other services, a band pass filter for the 800-MHz range might be in order. These, too, are made in a wide variety of sizes and specs to meet many applications. The idea here is that anything inside the pass band is allowed though, but everything else is rejected or greatly attenuated.

Filters do have some drawbacks. They tend to be a bit expensive, and some of them need to be tuned. If you aren't sure how to do this, it's probably best not to mess with that type of filter; see if you can find something that's easier to use. Also, filters, by their very nature, eliminate signals from your receiver, which is not something you really want to do to your nice wide-band receiver. I have an 800-MHz pass filter on one of my receivers that I use for a trunking system about 10 miles away. By putting this filter in place, I've been able to improve reception and eliminate a lot of strong signal overload and desense I was getting from more local signals. But I forgot about that filter once and just about drove myself nuts trying to figure out why that radio wasn't receiving much of my local police in the VHF range. Eventually, the light bulb went on and I quit using that receiver for anything but the city's trunked system for which it was set up.

Your Input Needed

Do you have a question, or have you found a neat way to get rid of interference that I didn't mention? Send it in. I'm always looking for your input on articles or topics you'd like to see covered here in "ScanTech." Send your ideas to Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126 or via e-mail to radioken@earthlink.net. Until next month, Good listening! ■

by Kirk Kleinschmidt, NTØZ

QSL Cards: Still The "Final Courtesy"

Even in today's "all-digital" world, the venerable printed QSL card is still king with most hams, and it is still considered "the final courtesy of a QSO," a phrase that was the watchword of hams generations ago. Despite the fact that there are several "electronic QSL card" services gaining popularity—especially among Dxers—a cold, sterile, generic "electronic" QSL card may not warm the recesses of your heart as you lovingly view them in years to come! Take my word on that. When I occasionally get nostalgic and start digging through my QSL card collection, I'm amazed at how, with a single glance at any particular card, I'm transported back to the moment of the QSO. Usually, I can recall even the fleeting details. I doubt an electronic QSL card or a mere database entry could ever do that.

So, this month's "Ham Discoveries" is all about QSL cards—where to get them, how to fill them out, and how to send them. Let's get started!

Commercial Sources

Many conventional QSL card printers advertise in *CQ* and *QST*. The larger companies have display ads, but don't forget to look in the classifieds, too. Spend a few dollars and send away for information kits and samples (or pop onto the Web and check out the online samples from those companies that offer them). Perusing QSL samples, online or in hand, is fun and educational, but it can also make choosing a design more difficult, so be prepared.

Choosing a QSL card printer may also be trickier than you think. Most commercial printers produce "stock" cards. That is, the only customized part is your name, callsign, and other personal information. The design of the card may be used by hundreds, or even thousands, of other hams! If that's not a problem, you're in luck. Most beginning hams start out this way. Stock cards are inexpensive, and you're sure to end up with a QSL card that contains all the necessary information, something that may not happen if you "go it alone."

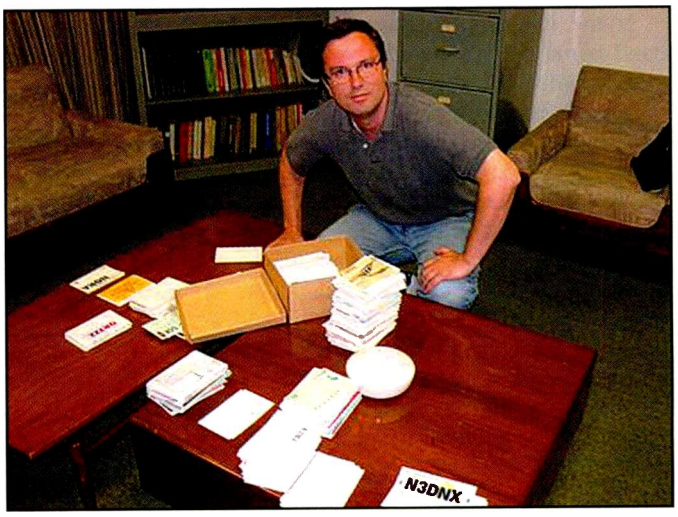
Whether you choose a standard card, a photographic card, or a one-of-a-kind masterpiece, make sure you don't buy too many right off the bat. Beginning hams have a habit of upgrading! And although the discount on 3,000 cards may seem attractive, buy with caution!

To reduce costs, consider putting together a group order with your friends or fellow ham club members, or limit your cards to plain white stock and blank ink. Starting out with a plain vanilla QSL card is perfectly acceptable.

For a list of links to online QSL card printers and commercial QSL print shops, point your Web browser to www.ac6v.com/dealers.htm#QSL.

Roll Your Own

So far we've talked about having a mainstream print shop produce your cards. If you're a do-it-yourselfer, feel free to produce your own. You can print master copies from your desktop publishing system and have cards printed at a local "quick printer," or you can even print your own cards from a suitable inkjet or laser printer. Several QSL card design programs are available for downloading from the Web. For a rather extensive list, check out http://ac6v.com/dealers.htm#CRE. If you're wondering where you can purchase card stock that's designed just for printing your own QSL cards, point your browser to http://www.hamstuff.com/QslKitPage/qslkit.html. W7NN's kit is just what the doctor ordered, and it won't break your piggy bank, either!



Trey, N5KO, at the Quito, Ecuador, Radio Club, checking a bunch of QSL cards that are destined for Mississippi. (Photo from the HC8N website)

Required Information

Here's the information that should appear on whatever card you choose: your callsign, name, mailing address, and country. You may also want to include your county to please the many county-hunting hams you'll encounter on the air. And you may want to include your grid square designation if you're active on VHF/UHF.

The blanks where you fill in QSO information should be large enough to easily write in the other op's callsign, date, year, time (in UTC), band, mode, and signal report. Most hams also include a "PSE QSL TNX" line; circle either PSE or TNX to indicate whether you're requesting a card or responding to a received card.

Feel free to include other personal data, too, but don't get too carried away. Junky, cluttered QSL cards complicate matters. Clean, straightforward designs work best. Be sensible about the artwork and forget about stuff that may be offensive or humorous. Something that's funny in sunny California may not play in Peoria, much less Persia! Think twice about graphic themes that are overly political, religious, or "visually stimulating."

Do yourself and your QSL recipient's one last favor and make sure all QSO information is on the *front* side of your QSL card. Remember, the easier you make the QSL card process, the greater your chance of getting a card in return.

By the way, there are two ways to fill out a QSL card: perfect and wrong. Be careful, be accurate, and be neat. If you make

The QSL Bureau in Portugal is complete with shuttered windows and an antique postal scale! You can see the original at www.rep.pt/qsl_ bureau.htm.

a mistake, toss the card into the trash and start over. Marked-over or altered cards, even if made in good faith, do not count for awards programs. What if you're that op's only New Hampshire contact?

Mailing/Sending Your QSLs

Want to improve your QSL return rate? Remember that hams in rare states (and rare places) are often inundated with QSL card requests. Make sure yours is sent with a self-addressed, stamped envelope. Being patient also helps, especially with cards sent overseas or via the ARRL Outgoing QSL Service.

In case you haven't used it yet, the "Service" is an excellent, cost-effective way to send QSL cards to DX operators. Instead of going through the tedious and expensive process of sending QSL cards directly to overseas operators, you can simply sort your "outgoing" cards and send them to the ARRL Outgoing QSL Service for $8 per pound (or 10 cards for $1). Within a week or so of arrival, the Service forwards your cards to hundreds of other similar bureaus in most foreign countries. This route, while inexpensive, does take time (two months to two years), but it's quite popular among hams the world over.

To use the Outgoing Service, U.S. hams must be ARRL members, but the services of its counterpart, the Incoming QSL Bureaus, are available to members and nonmembers alike. Separate Incoming Bureaus are maintained for each callsign district in the United States and Canada. Cards arrive from overseas and are sorted by the first letter of the callsign suffix.

To get your cards, send a few 5 x 7-inch SASEs to your bureau, which will forward cards to you every month or two, depending on your QSL card volume.

The bureau system exchanges millions of QSL cards each year to hams almost everywhere. And with propagation picking up over the next few years, if you haven't yet, it's time you "QSL via the buro." For complete information on how to use the bureau system, point your Web browser to www.arrl.org/qsl/qslout.html and www.arrl.org/qsl/qslin.html.

QSL Us, Too

As always, send your QSL cards, questions, and letters to me at *Popular Communications*, "Ham Discoveries," 25 Newbridge Rd., Hicksville, NY 11801. I look forward to receiving *your* QSL card one of these days! ■

by Ron McCracken

REACT Safety Break Gets VIP Visitor

Editor's Note: This new bimonthly column aims to give readers a glimpse into the varied ways REACT Teams help travellers and their local communities with safety radio communications. Our hope is that the column will inform in a way that also makes for interesting reading. Ron McCracken is a freelance journalist who has written for CQ publications before. He is a past president of REACT International, Inc., and he brings over 25 years of experience as a REACT volunteer to his writing.

If your interest in radio leans toward public service, perhaps these accounts will inspire you to join, or form, a REACT team to serve your community. More information on that will be provided in future columns. Meanwhile, get comfortable as we visit REACT teams around the world to learn what they've been up to. Please read on.

Who'd Ever Guess?

Imagine the surprise of Dutchess-Putnam County (New York) REACT members who were busily serving hot coffee, donuts, etc., to weary travellers at their holiday Safety Break on I-684, when someone glanced up to see none other than Dr. Henry Kissinger approaching.

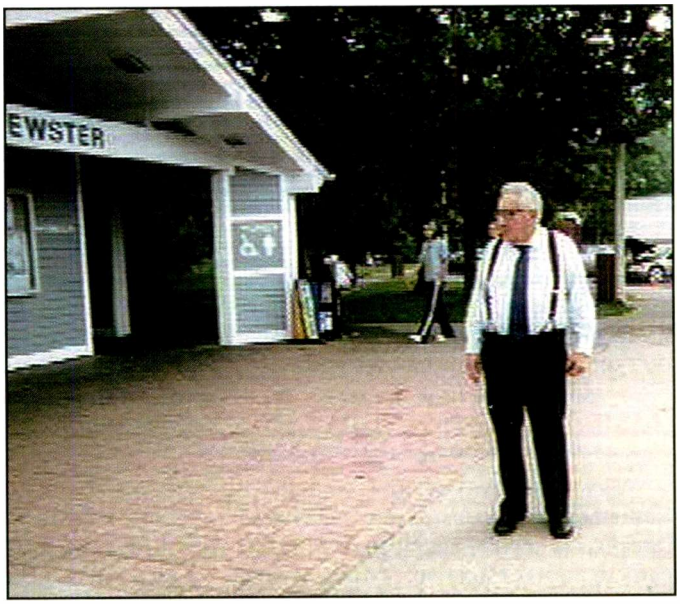
After the initial excitement subsided, and the former U.S. Secretary of State had enjoyed some refreshments, he graciously consented to a photograph with the REACTers. Dr. Kissinger was one of over 4,000 travellers who were treated to a taste of REACT hospitality that day. Team members had the coffee brewed by 7 a.m. and served the last cup at 11 p.m.

REACT and the American Trucking Association (ATA) introduced holiday weekend Safety Breaks as a joint safety venture three decades ago. The goal is to entice drivers into rest areas to take a break, get some fresh air, have a stretch, and enjoy a hot coffee or other refreshment. REACT and ATA want drivers to resume their journeys more alert so they can more safely cope with the heavy traffic.

Dutchess-Putnam County REACT members did their part, as countless REACTers have done over the years. They believe their efforts have helped save lives on the highways, and that gives them a good feeling!

Hunkering Down

When the worst chain of hurricanes in U.S. weather records struck its state, North Brevard (Florida) REACT responded as an element of BEARS (Brevard Emergency Amateur Radio Service). BEARS has grown, as bears will do, and today it includes a number of volunteer groups and relief agencies that work together beautifully for residents in emergencies. It is based at the Brevard EOC (Emergency Operations Center) and counts a second team, Space Coast REACT, among its members.



Know this man? Look again. It's Dr. Henry Kissinger. The former U.S. Secretary of State is heading for some hot coffee and goodies at a REACT Safety Break on I-684 in New York. This trademark REACT Safety Break was hosted by Dutchess-Putnam County REACT.

North Brevard REACTers Cathy and Alan Johnson provided vital communications at one shelter through all three hurricanes that recently hit the area. Power outages meant that for long periods they had to operate with a generator in sweltering heat and humidity. Mike Elixxson, a "disabled" REACTer who does amazing things, mounted emergency communications in similar conditions for the local hospital during Hurricane Frances.

The ARRL's Emergency Coordinator for the area, Ed Wirth, is another team member. He told us he was very proud of how his fellow REACTers performed in the disasters. Evidently, the faith of EOC officials in their volunteers is well placed.

No Cheese?

Blackberry (California) REACT had a problem. The team was too popular. Three different event planners wanted to benefit from its radio services on the same weekend. Fortunately, Blackberry has a lot of friends, and it was going to need them. However, it had never worked with all of them at once before, nor had the team tackled three events in two days before. With help from its friends, though, REACT would give it a try.

On Saturday, city recreation officials were hosting a massive yard sale in a park and needed help. REACT was to assist with traffic control and parking at the event. Meanwhile, a Wine and Art festival was taking place in another part of town, and police had requested REACT assistance with traffic and security for that event late into the evening.

Sunday morning, the Wine and Art REACTers resumed their duties for a second day. At the same time, REACT had been tasked with coordinating a "Tour de Cure" cycling event for the

American Diabetes Association. To compound matters, there were three courses for riders, 25 km, 50 km, and 100 km.

Friends to the rescue. REACTers, supplemented by members of SCARES (South County Amatuer Radio Emergency Service), PAARA (Palo Alto Amateur Radio Association), and the Gold Wings motorcycle club, successfully handled the "Tour de Cure" event.

Records toppled like tenpins. When all was done, REACT had handled three events in one weekend for the first time. The team had also worked simultaneously with multiple other groups for the first time and they had functioned well together. Not bad at all.

That's a Wrap

These brief reports are just a glimpse into the varied ways REACT Teams help travellers and local communities. Next time, we'll have more hurricane news and a report on how REACT teams launched a huge safety campaign, for free. See you again in two months. And please remember, if you're interested in learning more about REACT, visit them on the web at www.reactintl.org. ■

OUR READERS SPEAK OUT

(from page 6)

High-Tech And Happy!

Dear Editor:

I've been on the road – I'm a professional long-haul driver – for the past few weeks and just read the January 2005 *Pop'Comm*. What an excellent article by Mr. Dixon on Kenwood's IBOC radio receiver. I want one – NOW! Thanks again for helping us understand new high-tech radios.

John Bradley
Muncie, IN

Gerry, The Party Man!

Dear Editor:

Now we finally see what Gerry Dexter looks like (page 31, January 2005 *Pop'Comm*)! Why don't you do that with other writers once in a while?

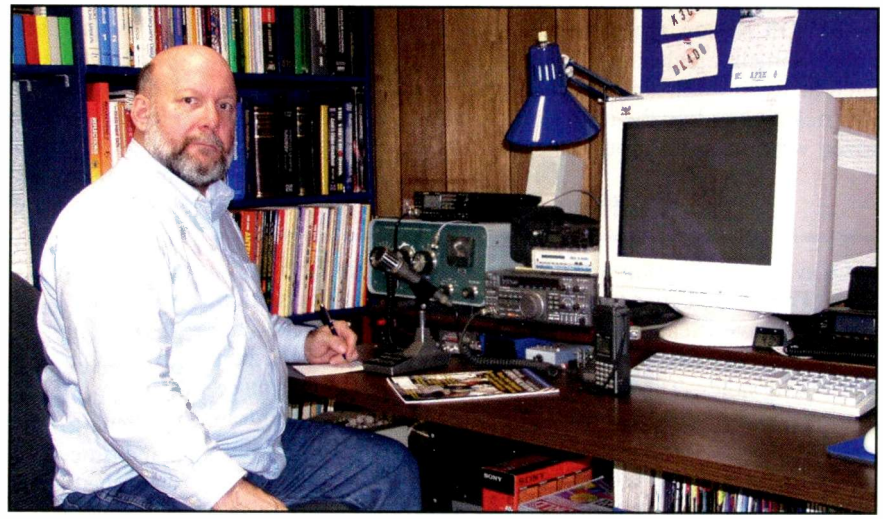
Sincerely,
Bonnie Rhein

Dear Bonnie:

Sometimes using your imagination is better. Just close your eyes and dream.

V.I.P. SPOTLIGHT

Our March Winner: Congratulations To Gary E. Rinker Of Virginia!



Here's Gary Rinker of Virginia at his monitoring post.

Pop'Comm reader Gary Rinker, K4SRX, tells us,

I decided to write to you folks and to say thanks for a great magazine. Being a former subscriber to this fine magazine (my roommate subscribes now), I thought it was high time for me to submit my story. Well, to begin with, I've always have had major interest in all types of communications, starting with my interest in the public service bands. I knew right then I was bitten by the comms bug. It started with saving my paper route money and deciding to invest in a radio with all the various bands. That wasn't enough, though so I saved money once again to buy my first CB and scanner. Yes, I went to a friend of mine to see if he would help me get my FCC CB radio license and crystals for my scanner. He did help, but with one slight problem: I didn't know what to monitor since I had only an eight-channel scanner.

