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POPULAR COMMUNICATIONS

SEPTEMBER 2006

**It's Your Money-Scanner Buying
Tips To Save You BIG \$\$!**

- **Intrusion Into The Ham Bands: Strange, Out-Of-Place Signals - p. 8**
- **Hurricane Monitoring—Where To Listen And What You'll Hear - p. 60**

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Rugged Professional Communications Receiver

- Professional Grade Receiver
- Wide Frequency Coverage
- 640 Memory Channels
- Durable and Reliable for Outdoor Use
- Fully-illuminated Keypad and Display
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- Long Battery Life
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COMMUNICATIONS RECEIVER

VR-120D

Wideband Coverage:

0.1~1299.995* MHz FM/WFM/AM

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Use either the PA-30B/C/U AC Adapter or E-DC-15 DC Cable to power your VR-120D.



DC Cable with Cigar-Lighter Plug
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Use the NC-82* Charger Stand and CA-34* Charger Sleeve to charge the optional FNB-79* Ni-Cd Battery Pack, using the PA-30* AC Adapter

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Tomorrow's Technology - Today THE PROFESSIONAL STANDARD

COMMUNICATIONS RECEIVER

VR-500

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All-Mode Wide-Band Receiver

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COMMUNICATIONS RECEIVER

VR-5000

0.1~2599.99998MHz*
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E1 XM

GRUNDIG

G4000A

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Receive a **FREE Grundig G4000A** with your E1 purchase!



The etón E1 XM is the world's first radio that combines AM, FM, shortwave and XM Satellite radio into one ultra high-performance unit. In development for nearly ten years, in collaboration with RL Drake Company and XM Satellite Radio, the E1 is simply the finest full-sized portable in the world. The E1 is an elegant confluence of performance, features and capabilities. The look, feel and finish of this radio is superb. The solid, quality feel is second to none. The digitally synthesized, dual conversion shortwave tuner covers all shortwave frequencies. Adjacent frequency interference can be minimized or eliminated with a choice of three bandwidths [7.0, 4.0, 2.5 kHz]. The sideband selectable Synchronous AM Detector further minimizes adjacent frequency interference and reduces fading distortion of AM signals. IF Passband Tuning is yet another advanced feature that functions in AM and SSB modes to reject interference. AGC is selectable at fast or slow. High dynamic range permits the detection of weak signals in the presence of strong signals. All this coupled with great sensitivity will bring in stations from every part of the globe. Organizing your stations is facilitated by 500 user programmable presets with alpha labeling, plus 1200 user definable country memories, for a total of 1700 presets. You can tune this radio many ways such as: direct shortwave band entry, direct frequency entry, up-down tuning and scanning. Plus you can tune the bands with the good *old fashioned* tuning knob (that has *new fashioned* variable-rate tuning). There is also a dual-event programmable timer. Whether you are listening to AM, shortwave, FM or XM, you will experience superior audio quality via a bridged type audio amplifier, large built in speaker and continuous bass and treble tone controls. Stereo line-level output is provided for recording or routing the audio into another device such as a home stereo. The absolutely stunning LCD has 4 levels of backlighting and instantly shows you the complete status of your radio.

Many receiver parameters such as AM step, FM coverage, beep, kHz/MHz entry etc., can be set to your personal taste via the preference menu. The E1 has a built in telescopic antenna for AM, shortwave and FM reception. Additionally there is a switchable antenna jack [KOK] for an external antenna. Universal also sells a PL259 to KOK antenna jack adapter (#1052 \$10.95) as well as a sturdy angled Lucite radio stand (#3873 \$16.95).

The E1 comes with an AC adapter or may be operated from four D cells (not included). 13.1"L x 7.1"H x 2.3"W Weight: 4lbs. 3oz. We are shipping latest production, high serial number units. **Free G4000A** for a limited time. E1 XM Order #0101 \$499.95



AUDIOVOX CNP1000



The Eton E1 is XM ready. This means you may purchase the Audiovox CNP1000 XM antenna module at any time. The CNP1000 can be moved from one E1 to another E1, or even to some other compatible electronic products. It has a 25 foot cable. (An optional 50 foot extension cable is also available #0393 \$17.95.)

CNP1000 Order #0401 \$47.95



The legend of the famous Yacht Boy 400 lives on in this latest model the **Grundig G4000A**. Dollar for dollar no other radio offers this much performance and so many features. Coverage is complete including long wave, AM band to 1710 kHz and shortwave from 1711 to 30000 kHz. FM stereo is provided to the headphone jack. A thumb wheel knob on the side of the radio provides smooth single sideband (SSB) tuning. The illuminated digital display provides tuning resolution at 1 or 5 kHz on shortwave. Two bandwidths are featured to reduce interference. The narrow position affords maximum selectivity, or the wide position may be chosen for best audio fidelity. The keypad will quickly get you to any frequency or store up to 40 of your favorite stations in the presets. The dual digital clock is visible while the radio is playing. Other refinements include: snooze and sleep buttons, lock, High/Low tone switch, Local/DX switch, and 9/10 kHz MW scan selection. External jacks for: earphone, antenna and 9 VDC input. The G4000A comes with: AC adapter, stereo earbuds, wind-up antenna, *Owners Manual*, and upgraded carry case that can be folded to support the radio at an angle. Requires six AA cells (not supplied). The cabinet has a stunning titanium colored finish. 8"Wx5"Hx1.5"D. 1 Lb. 5 oz. One year limited warranty.

G4000A Order #4000 \$149.95

► Purchase your Eton E1 from Universal between 06/15/06 and 09/15/06 and receive a **FREE Grundig G4000A** with your order! [Also sold separately. See above].

Note: The CNP1000 XM antenna module and XM subscription are sold separately. Activation and monthly subscription fee required for XM.

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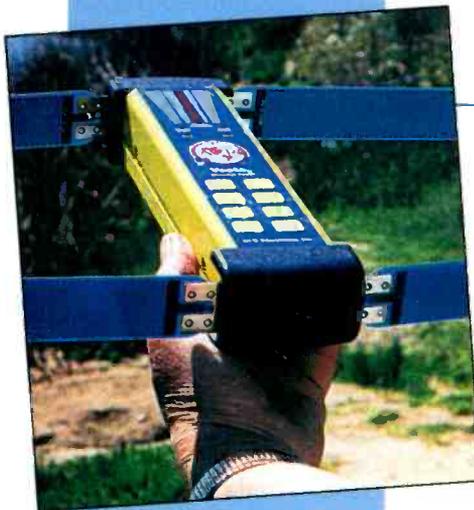
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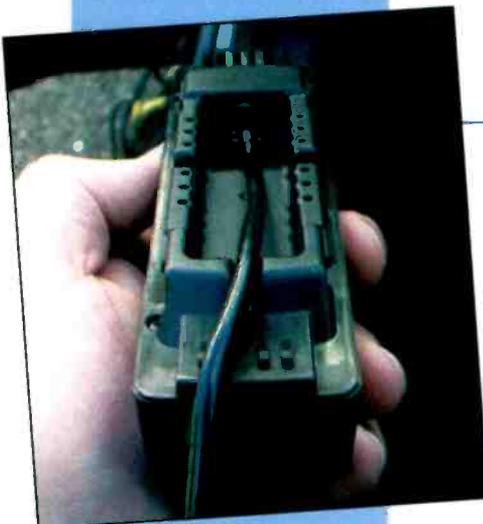
On The Cover

Ken Hanscom, Senior Manager of the RadioShack store at Westfield Shoppingtown in Sarasota, FL, shows Melissa Zanetti the PRO-96 digital scanner. If you're in the market for a scanner, be sure to read Ken Reiss's ScanTech this month beginning on page 11; his topic—*Buying A Handheld Scanner*. (Photo by Larry Mulvehill, WB2ZPI.)

8



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Visit us on the Web: www.popular-communications.com

Tap into secret Shortwave Signals

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

MFJ-462B
\$189⁹⁵

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

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

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

Eavesdrop on the World

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

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

Super Active Antenna

"World Radio TV Handbook" says MFJ-1024 is a "first-rate easy-to-operate active antenna... quiet... excellent dynamic range... good gain... low noise... broad frequency coverage." Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz-30 MHz.

Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED.

Switch two receivers and auxiliary or active antenna. 6x3x5 in. Remote has MFJ-1024S 54" whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, \$15.95.

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."

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, \$15.95.

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, \$15.95. 3/8x1 1/4x4 in.



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

Monitor Morse code from hams, military, commercial, aeronautical, diplomatic, maritime -- all over the world -- Australia, Russia, Japan, etc.

Monitor any station 24 hours a day by printing transmissions. Printer cable, MFJ-5412, \$11.95.

Save several pages of text in memory for later reading or review.

High Performance Modem

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

Easy to use, tune and read

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

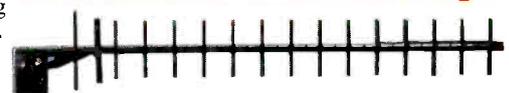
It's easy to tune -- a precision tuning indicator makes tuning your receiver easy for best copy.

It's easy to read -- front-mounted 2 line 16 character LCD display has contrast adjustment.

Copies most standard shifts and speeds. Has

MFJ *AutoTrak™* Morse code speed tracking. Use 12 VDC or use 110 VAC with MFJ-1312D AC adapter, \$15.95. 5/4Wx2 1/2Hx5 1/4D inches.

WiFi Yagi Antenna -- 15 dBi 16-elements extends range



16-element, 15 dBi WiFi Yagi antenna greatly extends range of 802.11b/g, 2.4 GHz WiFi signals. 32 times stronger than isotropic radiator. Turns slow/no connection WiFi into fast, solid connection. Highly directional -- minimizes interference.

N-female connector. Tripod screw-mount. Wall and desk/shelf mounts. Use vertically/horizontally. 18Wx2 3/4Hx1 1/4D inches. 2.9 ounces.

MFJ-5606SR, \$24.95. Cable connects MFJ-1800/WiFi antennas to computer.

Reverse-SMA male to N-male, 6 ft. RG-174.

MFJ-5606TR, \$24.95. Same as MFJ-5606SR but Reverse-TNC male to N-male.

Eliminate power line noise!



MFJ-1026
\$189⁹⁵

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

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, \$15.95.

High-Gain Preselector

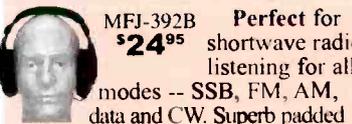
High-gain, high-Q receiver preselector covers 1.8-54 MHz. Boost weak signals 10

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, \$15.95.

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 Shortwave Headphones



MFJ-392B
\$24⁹⁵

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.

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 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.

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.



MFJ-1777
\$49⁹⁵
Ship Code A

MFJ Antenna Switches

MFJ-1704
\$69⁹⁵

MFJ-1702C
\$29⁹⁵

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 24/12 Hour Station Clock

MFJ-108B, \$21.95. Dual 24/12 hour clock. Read UTC/local time at-a-glance. High-contrast 5/8" LCD, brushed aluminum frame. Batteries included. 4 1/2Wx1Dx2H inches.

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The Eleventh Hour

Smarter people than I will say they've been going to hamfests for dozens of years and that attendance figures are all about many things, including the sunspots—or lack thereof. I don't think that's entirely the case. Smarter people than even *those smart people* will point to the Internet as the reason why interest in certain aspects of the hobby is, for lack of better descriptive word, waning.