A fireman friend of mine had told me he was going to sell his radio, which picked up the fire band. Now that was all fine and good but I wanted to listen to more than that. I went into a RadioShack and told the clerk I wanted to some crystals for my scanner. He sold me some aircraft freqs, and the bug had bit once more. Once I became of age I wanted to be a volunteer fireman, and I did. To keep up with my station's dues I looked for work at our local airport, so I had the best of two worlds, till I decided not to volunteer any longer. As time went on I got involved with CAP (Civil Air Patrol) and they were quite involved with communications. CB didn't excite me as it once did, so, after talking with our comms officer he invited me to a radio meeting to meet other hams. One thing led to another and my current housemate and others helped me obtain my ham ticket. I'm hoping to upgrade very soon, so, *Pop'Comm* thanks for your encouragement as well. I take my scanner or my HT when following aircraft, fire and rescue, weather, and trains.

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 should be included.

Each month, we'll select one entry and publish it here. 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

by Dave Schmidt, TheRadioColumn@aol.com

Writing A Good Reception Report

Welcome to the March edition of "Broadcast Technology"! The AM broadcast band season still has a couple more months left for it to be the place to go for DX action. It's also a good time to start thinking about the FM DX season, which will be upon us very soon. There's always something clever to try in the DXing game to help you catch that you want, and this month, I'd like to offer some tips and tricks in sending the reception report that will get you that prized verification for your collection.

Getting Started

Okay, you're hearing a station you think might be a good catch. There's no better way to show that you heard the station than to get a verification of reception in return. First make sure you've properly identified the station you're listening to, then start taking notes. The best approach is to record what you're hearing, that way you can go back later and copy down the information you need for the report. If that isn't an option, take accurate notes, noting the times you heard specific items, such as commercials, news reports, public service or community announcements, names, station slogans, and whatever else is in the programming, whether talk or music (yes, there still are some stations that play music on AM!). The more information you can note, the better. And if you can get word-for-word copy on a commercial or a piece of programming (such as a sign on or sign off announcement) so much the better for "proof" of reception. Remember, you're telling someone you heard his or her station, and the reception report is what supports your claim.

What To Include

Think of writing a reception report as keeping a "log," which actually is probably the best way to project it to the person you're sending the report to. A business-type letter format is the best way to present, or format, a reception report. As in any letter, you should start out with the date of your letter and a return address. You should then write the station call letters, address, and name of the person you're sending it to. The station call letters and location are fine alone, but if you have a specific person's name, that is even better. If you don't have a specific name, you can write "Chief Engineer" in the address since, generally, the chief engineer is the person who'll be on the receiving end of your letter.

Open with "Good Morning" or "Hello," or some other simple friendly greeting, then get right to the point of your letter, such as, "I am pleased to report the reception of WKEN, 1600 kHz, on Saturday December 11, 2004, between 4:17 p.m. and 4:30 p.m. EST."

Next, you'll want to give a listing of the items you monitored. The best way to do this is also in a log format, listing the time you heard an item followed by what was heard. Here's an example:

4:17 p.m. (Tune in) Gospel programming in progress, mention made of Dover, Delaware. Signal very good at this time.
4:19 Gospel programming continued, brief mention of weather.
4:21 Commercial, Delaware Lottery. Signal remaining at good level.
4:22 Commercial, Ford, no specific name mentioned in ad
4:23 Signal faded out
4:25 Signal again audible, gospel programming continued
4:27 Station ID given for WKEN Dover and WAMS Wilmington, gospel music continued
4:29 Announcement given for church service tonight in Dover, signal faded and name of organization was not audible
4:30 Gospel music continued, signal weaker but still audible

At the end of your report, a listing of other information that might be of interest should be given. Mention signal conditions during the time of reception, such as the signal being fair with moderate fading, or steady with no fading, etc. Mention the type of receiver and antenna you were using. Also, give a general description of your location, such as "20 miles southeast of Harrisburg, Pennsylvania." Briefly mention weather conditions at the time of reception if you like.

In the closing lines, request your verification of reception, saying something like, "If the above items agree with what was broadcast during this date and time, I would be pleased to receive your verification of reception."

One thing I always included with my reception reports over the years was return postage; I'm sure that sometimes made the difference between getting or not getting a response. For people in the United States sending reports to Canada, it may be a good idea to enclose a $1 bill since Canadian postage rates are much different from U.S. rates.

Close your report with "Sincerely" or "Best Regards" and sign your name. Keep in mind that you want to make your reception report accurate, but concise, if possible keeping it to one sheet of paper.

Do's And Don'ts

Based on my experience of being on both the sending *and* receiving end of reception reports, here are a couple of tips that may help.

- Don't use "ham" terms. Most chief engineers don't understand the ham radio operator language. People write and ask for a "QSL,"—what does that mean to a non-ham? Some engineers would look at that and send the report on its way to the promotion director. "QRM" or "QSB" or even "73" may be familiar to you, but they don't mean anything to some engineers. It's best not to use such lingo. Convert your thoughts to plain, everyday language that anyone can understand.
- Don't use SWL terms, like "SINPO 55555"—I couldn't figure those out for years! If you want to give reception conditions, do it in a manner anyone can understand, such as "some fading, but generally good" or "fading deeply, but readable."
- Don't fake your report. Over the years, I received many reports that simply said "I heard your radio station, please QSL." Some would go a step further and say "I heard music at 4:17 p.m., please verify." Reports such as these, in most cases, would

be filler for the circular file. I would take the time to respond to them, asking for more details or what they heard, and frankly 99 percent of the time received nothing in return. Not only does this look bad for the person sending the report, but it can also reflect on others who take the time to send a good, honest reception report.

Join A Club

Joining a DXers club in 1964 was the best thing I did! It offered information on what others were hearing as well as tips I could use in my own listening. Reception report forms were offered, which made sending a reception report easy. In later years, logbooks have been issued showing, by frequency, every radio station in the United States and Canada. Clubs have also issued books on station antenna patterns, showing which way their signal is directed, which can make the difference in whether or not you can hear a particular station. As an example, the National Radio Club publishes the *AM Radio Log*, showing all the stations in the United States and Canada by frequency. The log shows the city of license, the power levels, and antenna arrangement and provides a current address and zip code. It's a good investment for the serious AM band DXer.

Clubs also offer information of foreign AM DXing. There are some big signals in Europe that can be easily heard under good conditions across the pond. We'll be covering those stations in a future column, so stay tuned!

And The Beat Goes On, Broadcast Station News

WQAM-560 Miami, Florida, was fined by the FCC for "airing indecent material" in early September 2004.

WNBZ-1240 Saranac Lake, New York, lost its tower to a windstorm late November 2004. A temporary longwire antenna was erected while the tower is being replaced.

WAMS-1260 Newark/Wilmington, Delaware, continues operating with a longwire antenna system with 250 watts day/42 watts night while a site for its antenna system is being located. Land in this area is VERY expensive, too.

WEGP-1390 Presque Isle, Maine, has requested a power increase to 50,000 watts daytime and 10,000 watts at night.

Experimental station WB3XNN Milford, Pennsylvania, was heard conducting tests during late December 2004 and early January 2005. This was noted daytime only with a station ID given every hour and an unmodulated carrier.

Las Vegas, Nevada, applications for new stations have been submitted for 1590 in Las Vegas with 50,000 watts day and 1100 watts night.

1490 Uncasville, Connecticut, is now 250 watts day and night.

KXEN-1010 Festus-St. Louis, Missouri, has asked the FCC to drop their city of license as Festus to just St. Louis.

WPDC-1600 Elizabethtown, Pennsylvania, lost its transmitter site due to rezoning in the area. It has requested the use of a 75-foot fiberglass antenna made by Valcom and an increase of power to 1000 watts days and 35 watts night from a new location.

WVKZ-1240 Schenectady, New York, recently changed its format to "Real Oldies" (oldies from the '50s through '70s) saying that the other oldies station in town (WTRY 98.3) "abandon" their listeners to play Christmas music from Thanksgiving until the end of the year.

We Need Your Logs, Too

Remember, this is *your* column, so I would appreciate hearing from you! I welcome your loggings, comments, and whatever you may wish to contribute which would be of interest to our readers. My e-mail address is TheRadio Column@aol.com or you can send information to P.O. Box 3111, Scranton, PA 18505-0111.

See you again next month! ■

CHANGES

New Calls		Old Calls
790	WZXY Thomasville, GA	WFIK (for two weeks), WIST
840	WSCQ Columbia, SC	WCEO
950	KTNF St. Louis Park, MN	KSNB
1050	WFED Silver Spring, MD	WPLC
1370	WRWD Ellenville NY	WELV
1490	WODJ Waterville, ME	WTVL
1590	WFBR Glen Burnie, MD	WJRO
98.5	WKRZ City of License: Freeland, PA (ex Wilkes Barre)	
1440	WCDL Carbondale, PA	WKJN

950 WPEN Philadelphia, PA requests change in construction permit using 50,000 watts day and night from a new five-tower site west of Philadelphia. Requested change is for 50,000 watts days from the new five-tower site, but 21,000 watts night from the antenna system of WWDB-860, also west of Philadelphia.

by Bill Hoefer, flacap388@hotmail.com

Where Do We Get Those Frequency Lists?

Computers are such marvelous pieces of technology, but they are either a boon or a bane to our jobs and our daily lives. And just when you think you have everything in one sock, so to speak, and ready to send in your column, your computer catches some asinine bug and you have to start from scratch, sometimes more than once. In the last couple of weeks I've had to reinstall Windows at least three times, and I still can't get the printer to function properly. It's too bad my trouble-free Commodore 128 won't connect with the Internet. (Yes! It's a fully functional C-128!)

Many of you will note I occasionally quote lines from film and TV (I hope to be working with in the industry in a couple of years when I retire). Jack Nicholson's character of the Joker from the first Batman film had numerous great lines. But one came to mind recently when I received an e-mail from Mike in Ohio a few months back. He wrote, "I read your *Pop'Comm* "Plane Sense" columns and am wondering where you dig up the ARTCC (see "Glossary") frequency changes. None of the charts I find seem to be up to date."

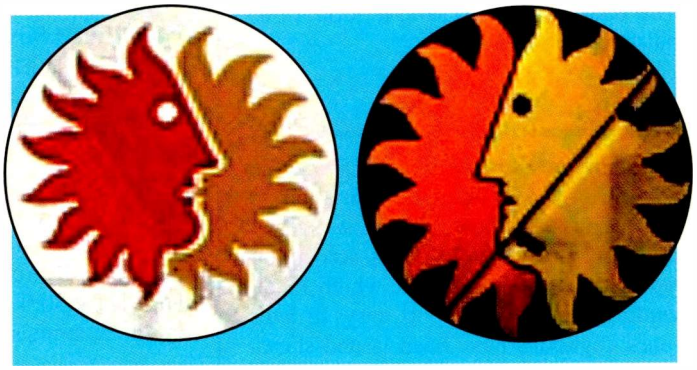
Or, to paraphrase the Joker, "Where do you get those marvelous lists?" (bad joke, I know). Thanks, Mike, for the question. I get my changes of frequencies from three different sources, one of which is available to the general public, and two which are not.

The one that is available is found online at http://www.faa.gov/NTAP/. This is the online version of a printed publication received at all federal aviation facilities. This, however, does not give *all* the frequency changes, but does give information of a temporary nature, such as flight restrictions over major sporting events (like college bowl games as well as the Super Bowl), the Olympics (when here in the United States), NASCAR races, etc. Some frequencies are provided, but not a great deal. The other two are for ATC personnel: NOTAM info from WSI and the daily publication of the *National Flight Data Digest* (*NFDD*), issued daily from the Office of Air Traffic Airspace Management, National Flight Data Center in Washington.

With the information I receive from WSI, I can track down frequency NOTAMs at the press of a mouse button. However, I still must peruse numerous pages of information to cull out the frequencies you need and want. For example, today I counted up the NOTAMs just for the state of Florida. There were 291 NOTAMs, eight of which (at seven airports) dealt with radio frequencies. With the 50 states, D.C., Puerto Rico, the Virgin Islands, Guam, and various other Pacific protectorates, you can see it is somewhat of a daunting challenge.

However, going through the *NFDD* is another matter. While I have to go through what seems like endless lists of radio tower light outages in the WSI list noted above, such is not the case with the *NFDD*. I sill have to pour over all the pages to get the information you desire. Some are easy. The September 23 issue had the following:

TEXAS
BEAUMONT
BEAUMONT MUNI-NON-ATCT
IDENT BMT
FREQUENCIES
APCH/DEP CALL BEAUMONT
FREQUENCY 322.3 DELETED
FREQUENCY USE APCH/P DEP/P DELETED
APCH/DEP CALL BEAUMONT
FREQUENCY 377.1 ADDED
FREQUENCY USE APCH/P DEP/P ADDED



Here are two photos of the vertical stabilizers of both National and Southeast airlines.

This, plus info for three nearby airports would be given to you in the following format:

CHANGED/DELETED

TX
Beaumont Municipal (BMT)
Beaumont/Port Arthur (BPT)
Kountze/Silsbee, Hawthorne Field (45R)
Orange County (ORG)
Beaumont Apch was 322.3, now 377.1

I had to compress 46 lines of information down to five for your use.

Also, it seems that each issue of the *NFDD* has information on airports whose owners/managers wish them to be charted. One example is for Terra Firma Airport in Rush, Colorado. There are 31 or more lines of information giving latitude/longitude, name, elevation, use, status, distance, and direction from the city, runway ID, and runway length, width, and surface. Also there's the airport ID, and sometimes the UNICOM frequency is published. I cull it down to the following:

NEW

CO
Rush, Terra Firma Airport 08CO

Each *NFDD* will include information on one or more of the following: Air Traffic Control Towers, Airports, Airspace Fixes, ATS Routes, Graphic Departure Procedures, Holding Patterns, Instrument Landing Systems, Military Training Routes, Navaid/Com, Navaids, Parachute Jumping Areas, Special Use

Airspace (National Security Areas), Tower Construction Notices, Tower En Route Control, and U.S. Terminal Procedures.

This information is sent pretty much daily to each and every federal tower, approach, center, and FSS. Granted, we who work in Florida really don't need information on some small, private airport in Alaska, but it's still the most efficient way (as of *this* writing) to disseminate information to the nation's air traffic controllers. And, as long as I have access to them, I will condense the information for your use.

Can You Spot The Fake Intersection?

A couple of years ago I showed the ILS Approach Plate from New Hampshire with the fixes of: ITAWT ITAWA PUDDY TTATT and IDEED. Obviously someone in Washington had a sense of humor and enjoyed Warner Brothers cartoons. Well, here's a list of fixes from throughout the country. Which ones aren't real? (The answer is at the end of the column.)

BUICK, CHEVY, DODGE, FORDD, HONDA, MAZDA, PORSH

Goodbye Southeast

Another airline is gone. In early December 2004, another airline abruptly closed shop. Southeast Airlines, headquartered in Largo, Florida, near the St. Petersburg/Clearwater International Airport quickly closed. Their website (www.flyseal.com), which normally gives the schedules and prices of the tickets, began with this statement:

> Southeast Airlines has suspended airline operations and cancelled all flights. We apologize for the inconvenience this will cause to our customers, vendors and employees. We sincerely thank all of our loyal employees, customers and vendors for their dedication, support and efforts. Customers seeking refunds of unused tickets purchased with a credit card should contact their credit card companies and request that the charge for the cancelled flight(s) be "charged back."

This is the second time that this livery emblem has been removed from an airline. The emblem of Southeast Airlines, a face in an outline of the sun, is the same emblem, with reversed colors, of National Airlines. National Airlines was formed at Albert Whitted Airport in 1934 and was bought out by the later defunct PanAm airlines in the mid 1980s. In addition, the street that serves the St. Petersburg Albert Whitted Airport (SPG) is National Airlines Avenue. By the way, Albert Whitted Airport is nationally recognized as the birthplace of scheduled airline flight. On January 1, 1914, a small airboat took off near this airport, on the first regularly scheduled aircraft flight in history. Yes, quite a lot of history is here in St. Petersburg.

The Answer

Now, the answer to the question. There are actually *two* fake intersections here: HONDA and PORSH. BUICK is found in Canada, but seven miles north-northwest of Eastsound, Washington (ORS). CHEVY is in Texas, five miles southwest of Tyler, Texas (TYR); DODGE is seven miles east of Juneau, Wisconsin (UNU); FORDD is seven miles southeast of Chicago Midway, Illinois (MDW); MAZDA is 20 northeast of Flagstaff, Arizona (FLG).

Please keep your questions and frequencies coming in. I'll see you again in May for the next "Plane Sense"!

Glossary Of Terms And Acronyms

ARTCC (Air Route Traffic Control Center)—A facility established to provide air traffic control service to aircraft operating on IFR flight plans within controlled airspace, principally during the en route phase of flight.

ATC (Air Traffic Control)—Means what it sounds like.

FSS (Flight Service Station)—Air traffic facilities that provide pilot briefing, en route communications and VFR search and rescue services. They also assist lost aircraft and aircraft in emergency situations, and relay ATC clearances.

ICAO (International Civil Aviation Organization)—Headquartered in Montreal, Canada, this agency of the UN develops the principles and techniques of international air navigation and fosters the planning and development of international air transport to ensure safe and orderly growth.

IFR (Instrument Flight Rules)—A set of rules governing the conduct of flight under instrument meteorological conditions.

ILS (Instrument Landing System) Approach Plate—Diagram published by the FAA and privately that depicts the procedure pilots need to follow to execute an ILS approach.

NOTAM (Notices To Airmen)—A notice of information that contains timely data concerning the establishment, condition, or change in any component (facility, service, or procedure of, or hazard in the National Airspace System) which is essential to personnel concerned with flight operations.

UNICOM—An aeronautical advisory station primarily for private aircraft.

VFR (Visual Flight Rule)—A set of regulations that a pilot may operate under when weather conditions meet certain minimum requirements. They are to be followed when there is sufficient visibility for aircraft to be seen and avoided.

VORTAC—The VOR system is the backbone of air navigation in the US and most other countries. It is composed of usually round buildings, about 30-feet in diameter, with a cone sticking out of the top. Many are painted in a red and white checkerboard pattern. VOR is an acronym for Very high frequency Omni Range. VORTAC is the same with TAC, standing for TACAN, a military designation for its distance information on a VOR signal.

WSI (Weather Services International)—Headquartered in Andover, Massachusetts with offices in Birmingham, England, WSI provides weather-related products and information to professionals in the energy, aviation, and media markets, as well as multiple federal and state government agencies.

NEW/CHANGED/DELETED FREQUENCIES

New

AL
Tuscaloosa Regional (TCL)
GC 257.95
AK
Adak Island (ADK)
AWOS-3 134.5
AR
Manila Municipal (MXA)
Osceola Municipal (7M4)
Memphis ARTCC 120.75/289.4
CA
Bishop, Eastern Sierra Regional (BIH)
Mammoth Lakes, Mammoth Yosemite (MMH)
Oakland ARTCC 125.75/284.65
FL
Coleman, Freeflight International Airport (2FA6)
UNICOM 122.7
MN
Tracy Municipal (TKC)
Minneapolis ARTCC 127.1/290.2
MO
Gideon Memorial (M85)
Memphis ARTCC 134.65/316.15
Kennett Memorial (TKX)
Poplar Bluff Municipal (POF)
Memphis ARTCC 120.75/289.4
NC
Statesville Regional Airport (SVH)
LOC/DME 28 (I-SVH) 111.75
SC
Columbia Metropolitan (CAE)
North AF Aux (XNO)
Columbia Apch/Dep 338.2
North AF Aux (XNO)
CTAF 118.5

Changed

KS
Wichita, McConnell AFB (IAB)
LC was 295.7, now 291.775
MN
Minneapolis VOR/DME (MSP)
VOR was 117.7, now 115.3
NC
Camp Mackall AAF (HFF)
LC was 127.8/343.725, now 121.0/254.4
OH
Columbus, Rickenbacker International (LCK)
Comd Post was 286.2, now 238.8
OR
Klamath Falls (LMT)
LC was 118.5, now 118.2
PA
Willow Grove NAS JRB (NXX)
GC/CD was 121.8, now 118.45
SC
Camden, Woodward Field (CDN)
Hartsville Regional (HVS)
Sumter (SMS)
Sumter, Shaw AFB (SSC)
Shaw Apch/Dep was 327.3, now 385.6
TX
Beaumont Municipal (BMT)
Beaumont/Port Arthur (BPT)
Kountze/Silsbee, Hawthorne Field (45R)
Orange County (ORG)
Beaumont Apch was 322.3, now 377.1

Deleted

MN
Albert Lea Municipal (AEL)
Owatonna Degner Regional Airport (OWA)
Rochester Apch 119.8/251.125
NY
New York, John F Kennedy Airport (JFK)
ILS 22L Marker (IW) 226 kHz
ILS 31R Marker (RT) 268 kHz

NEW/CHANGED/ABANDONED AND CLOSED AIRPORTS

New

CO
Loveland, Sprague Airport CD20
Rush, Terra Firma Airport 08CO
GA
Brunswick, SE Georgia Health System-Brunswick Heliport GE24
IL
Morrison Community Hospital 5LL9
MI
Marine City, Hawks Landing 20MI
MN
Wendell Carlson Farm Airport 1MY1
TN
Brownsville, Haywood County EMS Heliport 99TN
WA
Benge, Gray Ranch Airport WA20

Changed

AR
Mena Intermountain Municipal Airport was M39, now MEZ

Abandoned/Closed

FL
New Port Richey, Tampa Bay Executive Airport 3FD1
IL
New Douglas, Mueller 0IS5
Oak Brook, Official Airline Guides Heliport 02LL
IN
New Whiteland, Brunnemer Airport 71II
KS
Minneola, Kennedy Gliderport SN96
MD
Easton, Wood Airport 4MD7
WI
Marinette, Urbaniak Field Airport WI13
Ridgeland, Banche Field Airport 5WN5

by Steve Douglass, webbfeat@1s.net

Back To Basics—Part III: Shortwave Receivers, Plus An Exclusive Black Project Update!

Today, buying a shortwave receiver can be a daunting task, but it doesn't have to be that way. To make the decision a little easier, let's take a look at some things you should know before you plunk down your hard-earned money.

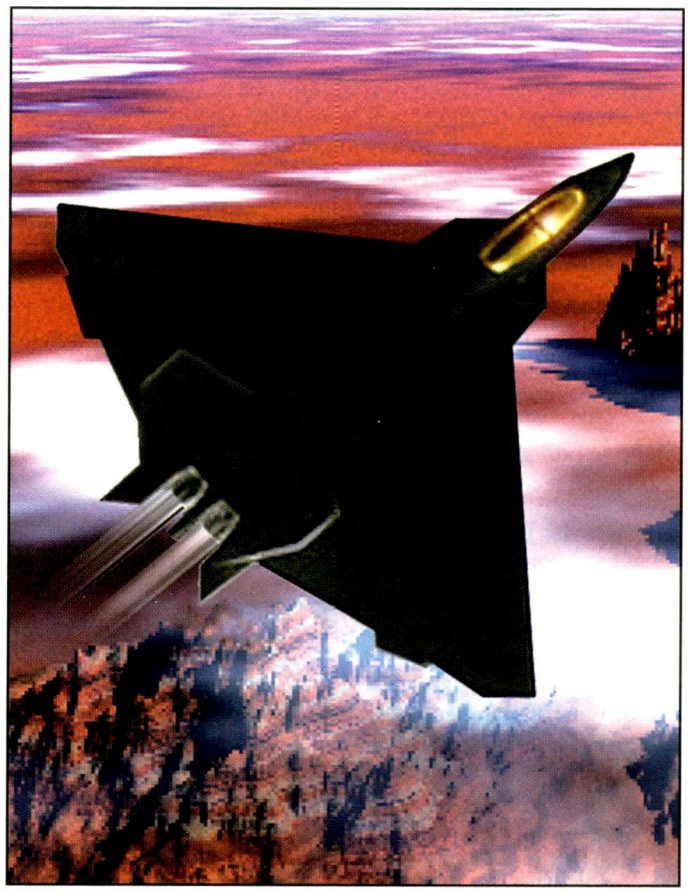
Just what is a *shortwave* receiver? In technical terms it's any radio that can receive communications in the 1.6- to 30-MHz HF (high frequency) radio bands. Some high-end HF communications receivers, however, can go far below and beyond those frequencies, with coverage extending into the MW (mediumwave) AM broadcast band or into the VLF (very low frequency) bands, or even up into the VHF (very high frequency) bands. Some very wide range receivers can even tune up into the microwave regions! However, except in expensive commercial or military equipment, all-band receivers have the tendency to pick up some bands well and others not so well. Your best bet (if you're just interested in shortwave monitoring) is to buy a receiver designed to tune the more common HF frequency bands.

So how much do you need to spend? Well, how much you got? You can buy a general coverage receiver for just under a hundred bucks or you can go all out and buy a super-sensitive modern miracle machine that approaches the cost of a good used car. Like any hobby, you get out of it what you put into it. I have seen personal monitoring shacks packed with gear that almost rivals listening posts of federal agencies, and I've also seen the great amount of fun that can be had with a used rig bought on eBay for the price of the family meal.

Just be sure that the receiver you decide to buy has the following basic features:

Sideband/SSB Capabilities: You'll certainly be able to receive those AM powerhouse shortwave broadcasters on any cheapie SW receiver, but without sideband capabilities you'll be missing out on the majority of communications that take place on HF, such as military, marine, amateur, and aeronautical stations. Most SSB-capable radios will have a mode switch marked USB/LSB (upper sideband and lower side band) or a BFO (beat frequency oscillator) tuning knob.

Digital Frequency Control (or readout): You can't beat an old analog HF shortwave receiver for sensitivity, but without a digital frequency readout, repeated tuning of your favorite narrowband frequency can be a pain in the you-know-what. If you're new to HF monitoring, a stable digital receiver is a must. My venerable (1970s vintage) Panasonic RF-4900 is the best of both worlds (an analog radio with a digital frequency readout) and is a real champ at digging those very weak signals out of the muck, but it can't touch the stability and capabilities of my WinRadio 1550e. My Panasonic may be sensitive, but it will drift off frequency and requires constant dial tweaking. Not the case with my WinRadio or even my older, but still very capable, Realistic DX-440. So if you are new to HF, I strongly suggest that your first radio be a digital one.



The super-bomber to come? Artist's rendering of the FB-22 bomber, the latest uber-stealth to come out of the famed Lockheed-Martin Skunkworks. (Rendering by Steve Douglass, based on information supplied by Lockheed Martin)

RF Gain Control: Now standard on most HF receivers, the RF gain control adjusts the sensitivity of your radio. Don't buy a radio without one.

Narrow/Wide Bandwidth Selectivity: Shortwave broadcasters transmit on very wide band frequencies. Most utility stations use narrow band. When strong or local transmitters broadcast on frequencies near your favorite channel, if you don't have a wide/narrow selectivity switch chances are that weak sideband transmissions will be covered up in interference, rendering them almost impossible to hear. Higher end receivers have excellent channel selectivity and noise rejection, making it much easier to intercept weaker transmissions on crowded fre-

quency bands. Think of the bandwidth switch like the windows on your car: Cruising down the highway with all the windows open, you'll soon become wind-burned and weary, but if you crack the windows open just a tad, you'll be much cooler without having to dig the sand out of your eyes later. A bandwidth switch works the same way; it enables you to configure your radio to be more selective in what it receives.

External Antenna Connections and Other Controls: Can you hook up an external antenna to your rig? If not you won't hear very much. What about an antenna trim control that helps match your external antenna to the receiver? Your receiver should have the following controls and indicators as standard: Tone (bass and treble), AM/ANL (Automatic Noise Limiting) for AM broadcasters, signal strength indicator (meter), lighted dial and direct tuning dial. Computerized radio cards (that turn your PC into a powerful receiver) will have these same virtual controls and much more, but it goes without saying they will also have real-world connections for an external antenna, external speaker, and other data ports.

Add-On Accessories: Even if your receiver isn't the best in the world, there is a lot you can do to make it much better. An external amplified antenna or pre-selector can help any receiver, as can external-speakers, noise limiters, and—duh—a good external antenna. You might consider recording your intercepts. Does your radio have a REC OUT port? Can it be battery powered in case of power outages. Is it a behemoth or is it portable? These are all good things to consider when shopping for your shortwave receiver.

These are just the basics. Next month we will look at what most hard-core utility monitors say works for them.

Black Project Update, And An Exclusive!

It's well known that I'm a *stealth chaser*, one of those obsessed military aircraft junkies who lives to report on cutting-edge covert military technology in the shape of fast and "unacknowledged" stealth bombers, fighters, and unmanned aerial vehicles that by day are usually tucked away in remote hangars at "non-existent" air bases located in remote parts of the southwest desert.

I see stealth chasing as a natural extension of my military monitoring activities, and each year if I don't take to the desert to monitor a war game or sit under a starry sky on a mountain, hoping to catch a glimpse of the newest bat-plane to come out of the barn, I don't feel like I've had a real vacation. But during these long winter months when the desert is too cold and a stealth chase is out of the question, I partake in the research part of my stealthy obsession, looking for evidence of secret programs hidden inside the red-tape, buried deep under the mountains of Pentagon procurement documents.

One of the best sources of information is the aerospace contractors themselves. It's easy to see who has won that big fat government contract from their stockholders' reports or even from something as easy as counting the cars in their parking lots. If employment is up, something black probably is also. However, during times like these (when we're at war) home security is paramount, and even what were once considered non-classified sources of information all now bear Top Secret stamps on their cover sheets.

But sometimes the Pentagon needs input from the taxpayers it has sworn to protect, and to pique public interest it will let the veil of secrecy slip just enough to give guys like me a tantalizing glimpse of things to come. Last month you may recall we touched on some future stealth aircraft the Pentagon was considering as a follow-on to the B-2 bomber, but since then Lockheed–Martin has taken the wraps off two stealth aircraft concepts, with one that could be fielded by 2010. The first concept was a derivative of the F-22 Raptor, a long-range medium bomber version designated FB-22.

Although the existence of the FB-22 program has been known for some time, the exact configuration of the aircraft was unknown other than that it was a direct descendant of the F-22. Some aviation experts speculated it would be a tail-less cranked-arrow design, but the new concept art released by LockMart shows the design to be an almost pure delta shape that retains the F-22's twin canted tail fins.

The specs on the FB-22 are impressive. The FB-22 will be a stealthy supersonic fighter-bomber with inter-theater range and a weapons load better than that of the F-15 Strike Eagle. Able to protect itself with AIM-9X high-off-bores infrared missiles, controlled by an in-helmet launching system, and AIM-120 beyond-visual-range active/passive radar-missiles, the FB-22 should be able to give as much punishment as it gets. Although some details are still classified, it's also expected that the FB-22 will use both passive and active stealth systems (such as electronic radar masking and flickering skin technology) to make the bomber even stealthier than the F-22. The FB-22 is also expected to have morphing wings that can expand and contract with the weapons and fuel load, making it able to adjust its radar signature as ordinance and fuel is spent.

It can be connected to a "Net-Centric" global electronic network (connected to forces on the ground or surveillance aircraft in the air) that allows target updating right up to the second a target is struck. Despite the aircraft's heavy weapons load (expected to exceed 15 tons), modified Pratt & Whitney F119 engines would enable it to operate at the same speed and altitude as the F-22.

The FB-22 will be a two-seater, operated by a pilot and a battle manager to run network-centric operations and control unmanned reconnaissance or combat aircraft.

BMACK Be Cool!

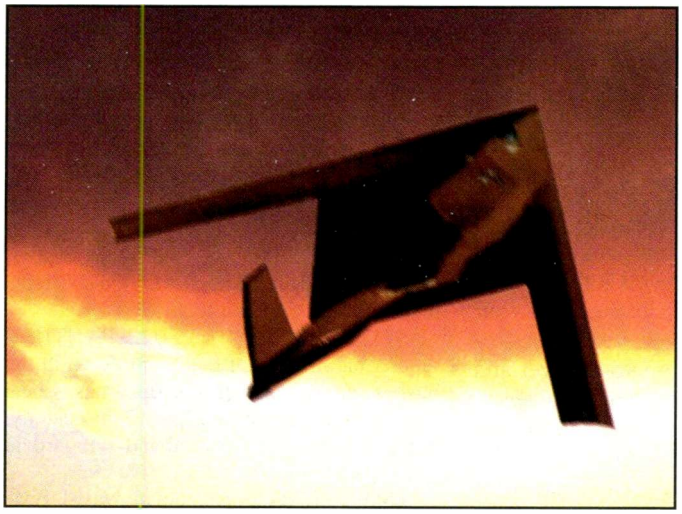
Another very intriguing Lockheed-Martin concept that was recently revealed (and little is still known about) is the BMACK, a stealth aircraft looking much like the B-2 and that can be configured to be either a bomber (B), surveillance/intelligence aircraft, special operations (M), gunship (A), clandestine transport (C), or tanker (K).

According to a recent issue of *Aviation Week and Space Technology Magazine*,

> BMACK would come in several versions, all of them with structural and systems commonality based on a program being conducted for the special operations forces community. The subsonic, C-130-size aircraft would be stealthy for penetrating missions. Its flying wing shape would provide the lift to carry around 40 direct attack bombs, short-range missiles or other internally carried weapons, including a single Massive Ordnance Air Blast or several GBU-28 5,000-lb. Penetrator bombs. It would be designed to take off and land on airstrips as small as 1,000-2,000 ft.

Senior Peg

And now our *Pop'Comm* exclusive! Aviation writer and historian, Jim Goodall, author of many aviation books including



Here's an exclusive look at the stealth bomber that never was—the Senior Peg, Lockheed's entry in the B-2 stealth bomber competition. (Composite photo by Steve Douglass based on images provided by Lockheed-Martin via James Goodall)

the recently released *Lockheed's SR-71 Blackbird Family,* co-authored with Jay Miller (Aerofax, 2002), has passed on to me a recently obtained photograph of Lockheed's stealth bomber concept (that pre-dated the B-2) known by the program code-name "Senior Peg." Just recently de-classified, the first look at this secret aircraft is published here for the first time anywhere.

Clearly a derivative of the faceted F-117 (and "Hopeless Diamond") stealth design code, the Lockheed bomber is unique in the fact that it was not a tail-less design, like Northrop's B-2, but employed a tail-boom with canted, F-117-like twin fins. It is not known if Senior Peg ever flew, but a triangular-shaped aircraft was reported flying near Groom Lake (Area 51) on several occasions in the mid and late 1980s.

Special thanks to Jim for letting us be the first to publish this photo!

Spies Like Us

I'd like to relate a funny story told to me by a friend (since passed away) who used to work at an NSA monitoring post in West Berlin during the height of the Cold War.

"John Smith" was a cryptography analyst assigned to a listening post hidden away inside what for all purposes looked like a typical West German family home. The disguise was perfect. No one watching the place for even long periods would ever have suspected it was just one of dozens of covert NSA monitoring stations along the Berlin Wall capable of intercepting high-level government communications. Super sensitive antenna arrays were hidden throughout the structure and even on the grounds. Rain-gutters, flagpoles, and other benign looking features (such as vents and windows) contained sensitive state-of-the-art (then) antennas.