It really doesn't take a Ph.D. or three-mile-long, "I've been in the hobby radio business for umpteen years" résumé to see some of the things that continue to cause our hobby to lose some momentum. Sometimes I think many of those who *have* been around all those dozens of years are part of the problem, not the solution. Witness the way some hamfest organizers are more of a roadblock than a welcoming committee for vendors, in some instances remaining stubbornly unresponsive to repeated phone calls for information and generally unprofessional in their interaction with exhibitors...when there *is* interaction.

The waning interest that many perceive is, however, no one group's fault *per se*—we all share in our hobby's current state of affairs. Before you run out thinking that I'm suffering from the "Chicken Little syndrome" let me assure you that I am not. We'll let the crowds speak as facts.

If you talked with a few dozen exhibitors at the recent Dayton Hamvention as I did, for example, you'd come away with the nagging feeling that at one end of the truth spectrum are the Hamvention Gurus telling attendees at the closing day give-away presentations that attendance was in excess of 20,000. Try telling that to the longtime indoor exhibitor who says attendance was down (perhaps "traffic" past their tables is more accurate) from previous years. Some told me they had a "phenomenal" three days; others said it was no different from last year. Go figure.

Let's face it; the shows are more about sales—the bottom line—than mere attendance figures and even traffic. And coming to the table publicly, so to speak, with those figures is, as you might imagine, not easy. My gut tells me that the attendance figures at many shows, including Dayton, are somewhat inflated for obvious reasons. All I know is that when moving about from hall to hall nowhere was I doing the proverbial "Post Op Recovery Shuffle" as I had in some previous years.

If you take a moment and think about all the wonderful things we're doing in the hobby—like youngsters at the controls of many stations, Field Days, foxhunts, contesting, special events stations, disaster assistance, community involvement with parades and the like, ARISS, and AMSAT—you can't help wonder why older American males are still the predominant demographic of the hobby. Where *are* those newcomers we all talk about needing, but still don't see in substantial numbers?

Frankly, I think they're among us, but just aren't that visible. And they're and certainly not filling the exhibit halls. It's like going to the zoo and only seeing kids in strollers and other kids running next to their parents. The *parents* are indeed there, as are thousands of other adults, but they're outnumbered by all the kids. The opposite is true in most aspects of our hobby, from amateur radio to scanning.

I met a young gal at Dayton, named Emily Bishop, W6EMB, an *Extra* class amateur. Emily is 11 years old, very well spo-

"How many of you at 11 years old wanted to hear old war stories from Gramps? How many of you as youngsters were really interested in getting a ham license when CB worked just fine? The CB figures of the time, licensed and unlicensed, attest to a vast cross-section of America that far surpassed ham radio."

ken, polite, and well, honestly, someone we all need to *look up to* as an example of radio's future. She and her family are the best ambassadors for our radio hobby, better than any big-time PR effort I can imagine.

I'm sure there are many of you reading this who are saying, "'Look up to?' what are you thinking?" I'll cut right to it: Here's a young pre-teen who has—in a very fast-paced world with more homework and tests than you or I ever saw during our formative years and with more peer pressure than we oldsters can imagine—mastered the fine art of focusing on a goal outside the everyday grind of school life. And not only did she pass her amateur test, but became an Extra class licensee! If you're thinking, "So, I got my license in 1958 and built my own code practice oscillator, transmitter, and receiver," what you're really saying is that amateur radio really began when you were licensed and that anything Post-My-License-Date is not as hard-earned as yours was. *That*, my friends, is a good part of the reason there aren't more Emilys in our hobby.

Let's do a show of hands, please: How many of you at 11 years old wanted to hear old war stories from Gramps? How many of you as youngsters were really interested in getting a ham license when CB worked just fine? The CB figures of the time, licensed and unlicensed, attest to a *vast* cross-section of America that far surpassed ham radio. Sure there were plenty of problems associated with CB, but the bottom line is that it was *fun*. Cranky folks got pushed to the side, replaced tenfold by newcomers who wanted to join that fun.

It seems to me that as a society we're becoming increasingly isolated in our own little cell phone/iPod/Google bubble—a world where radio is perceived by non-hobbyists as less fun than downloading hundreds of tunes or connecting with friends across town or around the world in a chat room. Collectively we're not reaching out, telling others about all the fun aspects of our hobby. And we're not even making time for ourselves to really sit down for a couple of hours and "play radio" or read a magazine like we did in the past.

I recall not one, but several, 80-year-olds at Dayton telling me they don't have the *time* to read their radio hobby publications. They've got piles of unread magazines, so they're not going to subscribe to any more. In many cases, they don't get to read current issues for two or three months! And truth is, they're not alone. That seems to be a recurring theme: we're busy—busy doing nothing.

Tell me, please, what *are* we doing that we're unable to take time for a *hobby* that's tons of fun? Sounds bizarre to me. Maybe Emily and others her age can teach us a lesson. Let's hope so. ■

News, Trends, And Short Takes

RRI Broadcasting News Domestically In Eleven International Languages

Indonesian state broadcaster RRI has begun broadcasting news domestically in 11 international languages in an effort to provide foreigners in Indonesia with factual and accurate information, according to its Director Parni Hadi. The 11 international languages RRI has been using are Arabian, English, French, German, Indonesian, Japanese, Korean, Malaysian, Mandarin, Spain and Thai. Two more foreign languages the Indonesian radio station will use in the future are Russian and Italian.

Voice of America Launches VOAMobile.com

The Voice of America has launched VOAMobile, an all-text English version of top stories for use on Web-enabled handheld devices, such as cell phones and PDAs. VOA Mobile allows users worldwide to access text versions of top news stories in a user-friendly format. The content is generated from the VOANews.com home page and will be updated, almost hourly, seven days a week.

VOA Planning To Close More Language Services

The Voice of America has decided to shut down its daily 90-minute shortwave radio service in Hindi, citing budgetary cutbacks and the emergence of TV and the Internet in India. Private FM radio stations have also affected its listenership, according to Jagdish Sareen, editor, VOA Hindi, as quoted by the Indian website DNA.

The decision by the Broadcasting Board of Governors is pending, with the U.S. Congress' final approval necessary. The website quotes Brian Mabry, senior public affairs advisor at Voice of America, as saying, "Along with VOA Hindi, our services in Albanian, Bosnian, Serbian, and Russian will also stop."

Time Signal Station MSF Moving To New Location

MSF is the radio signal that broadcasts the national time standard for the UK. Beginning in April 2007 the MSF service broadcast will transfer to Anthorn. Until then it will continue to be broadcast from Rugby. The MSF signal is the principal means of disseminating the UK national standards of time and frequency, which are maintained by the National Physical Laboratory. Transmission is 24 hours a day and the carrier frequency is maintained at 60 kHz.

The MSF 60-kHz standard time and frequency service is funded by the Department of Trade and Industry (DTI) as part

of its provision of time and frequency measurement standards in the UK. The maintenance and development of those standards is carried out by the National Physical Laboratory (NPL), with the MSF 60-kHz signal currently being transmitted from the Rugby Radio Station by BT Radio Engineering Services under contract from NPL. The signal from Anthorn will be generated using atomic clocks and time code equipment provided by VT Communications. The broadcast signal is monitored and controlled relative to the national time standard at the NPL site in Teddington.

WorldSpace Gets Approval For Satellite Radio Service In Italy

WorldSpace Satellite Radio has announced that WorldSpace Italia SpA has received approval from the Italian Ministry of Communications to launch a subscription satellite radio service in Italy. With this authorization, the Ministry has granted WorldSpace Italia the right to provide a subscription-based satellite radio and data service to consumers in Italy, and to use the frequency band 1479.5 to 1492 MHz for the operation of the corresponding hybrid satellite/terrestrial network.

WorldSpace Italia anticipates launching Europe's first satellite digital radio and data service to portable and vehicular devices in 2007, using one satellite already in orbit and a terrestrial gap-filler network to be rolled out in all major cities throughout Italy. The company intends to start rolling out this complementary network as soon as its installation plan, currently under finalization, is approved by the Ministry. At the service's maturity, subscribers in Italy will have access to approximately 50 channels of diversified sports, talk, and commercial-free music programming.

North Korea Jams Shortwave Broadcasts Tracing Missing Nationals

Shortwave radio broadcasts by a Japanese group investigating missing Japanese believed to have been abducted by North Korea have been jammed by North Korea since early May. Unknown transmissions emitted from within North Korea have been confirmed and are believed to have been jamming the shortwave radio broadcasts.

The group, known as the Investigative Commission on Missing Japanese Probably Related to North Korea, broadcasts the program "Shiokaze" twice a day on shortwave radio through a British company. It can be heard in North Korea, as well as in areas near the North Korean border in China and in the northern part of South Korea. The program, which began in October last year according to the group's website, is aimed at rescuing the missing Japanese nationals by broadcasting

(Continued on page 82)

OUR READERS SPEAK OUT

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, Editor, Popular Communications, 25 Newbridge Road, Hicksville, NY 11801-2909, or send e-mail via the Internet to popularcom@aol.com.

What Paul Likes

Dear Editor:

You really put a *super* issue together this month! Your "Tuning In" articles are always great! "Tech Showcase," "Homeland Security," "Ham Discoveries," and "Radio Resources" were my favorites this month. The rest of the issue was excellent also.

Paul, K6PAW
Via e-mail

Remember The Frequency?

Dear Editor:

The other day when CBS' Dan Rather announced he was leaving the network, I got thinking about his career and how he was assaulted in New York by someone asking, "What's the frequency, Kenneth?" What ever happened with that situation? Anyone caught? And what was the frequency?

Thank you for a great magazine.

George Whitley, Nebraska
Via e-mail

Dear George:

From what I recall there were actually two assailants who purportedly attacked Rather on Park Avenue in Manhattan back in 1986. A couple of songs were released based on the alleged attack, and a fellow named William Tager was arrested for the murder of an NBC technician in 1994. It was reported that Tager was the same person who mugged Rather. Chalk this one up to one of those mysteries of the media—meaning we'll probably never know with certainty what really happened.

Tager, it seems, was convinced that the networks were beaming signals into his head and, as the story goes, and he wanted to know the frequency. I'm still confused, though, because we don't know anything about "Kenneth." Besides, the networks have been beaming signals into our heads for years—that's why you keep humming the "Oh Fab, I'm glad there's lemon-fresh..." So what else is new?

Government Question

Dear Editor:

I've read your "Tuning In" articles for some time and am convinced you should run for office. I don't know what party would be appropriate for you, but if you run in Florida I'll vote for you. You could have a slogan similar to President Truman's: "Give 'em hell, Harold!"

Christopher Gallup, Florida
Via e-mail

Dear Christopher:

Interesting thought, and thank you, but I'm too honest. By the way, after reading your e-mail I was curious about that Truman slogan and checked it out. I learned from several sources, including an old hard-cover encyclopedia in my office, that Truman was actually responding to a spectator during a speech who yelled, "Give 'em hell, Harry!" to which Truman answered, "I never gave anybody hell! I just told the truth and they thought it was hell."

Ditto, I'd say. We've got to continually hold their feet to the fire and question motives—to *not* do so is the most unpatriotic action we can take. Right now, though, I'm literally running for an office because writer Rich Arland just brought in a big box of donuts and coffee!