The monitoring post itself was located in the basement inside a huge Faraday cage that inhibited any electronic noise that might give away the post's existence. Technicians and analysts entered the residence through an underground tunnel located inside a nearby pub, also owned and operated by the NSA. There was even a quaint-looking German couple (also NSA spooks) who lived at the residence to complete the illusion that the building was nothing other than a typical private residence.

One Christmas Eve John was at his post. Nothing much was going on, which was typical on a holiday, so John settled down for a brief nap in his chair. He was rudely awakened by, not the clatter of reindeer hoofs on the roof, but a loud barrage of encrypted teletype coming from one the receivers. This particular receiver was tuned to a frequency used by their counterparts in East Berlin, the *Stasi.*

John quickly set to work deciphering the message. He was surprised to see it was encrypted in a code that the Stasi were quite aware had already been broken by the NSA. As he jotted down the message and it became clear to him what it meant, he couldn't help but shout out a huge laugh, startling another analyst (whom we'll call John Doe) who had also been taking a stolen snooze on company time. "What!" the analyst shouted as he bolted up straight out of his chair, as if he had been sitting on a spring.

John could hardly contain his laughter as he handed his fellow spook the message he had just decrypted. The analyst's jaw dropped as he read; "*Hello and Merry Christmas to John Smith and John Doe at NSA listening post number 23 located at 192 Strassengruber Road! Peace on Earth and goodwill to all men from your friends across the wall!*"

John Smith looked at his partner and replied (in a way that many a covert operative and soldier caught up in many a conflict must have repeated many times over many years) "Why the [expletive deleted] are we here?"

This little yarn just goes to show you that you'll never know if what you intercept is the real deal or a ruse, but keep listening anyway. Maybe someday you'll even hear them talking about you!

Rotten Tomatoes

Have you ever seen in old movies the cliché scene where someone is on a stage, maybe singing or dancing and they do something that irks the crowd, and all of a sudden the performer is pelted with rotten tomatoes and other over-ripe garden produce? Whenever I see a scene like that I can't help but wonder what kind of people go out of their way to bring bags of spoiled vegetables to a theater? There's only one answer to that question. People would only purposely bring rotten tomatoes to hurl on the stage if they had already made up their minds to throw it at the performer, no matter how good the performer might be.

It may seem like a broad analogy, but writing for a national publication like *Popular Communications* is a lot like performing on a public stage. No matter what I write, I can't please all the people all the time and there is always someone waiting in the crowd to sling a rotten tomato. It's the risk any nationally published writer takes, and to be frank, I have had more than my share of tomatoes heaved at me.

Like an inexperienced-singer hitting a sour note, I will admit that early in my writing career I made a few mistakes, enough to warrant a few criticisms about my ability to write in a national magazine. But rather than shrink from it, I welcome *constructive* criticism. It keeps my writing honest and helps me hone my chosen craft.

Many years have passed and now I like to think I've grown as a researcher and writer and have learned that *if* I make a mistake in my reporting someone out there will usually call me on it. That's why, when in doubt, I defer to the real monitoring experts, the old salts who have been digging weak signals out of the static for many more years than I've been on the planet.

As I've said time and time again, this column is what *you* make of it. It needs your input to survive.

So what does this have to do with Utility monitoring you ask? Well, of late I've been dodging rotten tomatoes right and left. I have seen very ugly missives, posted by a few self-appointed experts on some of the radio-related forums, that are not constructive criticisms but personally libelous diatribes aimed not only at this writer but at *Popular Communications* and writers at *Monitoring Times* and other radio hobbyist publications as well.

Pick on me if you must, but when you mess with *Pop'Comm* you mess with my whole family, and as much as I've tried not to give these jerks any print-space, they've raised my hackles and I feel I must respond.

One of these Internet hooligans seems to be so personally obsessed with me that he has posted very personal and obscene attacks on many forums, stating that I'm not only the worst thing to happen to radio monitoring since static but I'm a liar, a cheat, a pervert, and (if you were to believe this guy) I'm growing filthy rich by suckering a small following of loyal but unwitting followers out of their hard-earned cash! He goes on to attack other writers at *Pop'Comm* and implores others not to read it.

I've tried engaging this guy in a serious debate, but I learned long ago it's not a smart idea to argue with the obsessed, so I usually ignore his posts and I urge you to do the same. It strikes me as weird that this guy still manages to read *Pop'Comm* from cover to cover, even though he claims to despise it!

I won't give this loon the satisfaction of printing his name in this column, but if you're a subscriber to many of the radio-hobbyist mailing lists, you've probably already read what only amounts to the ravings of a wannabe and a serious waste of bandwidth. I hear his own submissions to monitoring hobbyists' magazines have been turned away many times because they lack a coherent structure and rarely contain anything worth the expense of print ink.

Consider this: The other day I was talking to a reporter from *Popular Mechanics* magazine. The writer was researching a piece on conspiracy theories and came across my name being vilified on many pro-conspiracy websites concerning my recent comments on the veracity of the *9-11 Commission Report* in this column.

"Boy do they hate you!" the reporter told me. "And that's why we decided to contact you for this piece. We figured if they hated you that much you must have made a very strong argument against their views."

"Good!" I replied. That means I'm being read!"

The moral of this story is that, if you have some legitimate constructive criticism (even if it's just your personal views on a subject), by all means let's agree to disagree and feel free to let me know your concerns. But if you are just a deaf-to-humanity, obsessive tomato-thrower and you decide to post hate-filled missives on Internet sites declaring *Popular Communications* (and this author) to be the radio-equivalent of the Anti-Christ, chances are it will only backfire on you, piquing the public's interest and generating even more interest in the very writer and publication you despise!

All things being equal, I hope you'll judge this column on its content and not by what you read posted on the Internet by a small (but very loud) clique of critics. Tomato hurlers take heed, it's just as easy to pick up the vegetables and throw them back, and I get to do it in a national magazine!

As always, keep sending in your logs, photos, questions, monitoring adventures, monitoring tips, and photos to the e-mail address listed above. I want to hear from *you*!

Reader's Logs

0000: (Frequency MHz): STATION, Anytown, USA, summary of traffic heard in MODE at 0000Z. (monitor/sometimes location)

4235.5: Kilo Charlie, Kilo, Echo, and November in USN strike group Anti-Air Warfare Command Net. KC with 0200Z air defense SITREP and other units in Link frequency coordination at 0204. (MC)

4372.0: 5XT, 9ZA, R9W, 7EF, and FRANCHISE in Link-11 coord net in VACAPES OPAREA at 0039. (MC)

4426.0: USCGC SHAMAL (WPC-13) with position report to CAMSLANT and a request for comm guard at 0315. (MC)

4721.0: REACH 0456 p/p via Andrews HF-GCS to Meteo at 2153. (MC)

4739.0: PELICAN 712 ops normal report to FIDDLE at 0016. (MC)

5422.5: USCG Auxiliary Mooresville Station (NC) taking net check-ins from USCG Auxiliary stations at 0003. (MC)

5696.0: CG 1712 (HC-130, CGAS Clearwater) with 7 POV wkg CAMSLANT who directs them to RTB per Sector Key West at 0040. (MC)

5696.0: CG Rescue 2131 giving status report of SAR to CAMSLANT at 2220. (DS2-WI)

5696.0: CG 2120 asking CAMSLANT to take guard w/ 3 POB returning to homeplate. Later CAMSLANT gives 2120 info regarding SAR. At 1540 CG 2120 rpts to CAMSLANT that they have narrowed ELT to Portland ME area. (DS2-WI)

5696.0: REACH 6095 w/ primary and secondary radio chk with CAMSLANT at 0053. (DS2-WI)

5717.0: TUSKER 323 (CC-130H) requests HALIFAX MILITARY pass to RCC their airborne time at 0402. (MC)

5732.0: PANTHER wkg 03C. PANTHER reports on an air TOI that went down in the bushes on an island in the Bahamas. Local police are on scene and have 3 in custody. Aircraft does have contraband onboard at 0017. (MC)

6888.0: BNG (Venezuelan Naval Base "Guitierrez"): 0028 USB/ALE TO CGA (HQs, Venezuelan Navy). (RP)

6985.0: USACE1010 (US Army Corps of Engineers): 1600 USB/ALE sounding. Also sounding on 07510.0. (RP)

6985.0: KFMHNG (National Guard, Otis ANGB MA): 1442 USB/ALE sounding. (RP)

7475.0: FAAZBW (Boston ARTCC): 1656 USB/ALE sounding. (RP)

7527.0: CG 1720 reporting to PANTHER their 10 minute ETA to Great Inagua at 1912. (MC)

7527.0: J03 (HH-60J #6003 CGAS Clearwater): 0853 USB/ALE TO OPB (OPBAT Service Center, Nassau, Bahamas). (RP)

7527.0: F41 (USCG HU-25 #2141 CGAS Cape Cod): 1317 USB/ALE TO LNT (CAMSLANT) then in voice reports departure from CGAS Cape Cod w/6 POB for local training flight. CAMSLANT sets COTHEN as primary comms w/8 MHz (8983) as secondary comms. (RP)

7654.3: O/M (EE): 0050 USB w/O/M (EE). Speakers had strong US southern accents and used "salty" language discussing WX & fishing conditions. (RP)

7849.0: CORE7 (Commander, Venezuelan National Guard Region 7): 0308 USB/ALE TO CUFAN3 (unidentified subelement of Unified Command of National Armed Forces). Also noted on 09052.0. (RP)

7903.5: DN1 (FBI, Denver CO): 0142 USB/ALE TO LV1 (FBI, Las Vegas). (RP)

8047.0: HQ703N (probably Nat'l Guard Readiness Center, Arlington VA): 1319 USB/ALE TO M050NN (Nat'l Guard, Minnesota). (RP)

8060.0: CRC2M (Regional Communications Center-Mobile, 2nd Military Region, Venezuelan Army): 0113 USB/ALE TO CLC25M (Local Communications Center, 25th Inf Bde). (RP)

8060.0: CGGN (HQs, National Guard): 0109 USB/ALE TO MIRA1 (Command Element at Presidential Palace (Palacio de Miraflores). (RP)

8171.5: EAATS (Eastern Army Aviation Training Site, Muir AAF, Ft Indiantown Gap PA): 1647 USB/ALE sounding. Also sounding on 09295.0. (RP)

8181.0: CGGN (HQs, National Guard): 0115 USB/ALE TO DESTAFAC23 (National Guard, Detachment 23). (RP)

8181.0: CGGN (HQs, Venezuelan National Guard): 0115 USB/ALE TO DESTAFAC23 (Detachment 23, Venezuelan National Guard). Also noted on 08060.0 & 09052.0. (RP)

8912.0: J11 (ID as USCG HH-60J #6011 homeplate A&RSC Elizabeth City): 2148 USB/ALE TO LNT (CAMSLANT) then reporting airborne from Charlotte/Concord NC en route w/3 POB to NAS Patuxent River. (RP)

8912.0: J32 (HH-60J #6032 CGAS Cape Cod): 1426 USB/ALE sounding. (RP)

8912.0: F35 (HU-25 #2135 CGAS Corpus Christi): 0843 USB/ALE sounding. (RP)

8971.0 QUARTET 712 (P-3C) wkg FIDDLE followed by ANDVT at 1911. (RP)

8980.0: CG 1712 (HC-130) p/p via CAMSLANT to Clearwater Air. Needs arrangements for transport of VIP and others from Clearwater to Opa-Locka at 2021. (MC)

8983.0: CG 1713 (HC-130) airborne with 7 POV en route to 406 EPIRB SAR 39 miles south of Oahu, Hawaii, requests guard from CAMSPAC at 0207. (MC)

8983.0: CG 2131 (HU-25, CGAS Miami) airborne with 7 POV for 406 MHz EPIRB search requests guard from CAMSLANT at 2230. (MC)

8983.0: CAMSPAC wkg CG 6591 (HH-65B, CGAS San Francisco) at 0059. (RP)

8992.0: ARMY 24422 p/p via Offutt HF-GCS to National Guard facility in Seattle at 2306. (MC)

8992.0: GOOSE 21 p/p via Offutt HF-GCS to Elmendorf AFB Meteo for 2300Z WX at 2217. (MC)

8992.0: Andrews: 2022 USB w/47 character EAM (KNZP6C). (RP)

9025.0: USCG District 1 directs FOXTROT 40 to locate and check on F/V SHEARWATER which has significant damage to bridge from a hit by a wave and they have lost all electrical power and navigation equipment. FOXTROT 40 locates the vessel and reports they are underway to New Bedford at 1707. (MC)

9190.0: 64B (LST "Los LLanos," T-64, Venezuelan Navy): 0132 USB/ALE TO BNA (Naval Base "Amarillo"). (RP)

9295.0: TC159 (Coy "C," 1/159th Avn, Ft Bragg NC): 1646 USB/ALE sounding. (RP)

10033.0: Miami Radio: 0045 USB w/flight 6202 (O/M SS & EE) in pp w/Operaciones (O/M SS) w/flight information for arrival in Miami. (RP)

10600.0: CRC2M (Regional Communications Center, 2nd Military Region-Mobile): 1233 USB/ALE TO CLC24M ((Local Communications Center, 24th Inf Bde-Mobile). (RP)

10780.0: KING 24 (HC-130) p/p via CAPE RADIO to Patrick AFB Meteo for 2130Z WX at 1803. (MC)

10993.6: S1X wkg Sector Key West with position of DIW vessel at 2239. (MC)

10816.5: K040YN (Nat'l Guard, Kentucky): 1637 USB/ALE TO A060RN (Nat'l Guard Arkansas). (RP)

15867.0: J40 (HH-60J #6040 CGAS Clearwater): 1405 USB/ALE sounding. (RP)

11175.0: ASCOT 5134 p/p via Puerto Rico HF-GCS for WX at Curacao and Aruba at 1606. (MC)

11175: JAKE 11 calling ANDREWS w/ no joy. (DS2-WI)

11205.0: REACH 287 clg SMASHER at 1915. (MC)

11226.0: FORCE 01 (KC-10A) ALE initiated call to HILDA Meteo for WX at McGuire AFB at 1823. (MC)

11232.0: PEACH 66 (E-8 JSTARS) p/p via TRENTON MILITARY to PEACHTREE for WX at BASE X. PEACHTREE passes BASE X MOPP Level is 0 and PEACH 69 is held up by a windscreen problem at 1656. (MC)

11232: SENTRY 60 rcving WX rpt for Tinker AFB from Tinker Metro via pp TRENTON Military at 1625. (DS2-WI)

11232.0: Trenton Military: 2004 USB w/Canforce 2635 (ID as CC-130) in pp to DSN 271-XXXX (Offutt Ops) confirming details of arrival at Offutt. (RP)

11637.0: FAAZMP (Minneapolis ARTCC): 0021 USB/ALE sounding. Also sounding on 05860.0; 07611.0 & 15851.0. (RP)

12087.0: K040YN (Nat'l Guard, Kentucky): 1640 USB/ALE TO A100KN (Nat'l Guard, Alaska). (RP)

13927.0: KING 78 p/p via AFA1EN Indiana to Hurlburt Field CP at 0107. (MC)

13500.0: PR1 (Largo-class patrol craft, PBR-1, Venezuelan Navy): 0154 USB/ALE TO BNG (Naval Base "Guitierrez"). Also noted on 09190.0. (RP)

13500.0: T81 (Replenishment Oiler "Ciudad Bolivar"): 1241 USB/ALE TO BNA (Venezuelan Naval Base "Amario"). (RP)

13500.0: BNG (Venezuelan Naval Base "Guitierrez"): 1255 USB/ALE TO BNF (Venezuelan Naval Base "Falcon"). Also noted on 19200.0. (RP)

13942.0: PR1 (Brazilian Army, Parana): 2239 USB/ALE TO BR1 (Brazilian Army HQs, Brasilia). (RP)

13907.0: X61 (USA UH-60L prob tail #94-26561 2-3rd AVN, Hunter AAF, Savannah): 0029 USB/ALE TO OPB (OPBAT) then in voice X61 passes encoded position report from checkpoint W11. (RP)

13942.0: RJ1 (Brazilian Army, Rio de Janeiro): 2226 USB/ALE TO BR1 (Brazilian Army HQs, Brasilia). (RP)

14780.0: ERMRIO (Brazilian Navy Radio Station, Rio de Janeiro): 2206 USB/ALE TO FTEROI (Brazilian Navy Frigate, F-40 "Niteroi")—[AMD] DIAL09856. (RP)

15025.0: REACH 917 passes course and squawk to SMASHER at 1519. (MC)

15932.0: ERMRGD (Brazilian Navy Radio Station, Rio Grande): 2211 USB/ALE TO FBOSIS (Brazilian Navy Frigate "Bosisio," F-48). (RP)

15034: TRENTON Military bdcsting aviation WX for various Canadian locations. (DS2-WI)

18594.0: J02 (HH-60J #6002 CGAS San Diego): 1423 USB/ALE sounding. (RP)

15867.0: D44 (ICE P-3 AEW&C #N144CS/BuNo 153446, Corpus Christi AMB, TX): 1501 USB/ALE sounding. (RP)

25350.0: CNT (ICE Regional Identifier, Central): 1524 USB/ALE TO D42 (ICE P-3 AEW&C #N142CS/BuNo 153452, Corpus Christi AMB, TX. (RP)

15867.0: PNR400 (OPBAT base, Georgetown, Bahamas): 1444 USB/ALE sounding. (RP)

8912.0: PAC (CamsPac Point Reyes): 1736 USB/ALE TO 718 (HC-130H #1718, CGAS Sacramento). At 2158 CamsPac w/1718 (not heard) confirming that 1718 is on final for homeplate and securing radio guard. (RP)

8912.0: CNT (ICE Regional Communications Node (Central): 2307 USB/ALE TO I01 (ICE CESSNA 550 #N37201). I01 also noted with WST (ICE Regional Communications Node (West) in USB/ALE. (RP)

10242.0: X51 (US Army UH-60L tail #94-26551 2-3rd AVN, Hunter AAF Savannah GA): 2315 USB/ALE & clear voice TO OPB (OPBAT Service Center, Nassau, Bahamas-not heard). (RP)

This month's star contributors are Mark Cleary (MC), Ron Perron (RP), and Dwight Simpson (DS2). A great big thanks to all. ■

by Joe Cooper, carm_popcomm@hotmail.com

Easy Steps To Home Computer Security

If you have your home computer hooked up to the Internet, you need to know how vulnerable it is to malicious attacks. You may be aware of the fact that your computer can be infected with a computer virus, but did you also know that your computer could be hijacked and used to attack other computers?