Great Timing!

Dear Editor:

I'm new to the radio hobby and want to buy a scanner, but with all the radios it's very confusing. Can you suggest a good one? I live near Chicago.

Charles Barclay
Via e-mail

Dear Charles:

Your letter came at just the right time because in this issue columnist Ken Reiss has an excellent in-depth look at what you need to know before buying a new scanner. The column begins on page 11 and will certainly help you a great deal. Good luck and enjoy the hobby!

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SCANNERS



Bearcat® 796DGV Trunk Tracker IV with free scanner headset

Manufacturers suggested list price \$799.95
CEI Special Price \$519.95

1,000 Channels • 10 banks • CTCSS/DCS • S Meter
Size: 6 1/16" Wide x 6 8/18" Deep x 2 3/8" High

Frequency Coverage: 25,000-512,000 MHz., 806,000-956,000 MHz. (excluding the cellular & UHF TV band), 1,240,000-1,300,000 MHz.

When you buy your Bearcat 796DGV TrunkTracker package deal from Communications Electronics, you get more. The GV means "Great Value." With your BC796DGV scanner purchase, you also get a **free deluxe scanner headphone** designed for home or race track use. Headset features independent volume controls and 3.5 mm gold right angle plug. The 1,000 channel Bearcat 796DGV is packed with features to track Motorola Type I/II/III Hybrid, EDACS, LTR Analog Trunk Systems and Motorola APCO 25 Phase I digital scanner including 9,600 Baud C4FM and CQPSK. Also features control channel only mode to allow you to automatically trunk many systems by simply programming the control channel, S.A.M.E. weather alert, full-frequency display and backlit controls, built-in CTCSS/DCS to assign analog and digital subaudible tone codes to a specific frequency in memory, PC Control and programming with RS232C 9 pin port (cable not supplied), Beep Alert, Record function, VFO control, menu-driven design, total channel control and much more. Our CEI package deal includes telescopic antenna, AC adapter, cigarette lighter cord, DC cord, mobile mounting bracket with screws, owner's manual, trunking frequency guide and one-year limited Uniden factory warranty. For maximum scanning enjoyment, order magnetic mount antenna part number ANTMMBNC for \$29.95. For complete details, download the owners manual from the www.usascan.com web site. For fastest delivery, order on-line at www.usascan.com.

Bearcat® BCT8 Trunk Tracker III

Manufacturer suggested list price \$299.95

CEI Special Price \$169.95

250 Channels • 5 banks • PC Programmable

Size: 7.06" Wide x 6.10" Deep x 2.44" High

Frequency Coverage: 25,000-54,000 MHz., 108,000-174,000 MHz., 400,000-512,000 MHz., 806,000-823,995 MHz., 849,0125-868,995 MHz., 894,0125-956,000 MHz.

The Bearcat BCT8 scanner, licensed by NASCAR, is a superb preprogrammed 800 MHz trunked highway patrol system scanner. Featuring TrunkTracker III, PC Programming, 250 Channels with unique BearTracker warning system to alert you to activity on highway patrol link frequencies. Preprogrammed service searches makes finding interesting active frequencies even easier and include preprogrammed police, fire and emergency medical, news agency, weather, CB band, air band, railroad, marine band and department of transportation service searches. The BCT8 also has preprogrammed highway patrol alert frequencies by state to help you quickly find frequencies likely to be active when you are driving. The BCT8 includes AC adapter, DC power cable, cigarette lighter adapter plug, telescopic antenna, window mount antenna, owner's manual, one year limited Uniden warranty, frequency guide and free mobile mounting bracket. For maximum scanning enjoyment, also order the following optional accessories: External speaker ESP20 with mounting bracket & 10 feet of cable with plug attached \$19.95. Magnetic Mount mobile antenna ANTMMBNC for \$29.95.



Bearcat® BCD396T Trunk Tracker IV

Suggested list price \$799.95/CEI price \$519.95
APCO 25 9,600 baud compact digital ready

handheld TrunkTracker IV scanner featuring Fire Tone Out Paging, Close Call and Dynamically Allocated Channel Memory (up to 6,000 channels), SAME Weather Alert, CTCSS/DCS, Alpha Tagging.
Size: 2.40" Wide x 1.22" Deep x 5.35" High

Frequency Coverage:

25,000-512,000 MHz., 764,000-775,9875 MHz., 794,000-823,9875 MHz., 849,0125-868,8765 MHz., 894,0125-956,000 MHz., 1,240,000 MHz.-1,300,000 MHz.

The handheld BCD396T scanner was designed for National Security/Emergency Preparedness (NS/EP) and homeland security use with new features such as **Fire Tone Out Decoder**. This feature lets you set the BCD396T to alert if your selected two-tone sequential paging tones are received. Ideal for on-call firefighters, emergency response staff and for activating individual scanners used for incident management and population attack warning.



Close Call Radio Frequency Capture - Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. Useful for intelligence agencies for use at events where you don't have advance notice or knowledge of the radio communications systems and assets you need to intercept. The BCD396T scanner is designed to track Motorola Type I, Type II, Hybrid, SMARTNET, PRIVACY PLUS, LTR and EDACS® analog trunking systems on any band. Now, follow UHF High Band, UHF 800/900 MHz trunked public safety and public service systems just as if conventional two-way communications were used. **Dynamically Allocated Channel Memory** - The BCD396T scanner's memory is organized so that it more closely matches how radio systems actually work. Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 3,000 channels are typical but **over 6,000 channels are possible** depending on the scanner features used. You can also easily determine how much memory you have used and how much memory you have left. **Preprogrammed Systems** - The BCD396T is preprogrammed with over 400 channels covering police, fire and ambulance operations in the 25 most populated counties in the United States, plus the most popular digital systems. **3 AA NIMH or Alkaline battery operation and Charger** - 3 AA battery operation - The BCD396T includes 3 premium 2,300 mAh Nickel Metal Hydride AA batteries to give you the most economical power option available. You may also operate the BCD396T using 3 AA alkaline batteries. **Unique Data Skip** - Allows your scanner to skip unwanted data transmissions and reduces unwanted birdies. **Memory Backup** - If the battery completely discharges or if power is disconnected, the frequencies programmed in the BCD396T scanner are retained in memory. **Manual Channel Access** - Go directly to any channel. **LCD Back Light** - A blue LCD light remains on when the back light key is pressed. **Autolight** - Automatically turns the blue LCD backlight on when your scanner stops on a transmission. **Battery Save** - In manual mode, the BCD396T automatically reduces its power requirements to extend the battery's charge. **Attenuator** - Reduces the signal strength to help prevent signal overload. The BCD396T also works as a conventional scanner to continuously monitor many radio conversations even though the message is switching frequencies. The BCD396T comes with AC adapter, 3 AA nickel metal hydride batteries, belt clip, flexible rubber antenna, wrist strap, SMA/BNC adapter, RS232C cable, Trunk Tracker frequency guide, owner's manual and one year limited Uniden warranty. Not compatible with AGEIS, ASTRO or ESAS systems. Order on-line at www.usascan.com or call 1-800-USA-SCAN.

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Bearcat® BC246T Trunk Tracker III

Suggested list price \$399.95/CEI price \$214.95
Compact professional handheld TrunkTracker III scanner featuring Close Call and Dynamically Allocated Channel Memory (up to 2,500 channels), SAME Weather Alert, CTCSS/DCS, Alpha Tagging.
Size: 2.72" Wide x 1.26" Deep x 4.6" High

Frequency Coverage:

25,000-54,000 MHz., 108,000-174,000 MHz., 216,000-224,980 MHz., 400,000-512,000 MHz., 806,000-823,9875 MHz., 849,0125-868,9875 MHz., 894,0125-956,000 MHz., 1,240,000 MHz.-1,300,000 MHz.

The handheld BC246T TrunkTracker scanner has so many features, we recommend you visit our web site at www.usascan.com and download the free owner's manual. Popular features include **Close Call Radio Frequency Capture** - Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. **Dynamically Allocated Channel Memory** - Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 1,600 channels are typical but **over 2,500 channels are possible** depending on the scanner features used. You can also easily determine how much memory is used. **Preprogrammed Service Search (10)** - Makes it easy to find interesting frequencies used by public safety, news media TV broadcast audio, Amateur (ham) radio, CB radio, Family Radio Service, special low power, railroad, aircraft, marine, racing and weather frequencies. **Quick Keys** - allow you to select systems and groups by pressing a single key. **Text Tagging** - Name each system, group, channel, talk group ID, custom search range, and S.A.M.E. group using 16 characters per name. **Memory Backup** - When power is lost or disconnected, your BC246T retains the frequencies that were programmed in memory. **Unique Data Skip** - Allows the BC246T to skip over unwanted data transmissions and birdies. **Attenuator** - You can set the BC246T attenuator to reduce the input strength of strong signals by about 18 dB. **Duplicate Frequency Alert** - Alerts you if you try to enter a duplicate name or frequency already stored in the scanner. **22 Bands** - with aircraft and 800 MHz. The BC246T comes with AC adapter, 2 AA 1,800 mAh nickel metal hydride batteries, belt clip, flexible rubber antenna, wrist strap, RS232C cable, Trunk Tracker frequency guide, owner's manual and one year limited Uniden warranty. For more fun, order our optional deluxe racing headset part #HF24RS for \$29.95. Order now at www.usascan.com or call 1-800-USA-SCAN.



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Intrusion Into The Ham Bands: Strange, Out-Of-Place Signals

**Don't Clean Your Glasses, Or Fine-Tune Your Receiver.
Murray And Company Have Control Of What You See And
Hear For The Next Few Minutes...**

by Murray Green, K3BEQ

What we sometimes hear with our scanners or on the ham bands isn't always what we could call "normal." And some things are chalked up as curious, if not downright mysterious. Over three decades of operating and maintaining two VHF amateur radio repeaters in the Washington, D.C., metropolitan area, the Green Mountain Repeater Association (GMRA) has had its share of unusual repeater interference problems.

Most repeaters cannot escape a *certain* amount of interference, but what I'm about to describe borders on the bizarre. All of the incidents were documented and some forwarded to FCC Enforcement as a matter of record. I am pleased to report that every case was handled amicably, dirty transmitters taken off the air or corrected, and illegal use of the Amateur Radio Service spectrum eliminated. That said, get ready to be entertained!

Glider Mania?

On a clear Sunday afternoon, the GMRA 146.610-MHz repeater erupted suddenly with communications between a glider pilot and its towing aircraft. It took a few minutes to figure out exactly what was going on, but when the glider pilot said, "Disengage tow—wow it's beautiful up here," we sort of got the message. They were apparently using the repeater's input frequency of 146.010 MHz, not realizing they were keying up the repeater. (There is a 600-kHz separation between the input and output frequencies to avoid desensing.)

A control operator made contact with the glider pilot, informing him that unless he had an amateur radio license he was illegally operating in a spectrum exclusively allocated to the Amateur Radio Service. The pilot acknowledged the transmission but said nothing more. His signals soon began to fade away as his glider flew out of range. It was assumed that either the pilot's were using ham radio equipment or commercial equipment improperly set to the wrong frequency. Why the pilots were not using FAA-approved radio frequencies is unknown. No further incidents have been heard.

Cars And Kids

At precisely 3:30 p.m. weekdays, the following transmissions were heard on the 146.610 MHz repeater: "Car 321, car 341, car 240." "Zimmerman's ok, Callahan's ok, 221 ok," etc., etc. This went on for about 30 minutes. One of our members called a control operator and said that he was hearing the signal on 146.000 MHz on his handheld with a rubber duck antenna, full strength—a good sign he was very close to the source. He also recognized one of the names mentioned on the air as a family living across the street from him. (The closeness to the



The civilian air band is where comms between a pilot and a glider belong, not on 146.010 MHz!

repeater's input frequency of 146.010 MHz made the transmissions readable on the output frequency of 146.610 MHz.)

After some brainstorming, it appeared that the frequency was being used by school representatives to coordinate the pick-up of students by parents or relatives. The numbers were assigned to cars, while other numbers were recognized and names transmitted to teachers to release the student(s).

We discovered the name and location of the school, and the next day two control operators parked in the school lot. Cars began to line up. At precisely 3:30 p.m. a man came out of the school entrance with a handheld and literally blew us away as we listened to him on 146.000 MHz, directing pickup of students. As soon as the traffic departed, we approached the official, introduced ourselves, and explained the problem. He was using a commercial handheld and said he would check it out with the distributor. No further transmissions were heard.

A Helicopter And Chase Vehicles

One weekend partially distorted signals were keying up the repeater. A sweep of the 2-meter band showed that some sort of government communications were being conducted on 146.025 MHz and splattering over to 146.010 MHz and activating the 146.610-MHz repeater. (The 146.025/146.625-MHz repeater in nearby Arlington, Virginia, requires a Private Line, or PL, tone



An unsolved radio mystery unfolded as licensed ops heard what appeared to be transmissions coming from a control operator in a helicopter who was coordinating chase vehicles in the Washington, D.C., metropolitan area. In another instance, about a week later, the repeater was activated by a nearby transmission from operator coordinating personnel on the ground. A possible military operation? We'll never know the answer. (DoD photo by Lance Cpl. Donald R. Storms, U.S. Marine Corps.)

to activate its receiver. Therefore it was not being interfered with and its users were unaware of the problem.)

The exchanges appeared to be coming from a control operator in a helicopter who was coordinating chase vehicles in and around the Washington, D.C., metropolitan area, including Northern Virginia and Maryland. Whether or not it was an exercise is unknown.

A ham in Bowie, Maryland, who was monitoring the event said that the helicopter was almost directly over his home and he could hear the propeller and voice transmission quite loudly on 146.025 MHz. They both faded as the helicopter flew away. No attempt to contact the operators was made, primarily out of total surprise by the event. After about an hour or so of exchanges, they were terminated by their control operator. No further helicopter incidences were heard.

However...

The Aircraft!

About a week or so later, similar voice transmissions were again heard on 146.025 MHz, splattering over to 146.010 MHz and activating our repeater. This time it appeared to be coming from an aircraft coordinating personnel on the ground.

Contact was made with the aircraft operator, informing him of his illegal operations. The operator was then heard saying, "All stations unplug channel 3, repeat unplug channel 3." The interference never returned. Again, why authorized FAA aircraft frequencies were not being used is unknown.

The Open Microphone— Home For The Holidays

A continuous signal timed out our 146.880-MHz repeater. The signal contained no audio, although a tapping noise could be heard in the background. At first, the tapping sounded like someone typing on a computer keyboard. We assumed the open-mic transmitter was in someone's radio shack. However, a call from a local ham advised that he could hear on his HT a strong signal on the repeater's *input* frequency of 146.280 MHz. He noted that it was raining heavily at his residence and the rain coincided with the tapping noise heard through the open mic. We, therefore, suspected the mic to be in a parked vehicle in close proximity to the ham's house.

Now aware of the approximate location, a number of members cruised the area using DFing (direction-finding) equipment. They got lucky. An empty

out-of-state pickup truck with ham tags was emitting a strong signal from its parking spot in front of a private home. Contact with the residents revealed the ham was visiting for the holidays and inadvertently left his transmitter on and the microphone stuck in the transmit position. Case closed.

Emergency Dispatch Vehicles

An unknown signal was periodically activating our two repeaters. The transmissions were of short duration, making DFing very difficult. However, a member was mobilizing while listening to the repeater input frequency, and said it was full quieting (solid signal into the repeater) in a specific area of town. Additionally, we were able to determine that the offending transmitter was in the 154-MHz range and was being used to dispatch *ambulances*. The signal also varied ± 20 kHz from its center. But what was most unusual about the interference was that it occurred *after* each dispatch transmission, not during.

The transmitter site was in a secure area, but luckily one of our members had access to it. He talked the problem over with some helpful tech reps who discovered a faulty component in their com-

mercial repeater. The representatives confirmed that a weak roaming oscillator spur was being emitted immediately after a transmission. Because of the height of the antennas involved (theirs was 250 feet, ours 300), coupled with a line-of-sight spacing of about five to seven miles, even a low-power signal was sufficient to create interference. Although it initially took about a month to track down the faulty transmitter, once the problem was identified it was corrected over the course of only two days.

Police Repeater

One afternoon police transmissions were being received over one of our repeaters. At first we thought it might be someone illegally re-broadcasting, but a member was able to quickly identify the frequency of the transmissions and, subsequently, the specific police department. Our repeater licensee contacted the tech rep, who coincidentally was a ham. He advised that the police repeater had just been installed and apparently was not tuned properly, promising that it would be corrected the next day. He was true to his word, and the interference stopped. Hams in the right places make things happen quickly.

Pager Transmitter

Here's a most interesting case. It seemed that on most days our repeater was being activated intermittently between the hours of 11 p.m. and 6 a.m. The initial consensus was that everyone was sleeping at that time, so no one was listening, so it wasn't a problem. *Wrong!* Some of our control operators did monitor and complained, rightly so, that it was interfering with their sleep. And so the hunt began. Fortunately, the tones of the pager were isolated to a specific frequency and we were able to pick up a CW identification, making it relatively easy to locate the owners. The company tech rep was contacted and informed of the problem. We were lucky: it turned out that he was quite tenacious and didn't mind being awakened at midnight.

To shorten the story, there was a string of pagers serving customers around Baltimore and another around Washington, D.C. The rep was able to quickly turn off the Baltimore ring during the interference, turn it back on, and then do the same thing with the D.C. system. The latter was the culprit, or at least



A stuck mic was the culprit (as it is in many cases!), but never fear, the mystery was solved.

one of the pagers within the ring was. Unfortunately, finding the individual pager transmitter would require him to visit *each* facility. It took a couple of weeks, but the faulty transmitter was finally located, thanks to a persistent tech rep and club members working with him. They lost a lot of sleep.

The unusual part of this discovery was that the pager was running only 4 watts to a low-profile antenna in a facility about five miles from the repeater. *The facility closed after 6 p.m.* Why the pager activated and emitted a spur to the input of our repeater frequency only during the above hours remains a mystery. Shades of *The Twilight Zone!*

The Buzzing Tone, An Unsolved Mystery

This was a very strange one. An intermittent commercial signal was throwing out a spur that was activating the repeater and emitting a buzzing tone. Once again, one of our members picked up a strong signal on the input frequency of our repeater while driving through a specific area of town. It was a particularly hot summer week when the repeater licensee and I, handhelds in tow, went to the vicinity of the interference. Now, if you can hear a signal *without* the handheld antenna attached, you know you're on top of it! It took about six hours, but the dirty transmitter was located.

The strange part of this find was that the antenna—a commercial vertical dipole—was bent to a rakish angle with its transmission cable leading to a some-

what dilapidated, unlocked wooden shack. Entering, we found a commercial transmitter in the on position, no license on the walls, and no personnel in the unsecured "facility." With no one to contact and the dirty transmitter creating interference, we simply turned it off and departed. We left a note attached to the wall outlining the problem, including our names, organization, and telephone numbers. No one ever called. The interference never returned. The year was 2000!

Epilogue

The majority of the above interference problems are understandable. Typically they result from equipment failures or use of purchased or leased equipment that had been incorrectly programmed by the seller or distributor. However, intrusion into a radio spectrum exclusively allocated to the Amateur Radio Service by what *appears* to be government or military surveillance tactical operations is not only strange, but also unacceptable. The ironic part of *their* transmissions was that they were heard throughout the entire Washington D.C./Baltimore/Northern Virginia area, apparently with absolutely no transmission security.

The bad news is that we were unable to isolate and pinpoint the intruders. The good news is that once challenged on the air, the intrusion stopped. *Maybe they got the message.*

We now return control of your magazine back to you. We wish you all lots of radio fun and adventures—and only mysteries you can *solve!* ■

Buying A Handheld Scanner

As summer begins to fade and our thoughts turn toward the upcoming fall season and its drop in temperatures, many of us also take stock of the radio shack. You may have slowed down on your radio activities because of summer distractions and that's perfectly normal. But right now might be a good time, since you've got a bit of a fresh eye, to take a look at your antenna situation and think about upgrading that radio before things get too close to the holiday season.

Changes in the two-way spectrum, and public safety in particular, over the past few years have made a lot of the older scanners so many of us are comfortable with suddenly out of date. Trunking and digital are the two big factors, but there's refarming and overcrowding which also play a role in how happy you are with your current receiver.

One of the fastest ways to start a discussion with scanner folks is for someone to ask the old question "Which radio should I buy?" Sometimes it almost comes down to "Tell me which radio to buy." I can certainly sympathize with the anxiety of committing to a particular radio, especially for first-time buyers, but even for those wanting to upgrade the anxiety is understandable. There are so many options these days, and it seems to be getting worse. My answer to this favorite question is always...more questions.

First Radio?

If you're just starting out and this is your first scanner, there are a number of special considerations to keep in mind. The first couple of questions are pretty critical, and after that it really comes down to how serious you are about monitoring.

First-time scanner listeners are often advised to buy handheld radios because they're portable and you can listen anywhere. This is probably good advice for most people, but not for everyone. If you know that you're going to put the radio in one spot and not move it again, or if you want the convenience of larger keys that many (but not all) base stations offer, don't let anyone persuade you otherwise. If you're not sure how you'll be listening, I'd probably recommend a handheld

and you can always buy a base or upgrade your radio later. Scanners, after all, are a lot like the popular snack food—you can't have just one.

The Big Three

Asking yourself the following three questions may do more than anything else to dictate which radios you can choose. Good answers here will also determine how happy you'll be with your choice in your area of the country. So let's get the big three out of the way first and then look at some other factors.

First Question: Do You Need Trunking Tracking

The absolute first thing you have to determine, whether this is your first radio or not, is if you need trunking capabilities, and if so what kind. Trunking refers to a particular type of radio system that's very popular around the country with two-way radio users because it offers a lot of convenience without much fuss for the users of the two-way system.

The events of 9/11 and the creation of Department of Homeland Security have made upgrading radio systems somewhat of a priority. The recent hurricane season reinvigorated this initiative, as there were a lot of public safety agencies that couldn't talk to each other in New Orleans during the Katrina recovery. As a result, new systems are being installed on an accelerated schedule, and many of them are trunked.

How can you find out if you need a trunk tracking scanner? Well, the best way is to ask a friend who's into scanning. Anyone who's been scanning in a particular area for any length of time will know whether or not the system they're listening to is trunked.