This is even a serious issue of national security. In 2004, roughly 64 percent of the businesses around the world that use the Internet were deliberately attacked in some way, which is an increase of 45 percent over 2003. Likewise, the U.S. military is also under attack from the Internet. According to Maj. Gen. Dave Bryan, vice commander of Defence Information Systems Agency, in 2003 there were 25,000 documented attempts to attack defense systems computers. More importantly, 245 of these attacks were *successful* due to the fact that military personnel failed to follow computer security protocols.

High profile events, such as last year's Olympic Games in Athens, Greece, were notable in part because the same emphasis was placed on safeguarding the events' computer networks from attacks from the Internet as on the buildings and other physical structures from bombs and terrorist attacks. This proved warranted as there was a four-fold increase in electronic attacks over those that took place when the event was held in Salt Lake City, Utah.

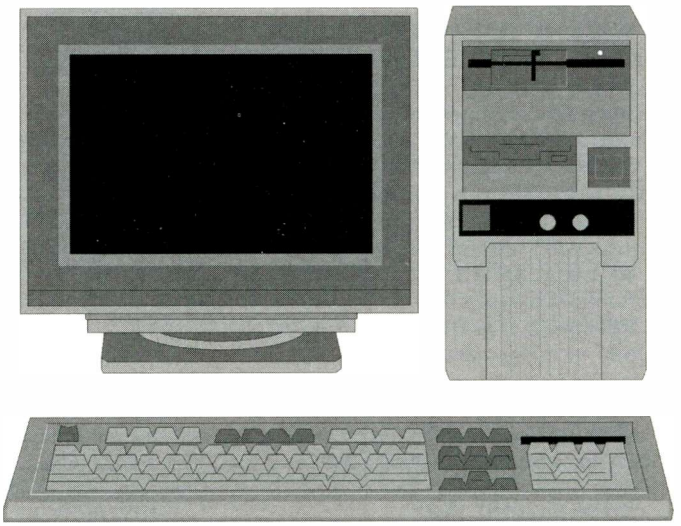
It is a sad reflection of the world that we are now living in, but many of these attacks are no longer the work of the computer geeks known as computer hackers. (They were originally called "hackers" because they would use crude methods to hack their way into a computer system, often by brute force methods.) Today's attacks are now carried out by sophisticated computer specialists who are making good money working for organized crime and terrorists. Today, they are identified by the more accurate term "intruders."

Who Are Computer Intruders?

Rather than simply engaging in annoying pranks and causing damage, these Intruders focus their efforts upon gaining control of highly confidential information, and even having full access to entire computer systems. Intruders employed by organized crime aim to embezzle money, steal secret information, harvest identities and personal information, and sabotage the operation of entire networks in often sophisticated and hard-to-detect ways. Intruders connected with terrorist organizations are intent on doing the same things as those employed by organized crime, but they go one step further: they are also intent on damaging or crippling computer systems and costing businesses and governments billions of dollars in repairs.

What few home computer users are aware of is that they are now being deliberately "recruited" by intruders for these types of attacks. Most people are now familiar with the early forms of computer viruses and know that they can wreak havoc on computer systems. Today, however, such threats can be silent and unnoticed. Intruders are now exploiting vulnerabilities that may exist on your computer system that allow them back-door access to your computer.

According to the U.S. Department of Homeland Security CERT (Computer Emergency Readiness Team) Coordination



Center at Carnegie Melon University, which monitors attacks on computer systems around the world, they're doing this to take control of a home computer system and use it to launch an attack on other computer systems around the world. The reason for this strategy is simple: while corporations, the government, and military spend millions on network security, most home computers users are only vaguely aware that such issues even exist and so are the least prepared for such attacks. This can lead to situations as simple as providing a spawning ground for computer viruses and worms, to as complex as allowing complete outside control of the compromised computer by an intruder. An intruder does this by turning a home computer into a "zombie" by finding an open computer port on that computer which can then be accessed by someone on the Internet.

How Zombie Computers Are Created

Most people are familiar with common ports on their computers, such as the one used for the printer or serial device. However, there are actually hundreds of ports built into your home computer, though most of them are only usable by either special computer software or by people with advanced knowledge of computers.

The possible impact of this is staggering. For example, Chris Wysopal, a research scientist at the Internet Security firm At Stake Inc., in Cambridge, Massachusetts, estimates that there are millions of such zombie computers in the United States. Intruders have software that can either make zombie computers, or find ready-made ones, and take control of them. Once they've done that, they can remotely control these computers without the owner's knowledge—even if he or she is sitting at the keyboard using the computer—and attack other computers. These strategies are working and producing results for the bad guys, which is reflected in the fact that the total cost for computer attacks on the world business community for 2003 alone was $12.5 billion dollars.

Don't let your home computer be one of the millions of zombies already compromised by an intruder. And don't think that

by simply having an anti-virus software program installed on your home computer that you're fully protected. In this column, I'll provide you with important information on some effective software tools that will provide you with a simple, but effective, strategy to help keep your computer safe from compromise—not only for your own safety, but for that of the United States as well.

This is a real opportunity for you to play an active role in helping maintain a real measure of homeland security and in preventing actual criminal or terrorist attacks on your country.

Tools Of The Intruder's Trade

So how does an intruder take control of a home computer? Generally it's through what is known as computer "vulnerability." Vulnerability is anything within your computer system that allows an intruder access. It's also sometimes called "exposure." There are two broad categories of vulnerabilities that exist within a home computer: network security and virus attacks.

In the case of network security, there are many design flaws in your computer's operating system (particularly Microsoft Windows) that an intruder can use to take control. For example, over the past year Microsoft has discovered at least one major security flaw in its software and operating systems per week, with roughly 30 of these being found in their newly released Windows XP. Likewise, there may be weaknesses in the way in which computer security is enforced by your computer that would allow an intruder to see information about your computer, particularly its network identity. This is something over which you have direct control and you need to properly set up and monitor against it on a regular basis.

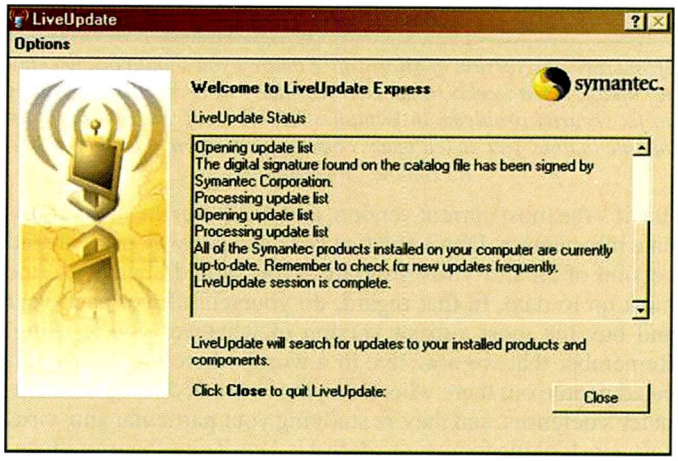
Then there is the computer virus, which has come to refer to several different types of attacks that can take place within your computer system. In general, a true computer virus is a software program that can run itself (often causing damage to your computer system) and then reproduce itself, so that it can infect other computers. There are also other types of software-based threats, such as worms (which simply reproduce themselves over and over, taking up computer processing power and system resources) and Trojan horses (which hide within other programs and, when run, allow intruders to remotely control a computer, causing malicious damage to other computers).

Most people are now aware that many types of computer viruses are transmitted through the internet via e-mail. However, an increasing number of these types of programs are now being placed in computers when people surf the web with an Internet viewing program, such as Microsoft's Internet Explorer.

As many people now have anti-virus software installed on their computers, intruders are increasingly employing a new type of threat called Spyware. This kind of software is installed onto your computer without your knowledge or permission when you visit a website. Spyware can be installed on your computer in several ways, the most common being through the use of software "cookies." Normally these "cookies" are harmless and are used by websites and browsers to communicate with each other. However, intruders can use the same method that deposits a cookie into your computer to also deposit software that can take a more active role in your computer, such as monitoring your activity while you operate your computer, which is why it is called Spyware. Once a spyware program is installed, an intruder can do something as simple as track the Internet sites you visit, but can also actually take remote control of your computer. Some intruders use websites to plant Trojan horse programs on your computer as well.

There is also a hidden threat in those annoying popup windows that often appear when you visit a website. Because of how these popups were originally designed, a good computer programmer can hide a malicious computer program within them that may not be detected by anti-virus software. Worse, you may be the person who sets off that malicious program by clicking on a trigger in the popup, such as something that says "click here and win a free prize."

So how do you protect your computer from the real threat of intruders, other than by completely disconnecting your computer from the Internet?



You should be seeing something like this at least once a week. This is the update screen for Symantec Anti-Virus. You need to have the most up-to-date virus definitions for your best level of protection. Whatever anti-virus protection you use.

How To Foil Intruders

There are basically five methods you need to employ on your home computer if you want to keep it protected: 1. Anti-Virus Software; 2. Firewalls; 3. Operating System and Software Patches; 4. Anti-Spyware software; and 5. Popup blockers.

Now some of you may be thinking that you've already got computer network security software installed. As has been found in some studies done on home computer security, most people don't use that software effectively, so they're just as vulnerable as if they had no software protection at all.

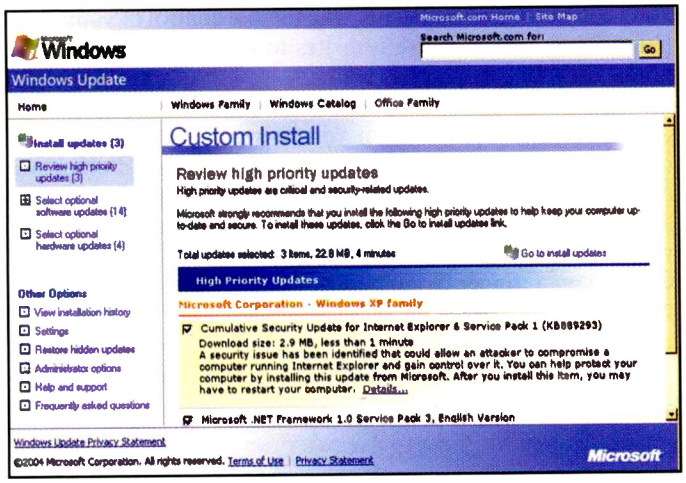
Let's take a look at each to see how it should be used in order to be effective.

Anti-Virus Software

While many people have anti-virus software installed on their home computers, far too many simply don't use it or maintain it properly. As a result, the version on the computer, or the actual information used to fight the virus (called attack signatures) is often old or obsolete.

New viruses, worms, and Trojans are being released onto the Internet on an almost daily basis and you need to have the latest information on hand to protect yourself. Likewise, the computer software that's the basis for that protection often goes through periodic changes to make it more efficient or to fix design problems.

It really doesn't matter which program you use, as long as you ensure that it's working when your computer is running,



If you own any version of Microsoft Windows you should be checking for updates on a weekly basis. Last year there were 30 critical updates to fix security problems in Windows XP alone. If you don't add an update in time, you've left your computer wide open to be turned into a "zombie" by intruders.

that it's the most current version, and that it has the most up-to-date information. Don't practice false economy by using an old version of an anti-virus program—you should always use the most up to date. In that regard, do yourself a favor each year and buy the most current version of whatever you're using. Remember that we now live in a world where there are dedicated people out there who are trying to break down your computer's defenses, and they're studying your particular anti-virus software looking for ways to defeat it. Don't give them an advantage by offering them an old version.

Deploy a Firewall

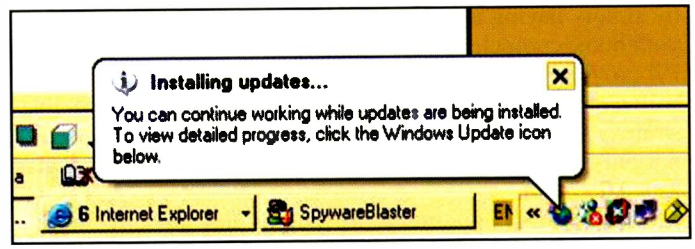
A firewall is a software program (which sometimes also has a hardware component) that acts like a barrier between the Internet and your PC. A firewall checks what is flowing in from the Internet to ensure that only "safe" information gets to your computer. Some firewalls also check the information leaving your computer for the Internet to ensure that your computer is not being used to send *out* unauthorized information if being remotely controlled to attack other computers. Very often firewall software is built into routers, which can be used to connect one or more computers on a home network to the Internet. If you only have one computer hooked up to the Internet, you can use "stand alone" firewall software to protect yourself.

Once you've installed a firewall, you can set it up to make your exposure to threats over the Internet as wide or as narrow as you wish. Many of these programs also provide visual devices to show you how much (or little) traffic is flowing between your computer and the Internet, as well as provide a warning when an intruder is trying to compromise your computer.

It doesn't matter which firewall software you use as long as it's turned on, properly configured, and up to-date. Like anti-virus software, if it's not properly maintained, it won't protect you when you need it most.

Operating System and Software Patches

If there's one area of neglect that really leaves your personal computer open for compromise or attack, it's the failure on the part of most people to install system updates on a regular basis. In the past, many people assumed these patches involved system performance upgrades or new features, but today it's more about fixing "back door" access to your computer system.



You can also set up Microsoft Windows so that critical updates are installed automatically. Check the help section of Windows to find out how this can be done. This ensures that you're always up to date.

If you use the Windows operating system, the computer update function, which gets a patch from Microsoft and then installs it onto your computer, is generally easy to find. You can often set up this function to be automatic, so you don't have to be involved at all. The only thing you need to do is make sure that it happens regularly. A patch may not appear that often, but when it does, it generally means that someone out there is going to try to exploit the vulnerability of your computer until it is blocked.

In that regard it's sometimes a bit of a horse race to see what gets there first, the patch or the intruder. A point to consider is that it used to take a hacker an average of 288 days back in 1999 to figure out a way to exploit a vulnerability that had been discovered. Today it only takes an intruder an average of 10 days to figure out how to use a vulnerability once it's been discovered. Again, this is because the people doing this are no longer college kids proving how smart they are; they are organized professional computer programmers, often being paid big money by either crime or terrorist organizations.

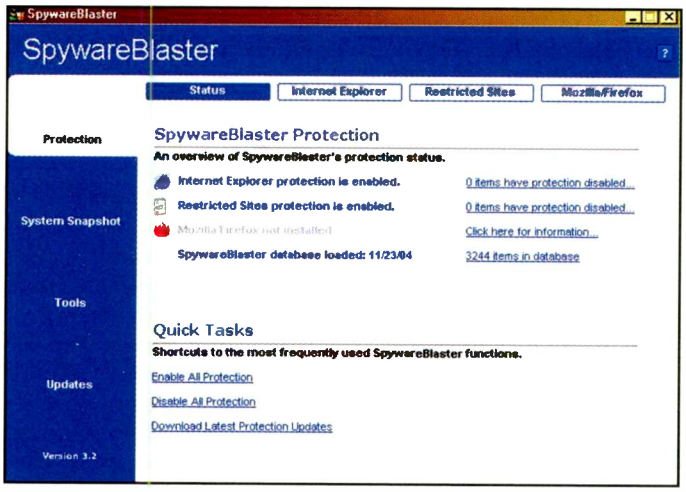
As the method for obtaining a software patch varies from version to version of a computer operating system (and software as well), I won't go into all the methods here. However, the information provided in the online help that comes with all Microsoft products will help you find what you're looking for.

Anti-Spyware Programs

Software to prevent spyware from being installed on your computer while you're surfing the net is relatively new. Over the past year or so there has been such a proliferation of spyware that a great deal of interest has been developing in this area. This is in part because of the disturbing trend toward the use of Internet websites to distribute "malware." Malware (short for malicious software) is similar to the traditional computer virus, worm, or Trojan, except that its method of delivery is changed. As a result of this new method of delivery, many anti-virus software packages don't detect them. Newer versions of popular anti-virus software are beginning to detect spyware and malware (another good reason to keep this software up to date), but their main focus is still on traditional virus delivery, such as via e-mail.

The solution here is to use a new anti-spyware program to protect your computer. These programs act the same way as anti-virus software does when you receive an e-mail. However, in this case, the software either checks to see if a spyware program has been deposited in your computer, or will block them from coming in at all. There are others that will scan and clean your computer for any that may have managed to make their way into your computer.