If you don't have a friend who can tell you, then you may have to do a little legwork. Try visiting a local scanner store. Often they have a list of frequencies that are available to scanner buyers. Sometimes, you'll get lucky and find a knowledgeable salesman who can really fill you in. Count your blessings if you do, but don't despair either if you don't get that lucky.



This racing scanner from Uniden is also a great all-around scanner if you don't need trunking or digital capability.

Look over that list for frequencies in the 800-MHz range in particular, but know that 700- and 900-MHz trunked systems are starting to show up, too. It won't be too long before the 450 to 512 band can be trunked as well. If you find that the agency you're interested in has a bunch (usually in groups of five to about thirty) in those ranges, there's a good chance that their system is trunked, and you'll need a trunking-capable scanner. These days, that's a pretty reliable indicator, but there are also a couple of issues you should also know about.

First, trunking is likely the way of the future. There are too many advantages, and unless someone comes up with compelling evidence (like agencies that can't talk to each other after a hurricane, but don't mind that), there are likely to be more and more trunked systems.

Second, even with a trunking scanner, there are a few trunking systems that can not be scanned. Most of them involve digital techniques or scrambling of speech deliberately for security purposes, but in any event those types of systems will not be scannable with any currently available receivers. Time may change this, too, as it wasn't that long ago that trunking scanners didn't even exist.

Popular Handheld Scanners

Digital Trunking

Models with Digital Trunking represent are the most versatile scanners you can buy if you're likely to encounter digital systems. Frequency coverage can be limited, however. Check out the following:

Uniden BCD396T	\$529.99
Radio Shack PRO-96	\$399.99

Trunking

If you don't need, or want, to pay for digital yet, a standard trunking scanner might be more your speed. Popular choices include:

Uniden BR330T	\$299.95
Radio Shack PRO-97	\$199.99
Radio Shack PRO-94	\$149.99

Non-Trunking

If you just need the basics there are some real bargains out there. Watch frequency coverage and channel/banks to make sure you'll be happy with your choice:

Radio Shack PRO-84	\$129.99
Radio Shack PRO-82	\$99.99
Radio Shack PRO-99	\$99.97
Uniden BC-72XLT (racing scanner)	\$89.95
Radio Shack PRO-83	\$69.97

Wideband Receivers

While typically not really scanners, most of these will scan and are preferred by some scanner enthusiasts for their high-end features. Note that none of these receivers will do trunk-tracking on their own. Models include:

AOR AR-8200 Mark III	\$589.99
ICOM R20	\$499.99
ICOM R3 (Built in TV)	\$349.99
Yaesu VR500	\$299.95
ICOM R5	\$199.99
Alinco DJ-X7T	\$169.95

Third, and perhaps a bit worrisome, is that more and more communications are moving to the public common carrier system: cell phones. Almost all the police cars and many of the fire department supervisors in our area carry cell phones for use in daily tasks that are best not discussed on the radio, or where the radio may not be an option. If they don't have one for official business, many officers carry their own just like you and I do. As more and more of this traffic moves to the cell phone, there will be less and less need for talk-around and detective channels. Again, as long as the network remains up and functioning, it's a viable and cheap alternative for many agencies which enjoy special rates from the cell carriers.

Second Question: Should You Go Digital?

It hasn't been all that long that we've even been asking this question, but it sure can eliminate some of your choices in a hurry. If you live in an area that uses a trunked system, there's a chance that the system is also digital. Digital is a double-edged sword, however. The good news is that you can now find scanners that will receive the APCO-25 digital standard; the bad news is that not all digital systems are APCO-25.

Here's another case where you'll have to do some homework to get an answer, but if you get any hint of the word "digital" be sure to proceed with caution, because you can wind up with an expensive radio that doesn't receive what you thought it would.

Third Question: What Frequency Coverage Do You Need?

The third most important question to ask before buying that new radio is what frequencies it covers. In the United States, all receivers will have the cellular frequencies in the 800-MHz range blocked, so that's not an option. Don't panic when you see restricted coverage in the 800-MHz region—it's just cellular telephones that are blocked out of the receiver. The public safety portion of the 800-MHz band is intact if the radio lists 800-MHz ranges as part of its coverage.

More importantly are the high and low bands, as well as other gaps that are common in scanner models. To cut cost, many of the more economical receivers leave out the VHF-Lo band (30 to 50 MHz) used by many state police agencies and fire departments. Or they will have the Lo band, but not include 800-MHz coverage at all. Both are perfectly acceptable if you don't need those ranges.

Common bands for middle-of-the-line scanners include the VHF-Lo band, VHF-High band (roughly 144 to 174 MHz), UHF (roughly 430 to 512 MHz) and "800." I say roughly because some manufacturers start and stop at slightly different places, or some of them consider each little portion of that frequency range a "band," so they can claim a 12- or 14-band scanner.

A good example of this is the ham band between 144 and 148 MHz. Then there are some military and government frequencies between 148 and 152 MHz before the "real" VHF-High band starts and runs from 152 to 162. The frequencies from 162 to 174 are another group that's broken up with many users, but primarily federal government users. There are four bands if you choose to count that way, and since it sounds better to have a 14-band scanner than a two- or three-band one, that's exactly what they do! You've been officially warned!

The civil aviation band of frequencies is another one that's fairly common on most mid-line scanners and up. This is AM modulation (as opposed to FM used for most public safety operations) and runs from 108 to 137 MHz. Of course, if you have an interest in airplanes, this is an essential band so check to make sure the scanners you're considering include it!

One range that's commonly left out on all but the top-of-the-line models is the 200- to 420-MHz range. This range is loosely called the military air band, and there are many military users in this region as well as a number of other federal agencies. If you're interested, you'd better make sure the radio includes this range. Most do not!

And while you're at it, make sure that you can select between AM and FM modes in this range if you want to hear the federal agencies in the upper portion of the range. Many scanners will switch for you but allow you to override that automatic selection. That's probably the best for maximum versatility.

Finally, be aware that it's difficult to get it all. If you have trunking, you likely won't find the military aviation band. If you have continuous coverage, some even down into the AM broadcast band all the way through 1200 MHz, you likely won't have trunking, and you may not have many of the common scanner features either. Be prepared to pick and choose, or to have more than one radio. See, I told you that you couldn't have just one.

Still More Questions

What About Price?

Probably the next most important consideration after you've determined the type of radio with the "big three" is what price level you can afford. It's easy to spend thousands of dollars on



Pay particular attention to frequency coverage. Not all models, particularly low-end units, include all bands. Military airband enthusiasts will have the most limited selection. It may be smarter to consider two radios if you need lots of features that aren't common.

high-end receivers, but if that's not what you had in mind, there's not much sense in throwing those receivers into your selection mix. It's simply not fair to compare receivers in the \$1,000 class with high-end scanners in the \$400 or \$500 range. It's a different class of radio and

the features are completely different. And if it doesn't make sense to you as to why someone would spend that much on a receiver like that, don't even look.

Number Of Channels?

The next function most people are after is a large number of channels. Somewhere around 1,000 seems to be about the right number for folks to ask for, but 500 or so is also a very comfortable level. In reality, even folks with 1,000-channel radios don't fill them all up. In fact, I'd guess there are a lot of 400-channel units that aren't full either. Don't get too wrapped up in the number of channels, as long as it's a big enough increase over what you have to make a difference. Or, if you're buying your first radio, look for something in the few hundred-channel range. Radios offering 200 to 500 channels are quite comfortable for most, but not all, beginners. Much depends on how much activity is around you that you want to concentrate on monitoring.

Number Of Banks?

This is probably a much more important consideration than number of channels. The whole idea of banks is to be able to organize and switch in and out channels that are of interest at the time. By having

large numbers of small banks, you can divide things up pretty well so you only have to scan what's of interest at a given time. The best radios in this regard have at least 10 banks, but 20 banks is nicer. Only a few of the high-end Uniden radios have this many banks, as far as I know.

Computer control of your scanner can eliminate the need for large numbers of both banks and channels, so that's also something to think about. Some newer radios allow you to program the number of channels in a bank, and the newest from Uniden don't really even deal with banks. Instead of a bank, they refer to a system, like a trunked system, and you add frequencies to it as needed. There is tremendous versatility in some of these radios.

Computer Control?

We should draw a line between computer memory management (the uploading and downloading of frequency sets into the existing scanner memories) and computer control (the actual giving over of the scanning process to an external computer). Both are good options and a lot of fun, but for a handheld, what you really need is memory management, as you won't be carrying a computer along most of the time.



The newest trunktrackers from Uniden, like this TrunkTracker III model, take a completely different approach to banks and channels. A computer is convenient for programming all the options available on these units.

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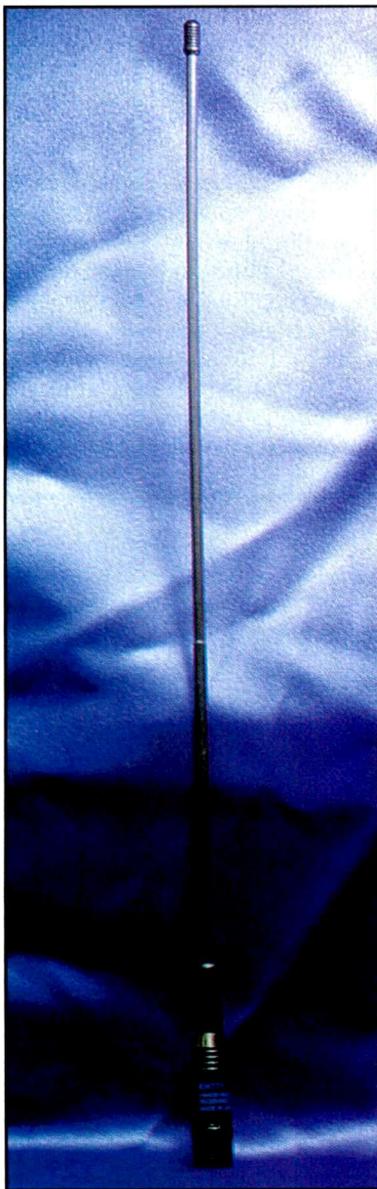
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Lots of software is out there for many types of radios. Frequently the manufacturer will provide a basic memory control program, and that may be quite adequate for most uses. Sometimes this is included in the package, sometimes it's an optional add-on. Memory management by a computer allows you to store until needed information and groups of frequencies that are not in use. Rather than re-program the entire receiver when something happens, you can simply reload the file and scan away.



Don't overlook add-on antennas even after you get your dream radio. This RH771, now carried by C. Crane, is an excellent performer but at the price of length. It's over a foot long and can be uncomfortable or inconvenient to carry. We'll have a more complete review coming soon.

Alpha Tags?

Scanning is becoming more complicated as we go forward. Keeping track of what's where and who uses which talk-group can be quite a memory exercise. If you don't have a good memory (like me), the next best thing to have is the ability to assign each channel an alphanumeric label. This feature is reserved for the higher-end models, but it can be a big help. It will also be very helpful to have computer memory management so you can program the alpha tags on such a scanner.

CTCSS?

Continuous Tone Code Squelch System, also known by the Motorola trade name Private Line, is becoming available on more and more units. If you're in or near a metropolitan area, this is a worthwhile option. We've discussed this in past columns, and no doubt will do so again when I get enough e-mail requesting it.

S-Meter?

A signal strength meter is something that most shortwave listeners would not be without. It allows you to see at a glance the incoming signal strength and to make comparisons between antennas, time of day, frequencies that are on at the same time, etc. For some reason, this feature has been left out of all but the high-end communications receivers and scanners in recent years. The first consumer-grade radios to offer this feature in years are the BC-895XLT (also a TrunkTracker) base radio and the Regency HS-200 and AOR AR-8000 handhelds. It's really a convenient feature in a handheld.

Other Considerations

There are lots of other features available. Some folks would not own a scanner without search lockouts, others never search. Auto search and store is a handy feature, too, if you do any searching. Selectable attenuation, delay function, priority operations, service search, weather scanning or alert functions,

Frequency Of The Month

Each month we ask our readers to let us know what they're hearing on our "Frequency Of The Month." Give it a listen and report your findings to me here at "ScanTech." We'll pick a name at random from the entries we receive and give the lucky winner a free one-year gift subscription, or extension, to *Pop'Comm*.

Our frequency this month is **453.550**. Plug it in and see what you hear. Let me know and we'll include you in our next contest drawing for a one-year subscription to *Pop'Comm*. Make sure you put the frequency on the envelope or in the e-mail subject line so it can be correctly entered. You can send your entry, or any questions you may have, via e-mail to radioken@earthlink.net, or the old-fashioned way to Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126. Until next month, Good Listening!.

selectable modes, and tuning dials are also features that have varying degrees of importance, depending on who you talk to. If none of these terms makes sense, relax. We'll take a look at defining a lot of them in a future "ScanTech."

Start Your Search

In the meantime, look around, collect some catalogs, and dive in. Once you've narrowed the field a bit, start asking around to see if you can find folks who've used the receivers you're interested in. Check the Internet and back issues of *Pop'Comm*. But, ultimately, only you will have to live with your final decision. Good luck! ■

Editor's note: This will be the final installment of The Adventures of Scanner Dweeb. We'll certainly miss "The Dweeb." If you're interested in doing a similar cartoon for us, please e-mail me at popularcom@aol.com.



RSGB Books available from



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.

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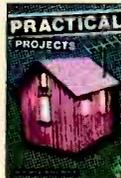
Antenna Toolkit 2

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.

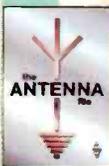
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The Antenna File

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!

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The Antenna Experimenter's Guide

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

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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**

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**

VHF/UHF Antennas

By Ian Poole, G3YWJ

RSGB, 2002 Ed, 128 pages. This great new book investigates the exciting area of VHF and UHF antennas. VHF and UHF bands provide an exciting opportunity for those wishing to experiment, while the antenna sizes at these frequencies do not occupy great amounts of space.



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What Do You Do When The Lights Go Out?

We all sit around watching the “boob-tube” or listening to our radios, surfing the Internet, or otherwise engage ourselves in daily activities, all the while taking electricity and the power grid for granted. When we lose commercial AC power we become annoyed at the very least or downright scared to death, depending upon the circumstances. All of a sudden that wonderful power grid we’ve been taking for granted for so very long is not available and our lives are turned on end.

Large scale electrical blackouts can be caused by hurricanes, tornadoes, wintry ice storms, severe flooding, or earthquakes, and small scale blackouts can be caused by a driver taking out a local utility pole or even a lightning strike from an electrical storm. And for the majority of us, the sudden loss of power derails our normal lives. Extended power outages (ask anyone who endured the ice storms on the East Coast a couple of years ago) can really put a crimp in our lifestyle. Suddenly we’re thrown into a chaotic tailspin where we’re no longer in control of our individual situations. This is one of the trade-offs for living in a technology-oriented world: when the power goes out all that technology is about as useful as a screen door in a submarine.

If the power outage happens during daylight hours we can manage to muddle through. If, however, this power outage occurs at night, it can be scary. Face it, folks, human beings are afraid of the dark.

Ask anyone who’s gone through any form of survival training, from the Boy Scouts to Jungle Survival School for the military, and you’ll find that the single most comforting thing during a survival situation is fire. That’s right, fire. Having even a small fire at night not only keeps us warm, but it also gives us a sense of security that we are in control of the situation to some degree. The same can be said for lighting during a power outage. Like the open fire, even a small light means that we have some control over what is happening in our lives. It gives us confidence and peels back the uncertainty of the darkness.

HOMSEC Power And Light!

So what *do* we do when the lights go out? Generating emergency power to pull us through a natural or man-made disaster or severe weather is not beyond the capabilities of most of us, if we just take a hard look at the amount and type of power we need while the power grid is off-line. If you are able to generate your own power off the power grid, you’re a major step or two ahead of everyone else in your affected area.

But how do you go about generating electrical power for your own use? Short of hitting the pet store and getting several dozen gerbils and letting them run inside a large circular cage hooked to a generator set, you gotta do a bit of planning.

There are myriad methods for generating electrical power, including (photovoltaic or PV), hydro-electric (more properly called “micro-hydro,” which involves moving water spinning a generator), aero-electric (wind generators), and fossil fuel (diesel, gasoline, coal, and natural gas). Of course, there’s always nuclear energy, but I think that building a small nuclear



Here’s a shot of my neighbor’s solar installation. This was a professional installation by Pennsylvania Power & Light (PP&L) as part of a solar power project to benefit PP&L subscribers. Looking at these PV panels, it appears that each is at least 60 watts, totaling 1200 watts of solar energy during peak generation periods. The output of these PV panels goes to a charge controller and battery bank in the basement. From there it’s converted to AC using a commercial inverter. It’s possible for homeowners who have similar installations to sell power back to their power company during peak production times. Not a bad deal, huh?

reactor is a bit beyond the scope of our readers (although, if you scraped enough radium off of old watch dials you could maybe...naw, not a good idea!). And let’s not forget about generating electrical power chemically with storage batteries or fuel cells.

All in all there are any number of methods for producing power. You, as the end user, have to determine which one(s) you can implement cost effectively and within the zoning regulations of your property. I seriously doubt that the City of Wilkes-Barre, Pennsylvania, would take kindly to my erecting three or four 100-foot towers with wind generators sitting atop them. However, adding several PV panels to the south roof of my three-story home would provide enough free, non-polluting solar energy to power my ham station and listening post (plus emergency low-voltage lighting) almost indefinitely.

Moreover, the PV panels would not degrade the property values in my neighborhood and could even be used as a selling point at some future date if we decided to off-load the house. Our neighbors to the rear of our property have done exactly that with the help and blessing of the city and Pennsylvania Power and Light (PP&L). Their south facing roof has several banks of PV panels feeding a battery bank and inverter in their basement. In short, they can generate power on a daily basis and, in

those times of excess power generation, they can actually sell some of it back to PP&L! Not a bad deal.

Planning, as is the case with any project of this kind, is paramount. You must set down some guidelines and tailor your electrical generating process accordingly. Going out willy-nilly and buying up a dozen 60-watt PV panels makes no sense if you don't have adequate sun-angle with a southern exposure. Get my drift? As with a project of this sort, it is best to do some homework and get smart on the various types of power generation that you can employ, which you can actually implement due to your location, and how much it will ultimately cost.

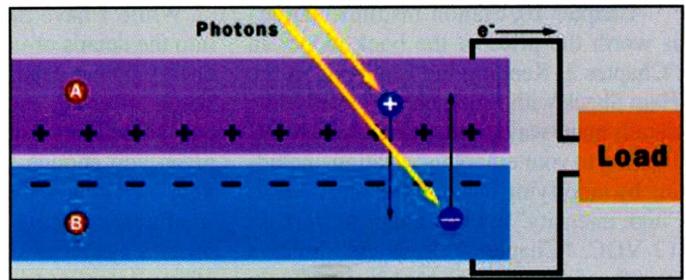
The Internet, of course, is a prime source of information on home-generated power. In 1974 *Mother Earth News* (that old bastion of common sense living) published a book called "Mother Earth News Handbook of Homemade Power (ISBN: 0553200771)." Long out of print (but available from Amazon.com from their used book sellers), this 30-year-old "how-to" guide is still worth procuring and reading. One story in the book was about wind power and described how a Jacobson wind generator taken to the South Pole in the 1940s provided ancillary power for the settlement. Twenty years later the same generator was still producing power for the Antarctic station, even though the blowing ice particles and snow had completely "bead blasted" the paint off of the wind generator housing! They don't make 'em like they used to.

Another informative and much more up-to-date book is *The Independent Energy Guide, Electrical Power for Home, Boat and RV* by Kevin Jeffery, published by Orwell Cove Press (ISBN: 0-9644112-0-2; cost: \$19.95 U.S.). This is an excellent reference work on the practical side of fabricating an energy producing system that will provide adequate power for day-to-day living at home or on the go.

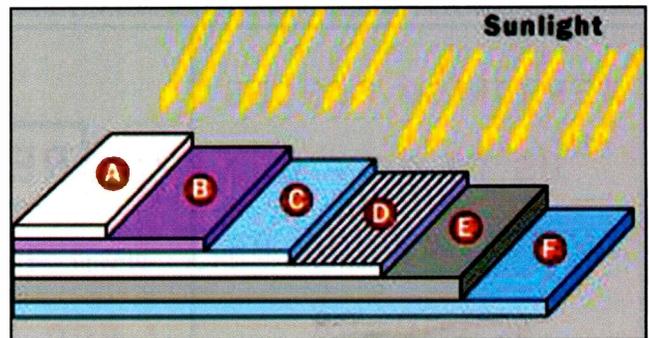
Jeffery does a good job of breaking things down for the lay person by splitting the book up into parts: "Part I, The Basics" covers just that, the basics of energy production including renewable energy sources. "Part II, DC Charging Sources" goes into the "how-to" of PV panels, ratings and performance, charging batteries, wind generators, fossil fuel generators and AC-to-DC battery chargers, etc. "Part III, AC Power Systems" covers changing DC to AC using power inverters, ratings and types of inverters, and how to properly size the inverter for your proposed power system. "Part IV, Storing Monitoring and Using Electrical Power" details various types of battery construction, ratings and performance, installation methods, charging techniques, and maintenance and safety. "Part V, Sizing and Selecting Your System" goes examines how to properly size and design your own personal power generation system. It's truly a "must-read" manual for the do-it-yourself power production engineer.

But I've saved the best for last. My good friend, fellow ham radio operator, and QRP buddy, Mike Bryce, WB8VGE, has recently authored a book called *Emergency Power for Radio Communications* and published by the American Radio Relay League (www.arrl.org; ISBN: 0-87259-953-1; cost: \$19.95).

Mike and I have known each other for over 25 years. He was my "go to guy" when I published my first book on QRP back in 1992. He helped me through the mine fields associated with providing the QRPer a renewable energy source using PV panels, a set of battery banks, and charge controller. Thanks to Mike, I was able to make sense of the multitude of ideas on the PV front and put them into a readable informative format for my fellow QRPers and emergency communications (EmComm) volunteers. For my second volume on QRP, Mike wrote the



This graphic shows the basic photovoltaic cell make up. There are two types of silicon material: N-Type (which lacks electrons in the lattice structure, resulting in more "holes") and P-Type (which has an overabundance of electrons in the lattice structure, making it rich in donor electrons). Sunlight hitting the PV cell causes a current flow: electrons in the P-Type material fall into the "holes" in the N-Type material, creating current flow in the PV cell.