If you've been doing a lot of net surfing over a long period of time, be prepared for a shock when you run your anti-spyware program the first time. When you scan for problems, you may find you've picked up a large number of programs that will need to be removed. Many people report that after removing



This is the user screen for the popular anti-spyware program "Spyware Blaster" by Java Cool Software. This a free product automatically blocks thousands of possible methods of downloading and installing spyware on your computer. It runs automatically when you start your computer and works silently in the background, using very few computer resources.

these programs, their computers seem to "come alive" again, running computer tasks and programs faster than before. This is because many of these spyware programs use a significant amount of computer resources (memory space and CPU power) without the owner even knowing that they were running.

Once you have the anti-spyware software installed, you may still need to update its data or version on a regular basis. Given how quickly new spyware programs are produced, once or twice a week to do maintenance is not excessive (some people check daily).

Popup Blockers

These are fairly straightforward programs that can be added to whichever version of Web browser you're using, Microsoft's Internet Explorer or Netscape. These add-on components prevent popups from appearing when you visit a website that employs them.

There are also numerous stand-alone programs you can run as a separate software program. These range from freebees you can download to commercial products that can be bought at computer stores. Just remember that some legitimate web-based services do use popups to control some of their functions, and these can be blocked as well. A good popup blocker will allow you to set up a "safe list" of those legitimate sites, which will then work properly when you visit them.

Again, you'll need to ensure that the popup blocker is properly configured and operating when you're surfing the Web. Always make certain that the blocker is on before you start to surf and check to see that it's actually capturing popups. If it's not working as you think it should, don't leave things to chance. Either check with the software designer's technical support people or get a better blocker.

The Bottom Line For Computer Defense

The bottom line for a good defense system against an intruder is to have multiple levels of security protection that are installed, properly configured, fully operating, and properly maintained. Lack of maintenance and improper operation are the most common causes of security compromises in a home computer.

If you have a computer attached to the Internet, make it a point to sit down and check it over to see if you have the proper defense system in place. Given the current importance of keeping your PC safe, it should now be seen as act of maintaining America's homeland security.

For additional information on home computer network security and software, see the sidebar in this month's column.

Coming Next Month

Next month, as I had promised previously, I'll begin a new series of columns where I'll be looking at some of the computer-compatible radios out there. But, frankly, given how serious this whole issue of network security has become, I decided it was more important to focus on this topic this month.

You can e-mail me with any questions at carm_popcomm@hotmail.com. As I mentioned before, I cannot answer general questions on computers, but will be more than happy to help you with any issues raised in the columns. You can write to me at "Computer-Assisted Radio Monitoring," PMB 121 - 1623 Military Rd., Niagara Falls, NY 14304-1745. As always, I'm interested in any pictures you may have of your own computer-assisted monitoring station or stories about how you have built and run it. Please send them along.

I have placed a list of the columns I've done over the past two years, along with a summary of the content, on my personal webpage, Please note that it has moved to a new URL at www3.sympatico.ca/joe_in_ey. On that website, I've also included instructions on how to purchase back issues of *Popular Communications*.

Please also remember our troops overseas and give them your support. As mentioned last month, the "Any Service Person" mail program has been suspended for security reasons. I am now suggesting that you refer to the U.S. Department of Defense's official webpage, "Defend America." They have a specific section, found at http://www.defendamerica.mil/support_troops.html, which has an amazingly wide range of practical and useful ways you can directly help. Please take some time to check out the resources suggested there and put them to use. ■

Suggested Resources

The following are some suggested resources you can use to help you build up your home computer's anti-intruder defenses. This is not a definitive list and you are strongly advised to undertake your own research and education on this subject. Using the resources provided here does not guarantee that your home computer and network will be 100 percent protected from an outside attack. The amount of protection you can achieve for your computer depends upon many factors, including your own level of skill and understanding of its maintenance and operation. In any event, *always* be certain to maintain backups of important data or information. Always fully read the instructions that came with your computer, its operating system, and the computer software installed on it to find out how to get regular updates and patches online.

Attack Warnings and General Information

www.cert.org: CERT coordination center homepage. An up-to-date advisory of attacks taking place on the Internet as intercepted by computer specialists employed by the Homeland Security Department.

http://www.us-cert.gov: United States Computer Emergency Readiness Team homepage, including advisories and valuable background technical information.

www.gcn.com: Government Computer News Daily, has a section on homeland security issues.

https://analyzer.symantec.com/default.asp: A daily analysis of attack events from around the world (generally in the millions).

Free (and safe) Computer Evaluations for Vulnerability

http://security.symantec.com/: This on-line service is offered by Symantec, Inc., the makers of the Norton Anti-Virus program, and will provide you with a complete (and secure) system check for vulnerabilities, whether they're open ports or computer viruses. Note that the site will only uncover problems, not fix them.

Firewall Protection

www.zonelabs.com: Zone Alarm firewall software site; this is a free commercial product you can download. Well designed and easy to use, it's one of the more popular products in use today. If you want more features, such as virus protection, you can buy one of their inexpensive upgrades.

Anti-Spyware Software

There are three excellent software products you need on your home computer if you want the best possible protection from spyware. Ironically, all three products are free. (Even more ironically, in comparison tests conducted with expensive commercial software, the free software worked better.)

www.lavasoftusa.com: Ad-Aware SE, one of the first, and still considered the finest, spyware removal programs available. Easy to use and operate, with updates to their malware list provided regularly.

www.javacoolsoftware.com: Spyware Blaster and SpywareGuard; two free anti-spyware programs you really need to have as they work in the background like anti-virus programs. Little or no computer system overhead is used while they're running, so you won't notice they're there.

http://www.spybot.info/en/index.html: Spybot Search and Destroy is another must-have program. It not only blocks spyware, but also scans, detects, and removes any that's been installed. Many other features provided as well to help keep your computer running clean.

WARNING—The above sites have good reputations and can be trusted. Don't be tempted to click on popups that say "your computer may have been infected with spyware, click here to remove it." If you do, you'll be *infected* with spyware. Also, don't allow any site to download and install what is professed to be an anti-spyware program as they are fakes that can compromise your computer's security.

Popup Blockers

www.google.com/downloads/: Google Search Engine Toolbar; this provides you with several features that will help you search the net, including a good popup blocker. It's free.

http://toolbar.msn.com/: Microsoft Tool Bar; this is the same as the Google Toolbar, but with some added features for Microsoft products and services. Good popup protection as well, and it's also free.

by Peter J. Bertini, radioconnection@juno.com

Repairing Hallicrafters Knobs

All too often you'll finally locate a prized Hallicrafters receiver in pristine condition, except for damaged knobs. It's a commonplace enough occurrence to make good used replacement knobs hard to find—and very expensive! Ed Engelken's technique for restoring these knobs, presented in his own words, kicks off this month's column. Later, I'll be showing some of my own recent repair bench experiences with an SW-54 National receiver.

Ed's Damage Control

*I've been collecting late 1940s and early 1950s Hallicrafters receivers for the last few years, including this recently acquired SX-71 (**Photo A**). Several of my acquisitions were eBay purchases and suffered minor shipping damage due to poor packing (a subject for another time!). The style of knobs used on these receivers makes them subject to the type of damage shown in **Photo** B. I call this "poke-through" damage, and it's caused by pressure on the knob that forces it farther onto the shaft. The end of the shaft then pokes through the thin front of the knob, leaving the end of the shaft exposed. When I could find the poked-out pieces intact, I would glue them back in place, but the result was never satisfactory; the repair was always obvious, even from a distance. In several cases the poked-out piece was lost and re-gluing was not even an option. There had to be a better way.*

*I had used a product called "JB Weld" for other repairs and noticed that it has a self-leveling property; that is, when applied to a horizontal surface, the JB Weld flows and forms a nice flat pool before it solidifies. That prompted me to try it on the Hallicrafters knobs with poke-through damage. I made the repair by placing the damaged knob on the shaft of a replacement volume control. I cut a patch of "Scotch" tape and placed it over the end of the volume control shaft and adjusted the knob position so the end of the shaft was at top of the brass insert in the knob. I then filled the damaged area with JB Weld, using just enough to fill the void created by the missing chip and cover the inside of the recess in the knob (**Photo C**).*

***Photo A.** Ed Engelken obtained this much-neglected Hallicrafters SX-71 in a trade. Most of the problems were cosmetic, including damaged and missing knobs. (Photo Ed Engelken)*

Be sure to distribute the JB Weld all over the inside surface of the knob and "wet" the outside edges of the recess. Don't work the JB Weld longer than necessary and don't worry about cleaning up any splatters. You want to proceed quickly to take advantage of the self-leveling properties of the JB Weld. Make sure the knob is maintained in a level position and wait four to six hours. Then carefully remove any splatters with a sharp knife. If the JB Weld has flowed up to the edges of the recess in the knob, carefully trim it back, but avoid touching the flat JB Weld surface. Keep the knob level and wait another 24 to 36

***Photo B.** Here's a typical example of poke-through knob damage caused by careless handling. Finding replacement knobs is difficult, so repairs are necessary. (Photo Ed Engelken)*

***Photo C.** JB Weld's self-leveling property is the key to repairing poke-through damage. Just keep the knob level as the JB Weld cures. (Photo Ed Engelken)*

Photo D. *The repaired knob on the left is difficult to distinguish from an undamaged knob on the right. (Photo Ed Engelken)*

Photo E. *The silver-painted brass "trim rings" in the large tuning knobs can be removed for repainting. Be careful when prying them out. (Photo Ed Engelken)*

Photo F. *The repaired VOLUME knob and the refurbished BAND-SPREAD knob look great on the restored Hallicrafters SX-71. (Photo Ed Engelken)*

Photo G. *The repaired/refurbished knobs, along with other repairs, have transformed the sad-looking SX-71 shown in Photo A into an attractive receiver. (Photo Ed Engelken)*

*hours. After the JB Weld is fully cured, it can be painted with flat-black paint. The result is a good-looking repair that can only be detected by close examination (**Photo D**).*

*The large Hallicrafters tuning knobs with the silver-painted brass insert can also be spruced-up. The insert can be carefully pried out of the knob, cleaned, and re-painted (**Photo E**). I have done eight or 10 of these knobs so far and haven't had any problems, but the knobs are plastic, so be very careful. Work slowly and carefully and you'll be okay. I've found that Krylon #1401 Bright Silver (matte finish) produces a good match to the original Hallicrafters paint (**Photo F**). The repaired/restored knobs add eye-appeal to the elegant Hallicrafters SX-71 (**Photo G**).*

Back To Peter: SW-54 Restoration Notes

I want to add some comments about AC safety concerns and the National SW-54 receiver restoration by Ed Engelken featured in the October 2004 "Wireless Connection" column. The SW-54 is an AC/DC "hot chassis" receiver enclosed in a metal cabinet, so it raises some potential safety concerns. Our December 2004 "Wireless Connection" dealt with many of these issues, but it's worth reviewing before beginning work on a SW-54 or similar Hallicrafters model, such as the S-38.

I used the National service information, found in Rider Volume XXII, to guide my restoration. First, I noted capacitor C-34 (as shown on the schematic) is a .02-µFd wax paper capacitor. This part should be replaced with a UL device approved for line-to-ground bypass use. The capacitance value is best kept under .015 µF to minimize leakage current; I used a .01-µFd device. **Photo H** shows where I've attached a modern UL-rated bypass capacitor between the slide-switch bracket (this part provides the electrical connection to the cabinet) and to a nearby point on the SW-54's floating copper-plated chassis to replace C-34.

The SW-54 provides an antenna ground connection. This "ground" serves as a signal ground and isolates the user from any potentially dangerous AC voltages on the chassis by having capacitor C1 in the path. I also replaced capacitor C1 (originally a .01-µFd wax paper capacitor) with a UL-rated line-bypass capacitor. I also discovered that the particular SW-54 included two additional isolation capacitors between the two A (antenna) terminals and the band-switch terminals, while the schematic showed direct connections between those points instead!

These two wax capacitors were also replaced with the proper UL-rated parts, as shown in *Photo I*. I used .0047-µFd capacitors for replacing both antenna terminal coupling capacitors and the ground terminal coupling capacitor. These values aren't

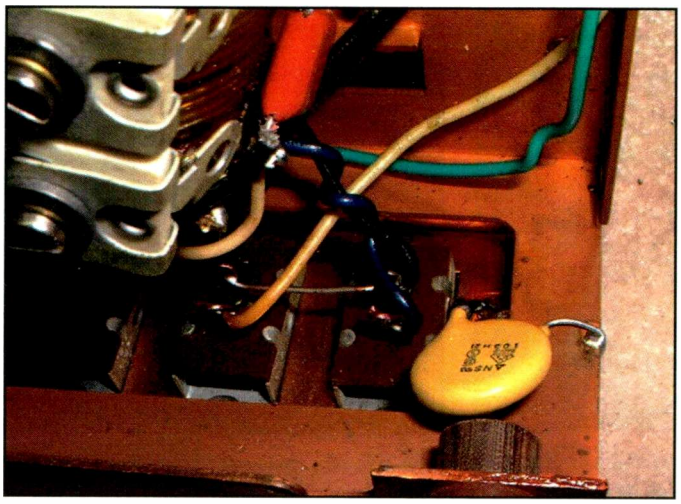


Photo H. The new .01-µFd UL-rated line-bypass capacitor is connected between the chassis and slide-switch panel plate. This view provides a good look at one of the four two-piece phenolic chassis insulators that isolate the chassis from the metal cabinet.

critical, though they should be kept under .01-µFd, and I used the nearest values I had on hand (I believe the values for the two original antenna-coupling capacitors were .002 µFd). **Photo J** shows where a half-amp fuse and holder are mounted on the chassis, and how the power switch is now wired to switch the hot leg of the AC cord. It's important to carefully route AC wiring to the off/on switch (on the rear of the volume potentiometer) away from the audio wiring, or unwanted hum might be induced in the receiver audio.

I'd rewired this radio to eliminate the interlocking "cheater cord,"* which does not have polarized plugs, and instead replaced the assembly with a newer cord that includes a molded polarized AC plug. Cheater cords were a feature of many early, and some modern, TV sets and radios which used AC cords that were automatically disconnected from the set when the back cover was removed. This was accomplished through the use of a plug and socket system at the appliance end of the cord. The cord "cheater" plug was molded and riveted to the rear cover (see **Photo K**), preventing AC power from being applied while the chassis was exposed. Most TV service shops sold "cheater cords," so named because they allowed the serviceman to "cheat" the interlocking system by using a separate cord that was unencumbered from the back cover.

As an alternative, Ed Engelken offers a solution to keep the radio more original (see **Photo L**). Using a pair of side cutters, Ed simply opens one of the AC plug blades, which allows it to mate only with polarized AC wall sockets. Use your ohmmeter to ensure that the wider blade (AC neutral) is the leg that's wired to the chassis side of the AC/DC radio. Always keep in mind that you'll find improperly wired AC wall outlets in many homes; polarized cords are not a cure-all solution! Antique Electronic Supply is one source for replacement *cheater* cords.

Other SW-54 Notes

It's good practice to check *all* of the resistors in a set to verify they're still in

Photo I. *These three capacitors, wired between the antenna and ground terminal strip and the bandswitch and chassis ground, serve to isolate the user from any dangerous AC voltages present on the chassis. They must be replaced with UL- rated line-bypass capacitors.*

Photo K. *The radio end of the cheater cord is riveted to the rear cover. (Photo Ed Engelken)*

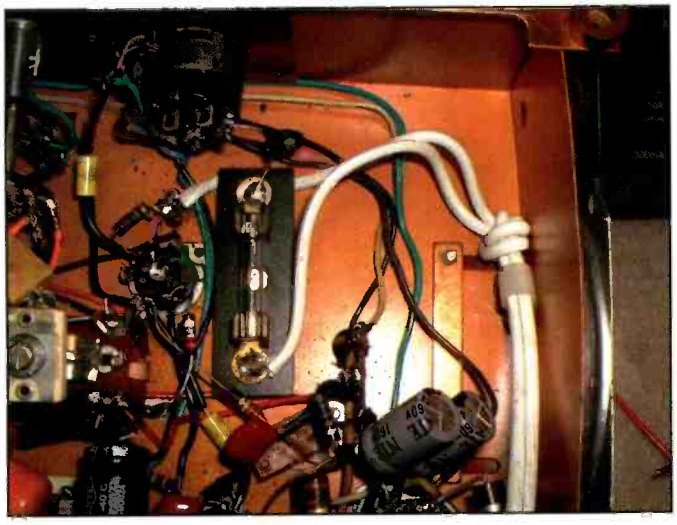


Photo J. *A 1/2-amp fuse and holder is added to the radio, along with a polarized AC cord and plug. The power switch has been rewired to switch the hot leg of the AC line, and the chassis is now tied to the neutral leg of the AC line (wide blade on the AC plug.). The AC cord is secured with a nylon cable clamp and is knotted.*

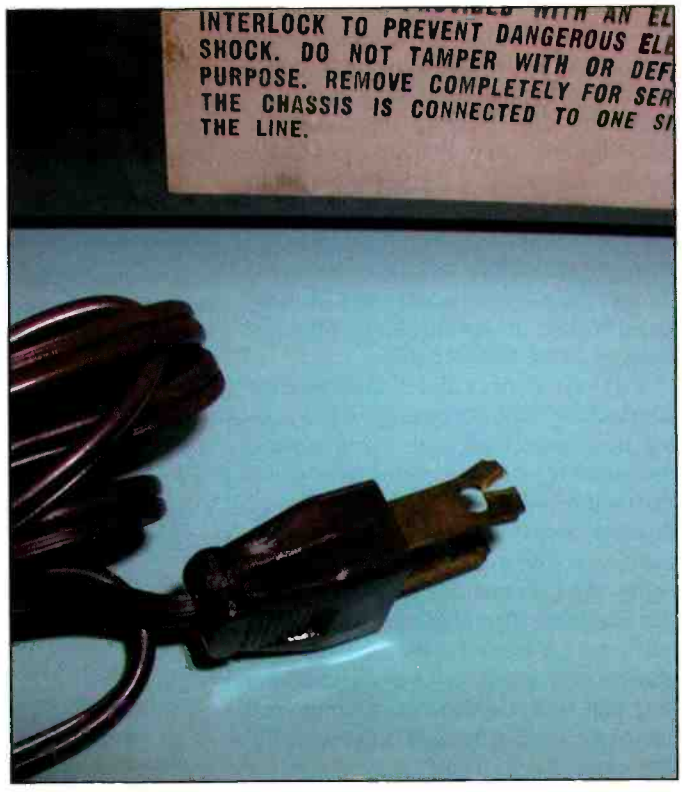


Photo L. *Ed suggests this modification to make a non-polarized molded AC plug mate only with more modern polarized AC outlets. A pair of side-cutters is used to make one blade of the plug wider than the other. (Photo Ed Engelken)*

tolerance. The SW-54 has a pilot light, and the voltage for the lamp is derived from an internal tap on the 35Z5 (tube V-5 on the schematic) rectifier tube filament. The #47 pilot lamp is wired in parallel across pins 2 and 3 of the V-5 tube socket. There's also a 330-ohm resistor across the two pins to further lower the pilot lamp's voltage. I noted the pilot didn't work, even though its filament was good. Closer investigation showed that the 330-ohm resistor (R-16) had been overheated and only reading 3 or 4 ohms. I replaced the original 1/2-watt resistor with one with a 2-watt rating. The pilot lamp immediately burned out when power was applied, and the 330-ohm resistor began overheating! The 35Z5 filament failed open between pins 2 and 3, putting the full filament string current through R-16 and the pilot lamp and causing the original R-16 resistor to overheat and fail. Replacing the 35Z5 with a good tube solved the problem.

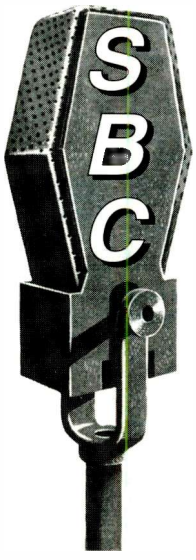
For a final safety check, make sure the chassis insulators that isolate the chassis from the metal cover are in place and in good physical condition. Also, the metal speaker was originally insulated from the chassis, so check and replace this insulation as needed.

Let's Hear From YOU

That's a wrap for this time. Keep those soldering irons warm, and remember your letters, comments, suggestions, and photos are always welcome! I hope to hear from you soon. ■

by Shannon Huniwell, melodyfm@dreamscape.com

Radio's Old-Fashioned Power Of Illusion



"Hey, you gotta admit it was a pretty funny bit," the morning air-personality nervously suggested. But his now *ex*-employer wasn't laughing at all, just pointing to the door and suggesting that the DJ remove himself from the radio station premises, pronto! "You're lucky I'm not suing you as well as firing you," the manager enunciated with a slow rumble that sounded like he was mere seconds away from going ballistic. He held open the lobby door and stared at the parking lot until the smoky exhaust belching from the announcer's rusty orange Chevy Vega wagon evaporated around the bend of the station's long, rutty, gravel-covered driveway.

The small-market broadcast executive wouldn't have been so steamed had his 5000-watt radio facility not been used by the former staff member as such a powerful laboratory for audio illusion and old-fashioned theater of the mind. The story is true. It took place in the middle of the 1970s in a highly directional AM by the ocean. Neither call letters nor real names will be specified, as the tale still causes a few of the station's personnel (though none is still there) some embarrassment.

You're looking at what is purportedly a shot of the infamous "phone-water hoax" studio as snapped by a cub newspaper reporter. The jock who told me the tale claims he got the picture from the young woman (he was then dating) who covered the story for the station's print rival. The photo didn't run because her editor wanted a picture of the offending DJ holding a telephone. By the time she got assigned to go to the station, though, the on-air guy had already been canned.

A Bit Of Fun With Frozen Phone Lines

We'll call our imaginative jock Bob St. Morgan, though he'd be the first to admit he never set out to be "saintly" on the radio. In fact, at each stop in his DJ career, he was always looking to make just enough of an edgy reputation to get hired by a bigger station where he'd push the envelope onward and upward to AM and FM fame and fortune. Well, that was a plan that was supposed to work. Anyway, on the way into the studio one freezing, pre-dawn March morning, St. Morgan watched water droplets from his windshield splash on the top of the dashboard after they succumbed to the defroster. This, coupled with the sight of icy telephone wires sagging between poles he passed while driving along the main drag, provided him with a clever idea. At about 7:20, St. Morgan came out of that Glen Campbell record, *Wichita Lineman*, and started complaining about the phone company

You know, folks, old Ma Bell would never admit to it, but on days like today she really messes up your floors. That's because the only way those phone guys can get the ice off all those drooping phone wires outside is to attach "ultra-flash heat-a-lators" to the lines and quickly melt the stuff. You've probably seen these gizmos hanging on the wires. By the way, we've been getting lots of calls from listeners who report having wet phones and seeing small puddles near their phones. While the phone folks figure you'll simply assume that this H_2O came from shoes and boots, I want you to know the true source of those puddles. The resulting situation is bad, not only because of the destructive moisture it creates, but it's dangerous because water and electricity aren't safe when mixed. You can prevent this pretty easily, though. In fact, I've got a special newsmaker interview with a retired telephone engineer who offers some great advice—after this!

Picture This Do-It-Yourself Remedy

During four minutes worth of commercials, St. Morgan chuckled to himself as he picked up a tape cartridge marked "phone bit," which, using another voice and the "phone filter" function on the production studio equalizer, he'd pre-recorded. He slid it into the *Gates Criterion* cart machine, and saw the "ready" light glow. As soon as the last spot in the stop-set ended, St. Morgan announced that the former, "and may I add, somewhat disgruntled" Bell Telephone man is ready to be interviewed.

"Sir, I understand your sheer anger with a powerful corporation that knowingly "heat-a-lates" iced-up wires, even though the resulting melt will impact the safety and well being of thousands of local phone customers."

Next, he punched the tape machine's "start" button. Affecting an elderly gentleman's voice and posing as some pioneer Bell Telephone technician, St. Morgan (on the tape he'd recorded) went into a newsy-sounding expose on careless phone company deicing policy and procedure.

"That's why," he (as the distinguished old gent) confessed, "as a public service, I must divulge that all Bell Telephone subscribers should take their phones right off the hook, place the receivers in a good quality plastic bag, and secure the bag around the cord with a rubber band. This is the only way to prevent melted ice water that seeps through the lines from coming through your phone and damaging precious household goods." The DJ thanked his "guest" and, several times that hour, repeat-

ed the advice in a voice laced with network newsman David Brinkley's inflections.

By 8:00, so many people had taken their phones off the hook and bagged them that local switching equipment experienced overload. Meanwhile, the station newscaster who was busy trying to dig up leads by making calls to area police burst into the studio to tell St. Morgan that "every @&!*# phone in the @!$%&* station is dead. Try yours," he commanded, "all you'll get is some dumb recording that says *all circuits are busy, please try again later.*"

That was the frustrating message repeatedly heard by a wealthy mother-to-be who was home alone when she frantically attempted to reach her husband, her doctor, or the hospital. Fortunately, her twins were delivered safely by an ambulance crew summoned via a helpful next-door neighbor who was an avid CBer. The woman's husband-attorney sued the station—and so did the phone company. Almost worse, the local newspaper had a field day with the story, branding the station as "grossly irresponsible." The station's cross town AM/FM rival never mentioned the incident, though that was probably because one could logically assume that any broadcast facility reported to have influenced that many listeners was a darn good place on which to advertise. "I'm glad it wasn't one of our DJs who pulled that stunt," the owner of the competing stations mused in the newspaper article, "but actually I think it really reminds all of us that when radio paints a vivid picture—even one as nutty as water coming through the phone—people respond to that power!"

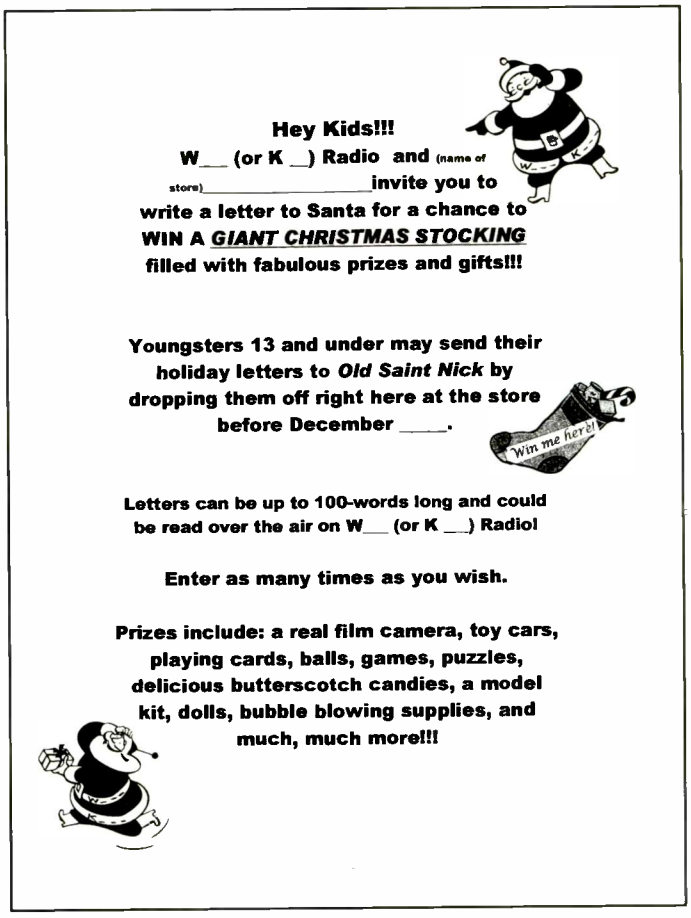
The Happy Station Manager

A classically cool, crisp, big snowflake early winter mid-December and a small western city provide us with the setting for our next case of radio's theater of the mind. There, in a cramped, tinsel-decorated studio, another imaginative DJ played an instrumental version of "The Christmas Song." Fading down the tune so that it served as a music bed, he began colorful reminiscences of how much, as kids, he and his sister enjoyed writing letters to Santa. At least one audience member was so moved by the air-personality's heartwarming description of that labor of love that she phoned the 1000-watt AM/3000-watt FM simulcast operation to compliment the general manager on his "wonderfully articulate and evocative announcer." The call pleased the exec enough to later ask the secretary/receptionist to define "evocative" and queried her on what the DJ had been saying.

Now, the GM almost never went back to the air studio, and if he did, he only ventured inside as far as keeping a nervous grip on the doorknob and doorframe would allow. According to station legend, while in the Army (or maybe Boy Scout camp) the manager had picked up a nasty habit of cussing in most every sentence uttered, and was deathly afraid of someone hearing him swear over the air.

"Nice job on that #@!&* Santa thing," he winked at the DJ. "Listen, here's what I want you to do—come up with a contest where kids will write letters to old St. Nick and we'll pick the best #@$!*& one and give out some nice prize, maybe a $10 gift certificate to a restaurant or gas station or something. And I want you to start promo-ing the #^@!$* thing after the next &%$@!$* record."

After an hour passed without any on-air mention of the directive, the manager was back in the studio doorway. He waved off all protests from his DJ. "Whataya mean nobody will write



This generic "Letters to Santa" promo ad was part of a package stations could buy that contained everything needed to run the classic contest. The kit included rules, announcer copy, colorful entry boxes with an Old St. Nick motif, store posters, and even a grand prize - the "giant Christmas stocking," a six-foot long red, mesh sock filled with dozens of cheap toys and hard candy. During this promotion's heyday, hundreds of small and medium market broadcasters ran some variation of the holiday season contest.

@#$% a letter? We'll get tons of 'em! Deep down inside, every kid wants to contact Santa with a 'gimme %#$@! this and *&%$#@ that' list! Now start promoting the Letters to Ol' Kris Kringle contest, or you'll get @!$%# black coal and a pink slip for a holiday bonus!"

Every morning for the next week, it was reported to the GM that no letters had been received. "That's 'cuz you're not pushing the @#$! contest hard enough," the boss bellowed. "You better put some more of the #@!&* holiday cheer in your voice and get some cute letters by Friday because that's when Mr. Sommerville (the station's major stockholder) is coming to town to check on things, and I want him to hear the #$@% great public service contests we do. Go on; hit it again as soon as this &^%$@ song ends! And, make it %$*#! sound jolly!"

Friday a.m. came, and with a bigwig on the way, the manager instructed the on-air guy to read the winning Santa letter at 9:45, "when Mr. Sommerville will be listening." Via a sincere shrug of the shoulders, the jock again reported the complete absence of entries—without a hint of *I told you so*. "Then @#$%&* get in there and make one up! His boss screamed while popping a couple of *Tylenols,* prior to quickly disappearing down the badly carpeted corridor to the lobby.

For some reason, thoughts of *The Brady Bunch* theme overcame the more seasonal Christmas music actually emanating from the torn monitor speaker—from behind a cloth grille festooned with a smiley face carelessly rendered in yellow marker. When the happy holiday tune concluded, the air-personality took a deep breath, opened the mic, closed his eyes, and in a mellow voice, began: "No doubt you've heard me request that kids send us their most special letters for Santa. Well, after pouring through three rather stuffed mailbags full of them, I've got one particular letter that I'm sure you'll agree is the most wonderful correspondence to the Jolly Old Man that any of us has ever heard. It comes from a cute little curly blonde second-grader named, uh, Cindy. Yeah, that's what her name is, Cindy."

At this point, he paused to reconsider what he was about to do. The silence prompted someone to tap on the studio glass. When the DJ opened his eyes, he turned to see the GM smiling ear-to-ear in the hallway and motioning him to keep going. Eyes re-closed, he flattened a small paper bag in which he'd toted a snack, picked it up, and read its imaginary saga...

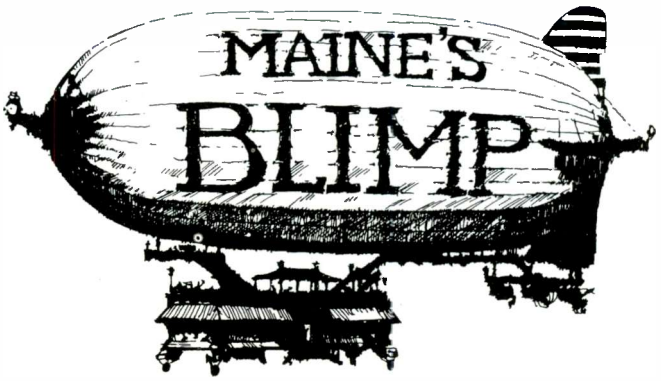
Dear Mr. Santa, Sir:

My name is Cindy. I'm a young girl of seven years and often listen to the nice Christmas music on a friend's transistor radio during recess periods at my school. That's how I learned that you were accepting letters from kids. Please know that I come from a very poor family. I had to borrow a pencil from a classmate because I have no writing implements of my own. I am very sorry to be writing this letter on an old lunch sack, but—what with costly medical bills and all—we can't afford fancy paper. Anyway, this correspondence bears no requests from me except that you might see fit to give a special gift to my brother, uh, his name is, um, Charles [the GM's moniker], but we call him "Corky" because he just keeps floating along even though he's real sick with, uh, diphtheria, yes, uh, diphtheria retinitis [some disease the DJ remembered hearing about in science class]. Santa, if you could possibly bring my brother a small electric popcorn popper, it would warm his heart so. Then he could have a little party with the family before he has to go back to the children's hospital for those long treatments out of state.

A second rap on the window prompted the jock to spin around in the studio chair and catch the happy manager signaling the OK sign through the glass. This enthusiastic approval was also meant for Mr. Sommerville's benefit, too, as he had just arrived.

Under the "letter's" final paragraph, in which Cindy promised Santa she'd be so very thankful if a popcorn popper, even a second-hand one that *still works a little bit*, just long enough for one last popcorn party, could be delivered "down the tin stovepipe that's attached to our rented trailer house," the DJ flipped turntable #2's switch, which started the Carpenter's Christmas album. Its lush overture medley of holiday favorites provided the perfect instrumentation to add inescapable impact to that heart-wrenching message. Just before Karen Carpenter's beautiful vocals began, the announcer, who'd learned in a community college drama class how to sound all welled-up with tears, gave an extremely convincing performance that he'd truly lost his composure. The results sure lit up the station phone lines.

One of the calls came from the station's biggest sponsor, a huge lumber yard/hardware store/supermarket outfit on the edge of town. Its co-owner told the station manager that the letter was so vividly written that she could easily "picture the child's family undergoing horrible hardships." In fact the woman admitted to having been "so touched by the little girl's unselfish request" that the business would be more than happy to provide Cindy's brother with a top-of-the-line *West-Bend* popcorn machine, a



year's supply of gourmet popping corn, caramel, and butter! Plus, Cindy would get a $100 shopping spree, and the store wanted to host a party where the siblings would be guests of honor.

"Mr. Sommerville says we'll do a #@%& remote and give out &%$# bumper stickers," the GM happily shared with his star air-personality. It's gonna be a $#@^(& extravaganza and all because of my %$#@!% contest idea! Now, gimme the @!%$& letter because Mr. Sommerville wants to show it to the people who own the %$#@& lumberyard so they can contact the @!$%& kid."