This graphic shows the basic construction of the actual PV Panel: A is the cover glass; B the Anti-Reflective coating; C the Contact Grid; D the N-Type Silicon material; E the P-Type Silicon material; and F the Back Contact. All this is sandwiched together to make a panel that has no moving parts, and therefore an almost indefinite lifetime. While the initial costs of a solar generating system are high, the payoff comes in the longevity of the system, with typical systems lasting 20 to 30 years.

entire chapter on emergency power. Incidentally, Mike owns Sunlight Energy Systems, a solar power company that's a prime mover in the solar power industry. Talk about sitting at the feet of the Master!

Mike has authored several articles for *QST* describing his uniquely designed charge controllers for use with PV panels and his writings have also appeared in *CQ* magazine and other technical and trade publications. Mike has incorporated this information into his new book so we can all benefit from his extensive expertise. The book is a giant step in the emergency power area, presented in a single volume that should be on the shelf of every ham radio operator, EmComm volunteer, or anyone else interested in providing their own power off the national power grid. Mike's knowledge was gained through personal experience—his ham station has been running on renewable energy since 1978! Using a combination of PV (solar) power and wind power, Mike's station can stay on the air indefinitely.

The 12 chapters in *Emergency Power for Radio Communications* detail the various renewable and non-renewable power generation platforms currently available to the technically adroit hobbyist. Mike takes you step-by-step through the process of selecting which energy production system would be best for you, how to interpret the technical specifications of batteries, wind generators, PV panels, charge controllers, etc., and how to install and maintain your system. Planning, planning, planning is the underlying philosophy of this book.

"Chapter 10, Station Instrumentation" is worth the price of the book alone! In "Chapter 2, Keeping the Lights on in the Ham Shack with Emergency Power" Mike details many ways to adapt low-voltage DC lighting to your emergency station, including by modifying one of those old, defunct "high intensity" reading lamps to work on 12 VDC. "Chapter 9, Inverters" holds a wealth of information that is absolutely essential for anyone contemplating a renewable emergency energy system for a home, shack, boat, or RV.

I can honestly say regarding this book that "it just doesn't get any better than this." Thanks, Mike, you've made it easy for the rest of us.

While I have deliberately not gotten into the details of fabricating a renewable energy power generation system for your shack (after all, each case will be different, sometimes dramatically so), I have given you enough information to pursue your own course using these three books. In a future column I'll review, in detail, my own PV system as a starting point for those of you interested in becoming your own Power and Light entity.

Old Business

The National Registry of Certified EmComm Volunteers (NRCEV) is a

phrase EmComm volunteers need to become intimately familiar with. As detailed last month, the NRCEV is a private certification corporation that focuses on the proper training of EmComm volunteers. Like it or not, folks, the days when you could bail out your front door with a 2-meter HT, a bunch of battery packs, and a boatload of good intentions are over, O-V-E-R.

For one thing, professional disaster mitigaters are out to standardize procedures with the ultimate goal of having a trained, dependable staff available to man the various positions within the EOC or on-site command post. They realize the value of having a standardized set of qualifications for all staff. There's to be one game book and everybody must know the rules. It's that simple.

The World Radio Relay League (www.wrrl.org/) has been formed, ostensibly to establish training criteria for EmComm volunteers, much as NRCEV was. Its mission statement reads:

The mission of the World Radio Relay League (WRRRL) is to develop, promote and provide effective emergency communications by trained, skilled, and disciplined licensed amateur radio operators capable of accepting, originating, relaying, and delivering tactical and formal message traffic accurately, in a timely manner, on behalf of agencies (government and non-government) as well as the general public. This is accomplished through networks of fixed stations and field deployable Amateur Radio Communications Teams (ARCT). WRRRL does not rely upon existing infrastructure or commercial services. WRRRL operators observe all applicable laws, rules and regulations and use standardized operating procedures including the universal RADIOGRAM format for formal message traffic.

Will these two organizations peacefully co-exist? I certainly hope so. The last thing that ham radio needs is competing organizations within the emergency communications field. It is my sincere hope that once a standardized set of criteria is settled upon, everyone will get the necessary training to fulfill their EmComm obligations, regardless of affiliation with one or more private certification entities. The one thing we need here, people, is consistency, not divisiveness. In the meantime, get training. Take the ARRL Emergency Communications Courses online. Take the FEMA ICS courses. In the words of a red-neck friend of mine, "Get 'R done!"

Until next month remember: Preparedness is not optional! ■

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Our September Winner: Anita Morse, KB3NSU, Of Pennsylvania



Here's new ham Anita Morse, KB3NSU, in her Pennsylvania radio shack. Congratulations, Anita!

Pop'Comm reader Anita Morse, KB3NSU tells us,

We met during the recent Dayton Hamvention. At that time I told you that I was studying for my Technician class license and you told me that someone with my surname should most certainly be a ham. You also asked me to inform you when I got my ticket. Well, I recently passed the test and received my call-sign, KB3NSU. I am so happy to have received my license and I am now studying for my General class license.

I suppose I have always been interested and fascinated by radio. When I was young my sister and I used to use our portable radios in our beds at night. I noticed that the metal headboard of my bed seemed to increase the reception of distant stations at night, enhancing my ability to do what I now know as DXing.

We lived in a rural area of northern New York known as the "North Country." We received television by means of a rooftop antenna and only got three stations, one public television station and two stations from Canada. My sister and I noticed that in the summer months we could receive some stations from quite far away, especially by turning the tuner knob just a "little too far: and playing with the fine tuning ring. We had great fun searching the channels for these stations, and our father never seemed to mind. I guess we were TV DXers as well though we certainly did not know what that was back then.

Our TV antenna sparked an interest in me for antennas in general. I love to look at the antenna arrays at radio and television stations that we see in our travels around the country. My husband and I even made a trip to the VOA transmitter facility in Delano, California. I was absolutely amazed by that facility.

When I got older I had a job at RadioShack and became interested in CB transceivers, scanners, and, of course, TV antennas. My interest in these items seemed to be reflected in my ability to sell them, and I was for some time the leading salesperson at our store. I also excelled in selling radar detectors to many of our Canadian customers, as these items could not be legally purchased in Ontario.

My interest in radio broadened when I met my husband, Tom, KE6DIO. He was also interested in DXing, shortwave listening, and amateur radio. He owned many higher-end products, which allowed me to catch some really good mediumwave DX targets. His interest in amateur radio also piqued my interest and led to my desire to get my "ham ticket." I have begun a small collection of tube-type and transistor radios, nothing fancy, mostly things that strike my fancy either by their styling or because they held a special place in my memories.

My husband, a lifelong radio hobbyist, began showing me some of the things he found enjoyable in the hobby. I became very interested in MW DXing and spent many hours at the controls of a Kenwood R5000 attached to a Kiwa MW Loop antenna. It was fascinating, especially after some long-range catches from the southwestern United States (quite a feat considering my location in an apartment in the San Francisco Bay area). I eventually decided that I really wanted to become an amateur radio operator so I could communicate with others with similar interests.

It's been a long journey. Thanks for encouraging me to just "get the ticket." I truly enjoy this hobby and I have found that radio hobbyists of all kinds seem to be friendly and helpful. I want to encourage more women, children, and teens to introduce themselves in your "VIP Spotlight." I met many women at Hamvention and saw a lot of young people. I know they are out there and they can bring in many more hams and DXers to the various radio hobbies. ■

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

Personal Locator Beacons Upload GPS Positions!

It's been three years and over a thousand "saves" since the personal locator beacon (PLB) was authorized by the FCC for use by the general public for land, sea, and air applications. These lightweight handheld distress beacons transmit a 25-milliwatt undulating warble on 121.5 MHz, and more important a 5-watt data burst on 406 MHz to low earth orbit (LEO) satellites and one of three geostationary satellites. These satellites are part of the search and rescue satellite-aided tracking system called COSPAS-SARSAT. Currently, there are six LEO satellites and five geostationary satellites, all listening in on 406 MHz frequencies (406.025 MHz, 406.028 MHz, and 406.037 MHz).

LEO satellites, on February 1, 2009, will turn off their simultaneous relay of received 121.5-MHz signals. More than 95 percent of 121.5-MHz high-power emergency beacon signals were false activations, and the signal itself carries no user identification.

Meanwhile, the 406-MHz Emergency Position Indicating Radio Beacons (EPIRBs) still include a 121.5-MHz homing signal, but this signal is only 25 milliwatts and is intended specifically for local search and rescue tracking. The main 5-watt signal is a 406-MHz data burst containing your unique identification number (UIN) that would allow a rescue coordination center to access the NOAA beacon database and *immediately* determine the beacon's country of origin and the registered owner along with a phone number.

The six LEO satellites monitoring the 406-MHz data burst will also begin downloading Doppler shift measurements for an approximate position of the activated 406-MHz data burst signal. While the signal is immediately detected by the geostationary satellite and transponded to a local user terminal (LUT) ground station, it takes nearly an hour of Doppler shift calculations from the LEO satellites to develop a position fix within 2.3-nautical-mile radius of the activated beacon. This is infinitely faster and more precise than an older 121.5-MHz calculated position, 12-nautical-mile radius, over a six-hour period, requiring a search area of 452-square-nautical miles!

Technology That's Come Into Its Own

The 406-MHz calculations cut the search area *dramatically*. Equipment has also improved over the first issue personal locator beacons, produced by ACR Electronics in Florida and McMurdo in Europe. The personal locator beacon acceptance among skiers and hikers was modest for the first couple of years after the FCC authorized the equipment, but with the new development of built-in GPS, the PLB life-saving beacon's popularity has exploded.

"Here at ACR, our experience in the marine EPIRB business, that includes models with a built-in GPS, allows us now to self-contain the GPS engine in a tiny personal locator beacon, which we call AquaFix, just as much a land PLB as it is out on the water..." says Paul Hardin of ACR. "The once-a-

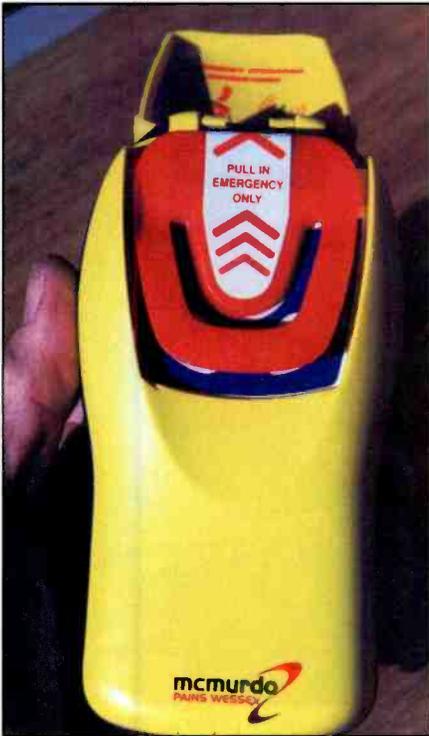


This injured hiker activated the PLB (foreground) and placed it in the clear for a successful rescue.

minute data burst may now include latitude and longitude coordinates that are instantly relayed by GEOSAR geosynchronous high-earth-orbit satellites. With your identification and location known from the moment the first signal is received, your call for help is quickly routed to the closest appropriate rescue agency," adds Hardin.