The Illusion Of A Big Blimp Playing Music Over Maine

In the summer of 1975, when radio veterans J.J. Jeffrey (of WRKO Boston and WLS Chicago fame) and Robert Fuller traveled down a country road outside of Lewiston, Maine, to see a troubled FM station for sale there, the duo realized that the facility needed some "illusion." A tower and a pair of mobile homes pushed together in a hilly spot where a few trees had been cleared served as a studio/transmitter site for WBLM-FM. And at the station's 107.5-MHz home, the image portrayed by an eclectically odd beautiful music/progressive rock format didn't give many Down East radio listeners a particularly favorable impression.

WBLM's founder, an Iowa-based accountant, figured he made a great media investment when debuting the station in 1973. But in most small to medium markets back then, FM airtime was not particular easy to sell, especially when one's programming (as reported by the *Boston Herald*) consisted of fiercely independent DJs "playing to a cult audience of transplanted hippies. The image of the station was not positive to most advertisers, as they thought [WBLM's] only listeners were stoned-out freaks. You couldn't give a commercial away!"

Jeffrey and Fuller pooled their cash and made WBLM's owner an offer that was quickly accepted. Truth be told, their initial foray toward WBLM acquisition, a year or so earlier, had met with little success, but the pair's second trip up the wooded radio hill was more welcomed by the aforementioned Midwestern accountant, who'd since grown tired of losing money via his FM adventure.

After FCC approval of the transaction, Jeffrey and Fuller focused on a more consistent 24-hour progressive music format (then anchored by artists like Bruce Springsteen, Joni Mitchell,

From the early downtown Plattsburgh, NY days of WEAV, here's a promotional pin given out to listeners of one of the CBS network shows it aired.

and Billy Joel) aimed at the 18 to 34 crowd, but done well enough so that it could spill over the top of that demographic range. Radio observers watched the change payoff in vastly improved ratings within about six months.

A chief factor in Fuller/Jeffrey's image transformation was the decision to give listeners the impression that WBLM was headquartered in a giant dirigible floating above the Pine Tree State and showering the land with rock music. In having DJs remind folks that Maine's BLIMP was in the air, the low-budget mobile home studio set up became something more vivid and evocative of "tunes in the airwaves" than any million dollar broadcast complex could generate. For decades, the BLIMP has been a leading rock outlet in Maine. Even after Jeffrey and Fuller sold the Lewiston station and the calls/format were taken by a Portland FM at 102.9 on the dial, the illusion that a broadcast blimp is flying around the state still seems well grounded in the minds of many Maine listeners.

"From Our Palatial Studios"

Another FM that started in humble surroundings is now one of the most legendary western radio properties. Its first home was a 120-year-old mud hut dragged by a farmer to the top of a mountain in Atherton, California. Stamford University students Jim Gabbert and Gary Gielow both enjoyed being on their college radio station, so they figured it'd be neat to run their own broadcast facility after graduation. In a case study about his station, Gabbert recalls that he and Gielow wanted an AM station, but in 1956, the local FCC office suggested they pick one of the 12 vacant FM frequencies in San Francisco. They asked what FM was, got an official Commission explanation, thought such a thing might be okay, and planned on "getting high-paying jobs after graduation and building the radio station in their spare time—just for fun." A fellow with land—and that adobe shack—on 2,400-foot King's Mountain outside of San Francisco provided a studio transmitter site and helped secure about $5,300 in loans to get the proposed station going.

Meanwhile, Gabbert and Gielow did an eenie, meenie, minie, mo with a list of the dozen free FM channels and decided on 101.3 mc. Their FCC application, which netted approval in just a month and a half, called for 1500 watts at 1,420-feet above the average terrain, yielding remarkable signal zing in those nearly empty band FM days. Licensed to Atherton, California, the station got dubbed KPEN-FM because it was on the San Francisco Peninsula. Debut broadcasts were heard all around the San Francisco region on October 27, 1957. From the start, it offered excellent fidelity—in the era's monophonic high-fidelity sound—with not a single listener imagining the clean audio and bright music was originating in an overgrown storage shed with mud and sticks for walls.

Officials quickly approved a jump to 5 kW for KPEN, but several months later balked at Gabbert's and Gielow's application to run 50 kW. It turns out that the problem was nominal in that the FCC felt uncomfortable authorizing big power to a station licensed to a small town. When the radio entrepreneurs took the hint, though, and sought a short move of city of license to San Francisco, the government welcomed the request with a CP (construction permit) for a whopping 125,000 watts! Gabbert took care of the engineering end of KPEN, and so designed directional, high-gain panel antennas that allowed the station's vintage 1946 Western Electric model 506B-2 transmitter to yield the new power level over rugged San Francisco terrain. He also helped pioneer circular polarization in FM transmission so that car radios (with their vertical antennas) could pull in FM signals, FM stereo, quadraphonic FM, and a now commonplace station identification via its dial position moniker. To better identify KPEN as being at 101.3 on the dial, he switched the calls to KIOI-FM or K-101. Any station today that uses a number in its colloquial identifier (Q104, B-92, X-99, etc.) is following a mnemonic device made popular by Gabbert. In 1980, he sold KIOI for a then-record price of $12 million bucks, bought an ailing UHF TV station, and had some profitable fun with that facility, too, before selling it with some other radio stations he'd picked up along the way. With the adventurous spirit of that adobe hut still in mind, Gabbert flies his own Boeing 747 through airways he first covered with the hi-fi sounds of KPEN-FM).

The Russians Might Be Coming...To Plattsburgh!

Northern New York's most powerful FM was a gift from the U.S. Air Force. Such benevolence resulted from government officials envisioning communist missiles shooting our way. The story goes that throughout the 1940s and much of the '50s, the late George Bissell' Sr., saw no need for a frequency modulation companion for his 5-kW WEAV-AM in Plattsburgh. Nor was he even contemplating adding an FM sister around 1959 when the Defense Department announced that WEAV's towers were too close to the new Strategic Air Command bomber base in the works on the edge of town. Bissell could hardly tell the feds to figure out another locale for the planes and atomic bombs, so went along with Uncle Sam's offer to relocate WEAV's three-tower array.

As a deal sweetener for his quick cooperation, the Air Force promised to provide two ways of getting the audio from the studio to the new xmtr site south of Plattsburgh. One was the then-traditional broadcast-quality phone line route, and the bonus pathway of a microwave link. For some long forgotten reason, however, engineers couldn't get the microwave system to "talk to the transmitter shack," so a technician with the Defense Department reasoned that a small FM broadcast station situated at the downtown Plattsburgh WEAV-AM studio would do the trick. That way, clean audio could be received (via an FM radio) at the AM transmitter, even if some Soviet saboteurs cut the phone lines. Because around 1960 FCC officials were practically begging people to apply for FM construction permits, and because the military brass had sanctioned the Plattsburgh FM, Bissell almost automatically received the CP for WEAV-FM 99.9 mc. It took to the icy Lake Champlain Valley airwaves in February 1960. Effective radiated power was 3.7 kW with antennas on a short stick above WEAV AM/FM's Court Street studios. Period listings show the antenna height at 32 feet below the area's average terrain, just enough elevation to cover the city and reach the AM site.

For well over a decade, WEAV-FM did just what the Air Force brass hoped. It simply served as a simulcast operation, ready to substitute for the broadcast phone lines in the event of an emergency. Almost no attention was paid to the FM side. During the early 1970s, a bit of separate programming was tried, though ad sales for WEAV-FM shows were nearly nonexistent. Bissell's son, George Jr., told the Plattsburgh *Press-Republican* newspaper that "even as late as 1975, his family was sitting around the WEAV studio laughing at a study which predicted FM audiences would outstrip AM audiences by 1980." When the report started coming true in some other parts of the United States, George, Jr., got more serious about his FM outlet. A studio move from downtown Plattsburgh to the AM transmitter property caused him to relocate the FM stick. Calls were eventually changed to WGFB-FM (for George F. Bissell) and a contemporary music format was instated. During the last days of the 1980s, Bissell committed over $250,000 to a "use it or lose it" FCC edict in which a few superpower Class "C" FM stations, which were not running to their full potential, had to decide whether or not they'd do so. Bissell bought WGFB-FM a new transmitter, xmtr building, antenna, and 345-foot tower on Rand Hill, providing the best elevation between Plattsburgh and Montreal, Canada. When he fired-up this new 100,000-watt facility, WGFB-FM blanketed the Plattsburgh, New York/Burlington, Vermont market, and boomed into southern Quebec. Dubbed B-100 (because it's close to 99.9 on the dial), the station has changed hands and callsigns since "going large." Even the most devoted radio buff of 1960, though, would have thought it a funny long shot that a mostly unwanted FM thrown into an eminent domain settlement by the Air Force would become one of its market's biggest guns.

Got A Newspaper Clipping Or Old Radio Memorabilia?

Got a newspaper clipping, old station brochure, or even a recent snapshot of your local station? I sure would appreciate snippets of radio literature like that for likely inclusion in future columns. E-mail your scans to melodyfm@dreamscape.com or regular pictures and copy to me at *Popular Communications*, 25 Newbridge Rd., Hicksville, NY 11801. ■

THE POP'COMM TRIVIA CORNER

(from page 24)

over the knee with the key attached to the outside bottom of the U. Both systems were used by the military and would be the showpieces of any key collector's collection.

Q. When did international broadcasting first get started?

A. Radio used to broadcast news and opinion to foreign nations probably began in 1915. The German government set up a transmitter in Nauen, near Berlin. News and views were transmitted by Morse code to neutral countries because the cables of the world were in the hands of the Allies during World War I. The signal reached Persia in the east and Mexico in the west. Representatives of the German Kaiser would pick up the signal, translate it, give it to the local press for free and send it on via cables. Since news services from Allied countries were expensive, the free press releases got wide coverage.

In 1924, the Soviets startled may amateurs by broadcasting in voice rather than Morse. Lenin himself had decreed the change from Morse to voice and made the research to develop the required technology a national priority.

The Netherlands began regular broadcasting to foreigners in 1927, Germany in 1929, and France in 1931. The BBC began its Empire Service in 1932, which technically was not aimed at foreigners. Mussolini's Italy began in 1937.

Q. What part did VOA, Radio Free Europe, and Radio Liberty play in the fall of communism?

A. Mikhail Gorbachev once told Margaret Thatcher that it was not the cost of the Strategic Defense Initiative that brought down communism. "The first impulses for reform were in the Soviet Union itself, in a society that could no longer tolerate the lack of freedom." Where did the knowledge of freedom come from? Radios.

The Polish government believed that if RFE went off the air the Solidarity Movement would dry up and go away. Zbigniew Brzezinski, director of the National Security Council under Carter, believed that the communists' losing their monopoly over mass communications was the key factor in the breakup of communism.

Alexander Solzhenitsyn said, "The western imagination could not grasp the nonmilitary power of broadcasting." BBC estimated that the Soviets were spending $918 million per year to jam Western signals. On November 29, 1988, they gave up the fight and stopped the jamming. In 1990, it was announced that ideological confrontation with the West had cost the Soviet Union 700 billion rubles over the preceding 20 years. From then on, it was all over but the shouting. It took 10 years before the actual collapse occurred, but it occurred because the Soviet citizens knew a better way and wanted change.

POWER UP: RADIOS & HIGH-TECH GEAR

(from page 43)

Grundig's new E1XM receiver includes 1,700 station presets and large dot matrix display.

labeling, plus 1,200 user-definable country memories, for a total of 1,700 memories. Additional features include memory scan function, selectable bandwidths (7.0, 4.0, or 2.5 kHz), SSB synchronous AM detector, IF passband tuning, selectable AGC, dual-programmable clocks with a WWV auto-setting, dual-event programmable on/off timers, separate bass and treble tone controls, headphone jack, LCD signal strength meter, and a telescopic antenna. The receiver also has an external antenna connection. The new Grundig E1XM receiver weighs 4 pounds 3 ounces and measures 7.1 x 13.1 x 2.3 inches (HWD). It's powered by four "D" batteries (not included) or the provided AC adapter.

For more information on the new Grundig E1XM receiver, which will retail for about $500, contact Eton Corporation at 1015 Corporation Way, Palo Alto, CA, or call 650-903-3866. Visit them on the web at www.etoncorp.com.

BCD396T: New Handheld Uniden APCO 25 Capable Digital Scanner

Uniden America Corporation has introduced a new handheld digital scanner, the Bearcat BCD396T. The BCD396T offers APCO 25 digital capability, allowing users to monitor the activities and signals of city and government service departments using advanced scanner technology in an all new compact, handheld design. Uniden's BCD396T is poised to improve interoperability between large cities currently using the digital systems and those smaller municipalities that still operate on analog systems. Uniden's BCD396T will not permit users to monitor encrypted signals from national and local security organizations. The BCD396T also offers Close Call RF Capture Technology, Dynamic Memory Management, and Fire Tone-Out, as well as 5,500 channels and a frequency range of 25 to 1300 MHz, excluding cellular. This new model is slated to hit shelves late this summer.

"With the BCD396T, we listened to our consumers and have incorporated their feedback on features they wanted, into a high-quality product that meets the demands of both professionals, such as law enforcement officials, and scanner enthusiasts," said Paul Opitz, Uniden Product Manager. "For example, we have eliminated the proprietary battery pack and removed the need for an add-in board for APCO 25, reduced the size of the model, and added a backlit keypad."

For more information on the new BCD396T, contact Uniden directly at 817-858-3465 or 800-554-3988. Visit Uniden online at www.uniden.com. No price was available on the BCD396T at press time. ■

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readers' market

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by Bill Price, N3AVY

Inside Bill's Battery Box

Ahhh, radio. Radios. How do I love them, let me count the ways. Better I should count the radios. And the *batteries*. Why—in a world where electricity (well, AC house current) is a bargain, and in a house with no fewer than *50* wall-wart power supplies—do I power all my radios with *batteries*?

Why indeed. And why can I quote you the prices on AAs and AAAs, and on D cells and 9-volt batteries and tell you up-to-the-minute information on which store has the best prices on the jumbo 3,000-pack on any given day?

The first reason is electromagnetic interference (EMI). It was once called radio frequency interference (RFI), but for some reason that wasn't a good enough term. Anyway, many batteries, by the way, are really "cells," if you care. A 9-volt *battery* is really a battery of *cells*. If you were to take one apart, you'd see that, but for heaven's sake *DON'T* take one apart, because if I suggest that you do, we'll need a 14-page warning in 37 of the more commonly spoken languages, and you'll have to dispose of it at a HazMat waste site.

The second reason is those @#$%^&*! wall-wart power supplies, and no, I did not misspell the world's largest retailer. Wall-wart is the affectionate term for those miserable black plastic transformers with rectifiers that plug into your wall with an extremely weak, forever-twisted and tangled DC power cord and a plug which rarely makes adequate contact with your radio or other device, frequently trips you and everyone else in your home, and pulls out of the radio as soon as you move the radio. This wouldn't be so bad if the little cord didn't immediately fall behind a grand piano or some other extremely heavy object just an eighth of an inch beyond your reach, causing you to try to move the piano without help, strain your back, and give up listening completely.

I grew up in a house that had stone walls and was built before electricity was discovered, hence we had outlets only on inside walls, and not many of them, and they were just above the baseboards. All our outlets looked like the one that fed the Christmas tree lights in that favorite movie of mine, *A Christmas Story*, a.k.a. for some as "You'll shoot your eye out, kid!" Nothing was plugged directly into the wall except for a stack of three-way receptacle multipliers, each feeding two extension cords and another three-way multiplier.

And it's no different today. Today I rent a lovely old farmhouse among the cows. It has character, it has charm, and even though some of it has been rewired, it still has many knob-and-post electrical circuits and too few outlets, all of which are extremely hard to see, let alone reach. Add to that my extreme dislike of bending over or crawling on the floor, working with AC by feel rather than by sight, and you may begin to understand why I buy a lot of batteries.

"I love to listen to the radio. All the time. I almost never listen to CDs or tapes in any vehicle I'm driving. There's just too much to listen to on the radio in real time."

I love to listen to the radio. All the time. I almost never listen to CDs or tapes in any vehicle I'm driving. There's just too much to listen to on the radio in real time. Talk radio, news, interviews, breaking news, more talk radio, more news, interviews, and the occasional oldies station, but not for too long.

When the radio in my old Beemer broke, I put a cheap portable on the front seat and extended the whip antenna out the window. I left the top of the window open a crack for it, and used to forget it was there and end up crimping the end of the antenna about once a week. I put about $30 worth of replacement antennas on a $29.95 radio, and, of course, it operated on D cells. I am not normal.

I can't listen to the radio on my computer while I'm using the computer; I can't afford high-speed Internet access where I live, and either my radio listening suffers, or my computer speed slows to that of a cuneiform wax tablet and stylus. And if I plug a radio—even a good quality radio (of which I have too many already)—into an AC outlet in the room where my computer is located, I would have to have a smart person calculate a toroid line filter to keep the noise out of the AC line to the radio.

Even with batteries and a good Sangean, Sony, or GE SuperRadio (you can find 'em all advertised here from time to time), I'm still plagued with RFI or EMI from my computer and monitor. One of my worst discoveries was that a computer that operated at 100 MHz absolutely wiped out a favorite oldies station at 100.3 MHz! And today, my computer and my son's computer radiate enough annoying interference that I can't receive a weak signal anywhere in the house if I'm plugged into AC, so it's batteries, batteries, batteries. Even the truck my mechanic lent me, with a nice radio, has no antenna, so I have a $9 transistor radio hanging from a sun visor. On a good day, I can almost hear a strong station—or I could, if I'd get him to fix the muffler. ■

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