The GPS signal eliminates the six-hour waiting time required for the traditional 121.5-MHz signal to LEOSARs (Low Earth Orbit Search and Rescue). On average, the waiting time to a 406-MHz accurate fix is about 60 minutes. With a GEOSAR (Geostationary Search and Rescue) reception of your 406-MHz data burst latitude and longitude, your position fix is nearly instantaneous. This is critical if your climbing party is involved in a life and death situation.

It's no easy matter for a shirt pocket 24-hour signaling PLB to obtain an accurate 1695-MHz GPS position fix. The built-in GPS must offer exceptional sensitivity in order to receive the distant satellite signals, and develop that position fix without unduly draining the PLB 24-hour continuous duty power supply. Remember, even though the 5-watt UHF data burst only occurs for half a second, just under every minute the 121.5-



Here's a small PLB with built-in GPS.



The ACR Direction Finder in a real 121.5-MHz track-down along a popular river rafting route in a remote area.

MHz, 25-milliwatt locating signal for ground units is constantly tugging on battery capacity.

Being able to obtain GPS position fixes in canyons or in densely wooded areas of the country was a major accomplishment for ACR. Getting a 5-watt, 406-MHz data burst up to LEOSAR and GEOSAR satellites is not nearly as difficult as receiving a constellation of spread spectrum, ultra-low-power GPS signals passing in six orbital planes inclined 55 degrees, four GPS satellites per orbital plane, out 10,000 miles plus, according to technical crew reps attending the recent Radio Technical Commission for Maritime Services (RTCM) beacon manufacturers workshop in Newport Beach, California.

There's even more good news from the RTCM beacon workshop: airborne rescue agencies have just announced the acquisition of 406-MHz automatic direction finders, capable of locking in on a signal that only provides a 500-millisecond data burst. This line of position would allow more precise homing than traditional equipment at 121.5 MHz. However, the 121.5-MHz homing signal is still important for ground search and rescue crews using 121.5-MHz equipment like the ACR portable direction finding homing kit.

A Place With A View?

According to the United States Air Force, which is tasked with on-land rescue coordination, it's important for land users of a personal beacon equipped with a built-in GPS to understand how to get their equipment positioned for a clear shot at the sky. If a PLS is activated in a dire emergency situation, the beacon **MUST** be removed from a pocket or pouch and physically held away from the body and in the clear. If the victim holding the PLB is able to position himself in a clearing without trees overhead, the greater the likelihood of GPS reception for a GPS 406 MHz encoded position fix.

And while LEO satellites could ultimately approximate the position of the 406 signal *without* a good GPS fix, a good fix would *dramatically* decrease the time to pinpoint the exact 100-yard radius of the activated signal. There is no in-between on a GPS reception fix; either you get a fix that is "dead on" or a partial position fix due to some satellites blocked by the body, which will result in no report rather than a slight error in latitude and longitude. While multipath propagation can indeed play a factor in a good GPS fix, it's seldom a problem in rural regions.

An injured hiker has a better chance of improving a PLB GPS position fix by crawling to the top of a small hill or placing the equipment on a rock out in the open. Hugging a PLB for all its worth would be the same as putting your hand over the patch antenna on your little portable GPS; signal strengths to eight satellites will drop to zero. So our on-land advice is to **GET THAT BEACON IN THE CLEAR!**

Boaters should also remember that the PLB must be held out of the water and vertically for best GPS reception and LEOSAR and GEOSAR satellite acquisition. While most PLBs will float, they don't float in a position to keep their antenna systems properly oriented to the sky. PLBs will operate for 24 hours, which could give you (on land) several opportunities to try different locations to get your signal up to the sky.

Remember, the latitude and longitude reception, along with your ID, takes place at a geostationary satellite, 22,000 miles up. Doppler shift measurements on your 406-MHz signal need only go about 50 miles up.

The Human Connection

"It's vitally important that the new personal locator beacon gets registered to a live phone number," says Hardin. The contact information in the 406-MHz data burst will contain beacon ID information along with country code, your home address, e-



PLBs are small enough to wear, but they must be placed out in the open to signal satellites.



The test signal on 121.775 was increased by 3 dB by placing the test PLB on a water groundplane.

mail, and a telephone number to someone LIVE—not an answering machine—that can tell rescue agencies that you are indeed out on a hiking trip in the High Sierras.

If you list only your own phone number, your answering machine may pick up and say have a nice day and leave a message. NOT GOOD! Put down a phone number for rescue agencies to contact a person who has a cell phone on 24/7 and who knows you're out on a trek. A "Hi there. This is John and I'm on vacation for another week. Please leave your name and number and I'll get right back to you on my return" message won't cut it! That phone number won't give rescue agencies a true heads up that you are out on the trail and likely sending a call for help. You register online at www.beaconregistration.gov.

Avoiding Accidental Activation

Accidental activations occur most often when magnetic shake-up flashlights are placed together with PLBs. The large magnet in the flashlight triggers the PLB magnetic switch, and unless you're looking at the PLB, you won't realize it's been activated, even though the mechanical switch shows OFF.

Regarding this, John Bell of ACR Electronics told us, "...we have taken steps to reduce those false activations. Our PLB 200-201 does not rely on magnetic reads for activation—they are pressure sensitive switches and are not subject to the influence of magnets. Our other EPIRBs that do use magnetic reads have had additional reads added to the off position." He continues, "For the last year and a half, two conditions must be met to activate the EPRIB. Switch out of the OFF position and magnetic

presence in the ON position. (EPIRBs will still activate when out of their bracket and wet). Since this change we have not heard of any false activations while beacons are being handled in the supply chain. Electronics dealers would store EPIRBs next to stereo speakers causing false activations!"

For added peace of mind, you can also put down your itinerary on the online registration form and change it regularly as you travel with your PLB with built-in GPS. This would further validate an activated signal as a real call for help, not an accidental activation.

A Life-saving Last Resort

Both ACR Electronics (www.ACRElectronics.com) and McMurdo (www.mcmurdo.co.uk/) PLBs with built-in GPS positioning and signaling capabilities are priced below \$700. Although you could save \$100 by getting a PLB *without* GPS reception, I would recommend getting the GPS receiver built in. While you *could* tie in a GPS external receiver to your PLB, this introduces a lot more wires, and more complications when trying to hold both units up for signaling.

The new breed of PLB with built-in GPS has been thoroughly tested by independent agencies, like the Equipped To Survive Foundation (www.Equipped.org), and their findings are positive. Eventually, I foresee, all PLBs, marine EPIRBs, and all Emergency Locator Transmitters (ELTs) will include GPS internal receive with position encoding on one of the 406-MHz channels.

The PLB is an absolute last resort signal. And emergency responders need to send the word, loud and clear, that no PLB shall be activated except for an absolute life and death situation. Huge amounts of resources are mustered for a 406-MHz call. Let's hope that call also includes your imbedded GPS position fix! ■

Radio Fun And Going Back In Time

Q. The “Holy Grail” of communications technology has got to be Dick Tracy’s two-way wristwatch radio. Has anyone ever actually designed one?

A. Yes someone has. The two-way wrist watch radio was first introduced by Chester Gould in 1946 in his famous “Dick Tracy” comic strip. One of the serious inventors to work on the project was Dr. Cleo Brunetti, an engineer with the Bureau of Standards. Using 1947 technology Brunetti developed a series of miniature radio tubes for a transceiver capable of working over a mile. Slightly ungainly, this pre-transistor wonder weighed three ounces. *LIFE* magazine picked up on the story and over 60 companies came forward to gain licensing rights for Brunetti’s device. The FCC allocated frequencies from 460 to 475 MHz for it. Unfortunately its one-mile working range made it a hard sell for real-life crime fighters. The tube technology was, of course, superseded by the transistor and the whole project was shelved.

Kids got a chance to play with a “working” toy two-way wristwatch radio, which was quite popular for a time at \$3.98. But even kids figured out that a cheap crystal set that transmitted voices over a very short distance wasn’t the real thing.

Still trying, Western Electric gave Chester Gould its version of the little radio. Gould loved it and kept it near his drawing desk until his death. It picked up radio stations instead of police calls though. I guess the “Holy Grail” is still out there somewhere.

Q. I have heard the phrase “polishing the antenna,” which seems to refer to doing useless work. What exactly does it mean?

A. Back in the days of spark gap transmitters Hams didn’t understand as much about antennas as we do today. Enamelled wire was considered unsuitable because the enamel was thought to block incoming signals. Bare solid copper wire was thought to be the ideal antenna wire. Serious hams, however, felt that in time the bare wire would oxidize and the corrosion would also block signal. A serious ham would lower the antenna about once a week and scour it with steel wool. Only a bright copper antenna was considered ideal for catching signals.

Q. What does it mean when a callsign is followed by MM? What kind of people use these callsigns?

A. The MM following callsigns means that the operators are working from a boat or ship. It stands for Marine Mobile, and their numbers includes some very impressive hams.

Henrik Kurt Carlsen of Woodbridge, New Jersey, got his radio license (W2ZXM) in 1949, but he didn’t operate from home very much. Since 1948 he had been Captain of the *Flying Enterprise*, a cargo ship of the Isbrandtsen Line. Carlsen was an active Marine Mobile operator who was well known on the 10-meter band.

In January 1952 the *Flying Enterprise* was hit by a terrible storm and her cargo shifted, resulting in a dangerous list. Carlsen ordered his 10 passengers and 40 crewmembers to abandon ship then used his amateur rig to call for help. His transmitter put out an 800-watt phone, or 1-kW CW, signal and operated over a makeshift antenna. Carlsen said he would remain with the ship “until she is towed to port or sinks.” Christened “Captain Stay-Put” by the press, he did stay aboard until the U.S. Navy put his ship under tow and took it to England. When asked if he would

have remained with the ship without his ham gear Carlsen replied, “I think it would have been a rather risky business.”

Two years earlier Carlsen had also used his amateur gear to handle a medical emergency when a passenger’s child became ill. An amateur in Minneapolis obtained medical advice from a local doctor and passed the traffic to Carlsen. Following the administration of the proper drugs a crisis was averted.

Q. What part did Nazi radio play in the fall of Germany at the end of World War II?

A. At the end of the war, as the Allies moved closer to Berlin, an underground organization called the Werewolves appeared. They were hardcore Nazis who planned to continue the war as guerrilla actions against Allied soldiers and anyone “collaborating” with them.

Radio Werewolf came on the air reporting the names of those cooperating with the Allies and threatening to take action. Announcers also reported actions taken by Werewolf Groups. In the coal mining town of Penzburg, an anti-Nazi group stole a couple of German military transmitters and called for a general uprising to welcome the approaching American troops. After the Nazi authorities left town, Werewolves came in searching for the anti-Nazis. Unable to find them, or anyone who could be intimidated into naming them, the Werewolves murdered the Town Mayor, five of his associates, and other leading citizens. In all, 14 people were murdered. Radio Werewolf was only on the air for a short time and was not missed by many when it went dark. ■

Looking Back...

Five Years Ago In Pop'Comm

Little did we know when our September 2001 *Pop'Comm* was being finalized that the horrible events of 9/11 would unfold within a few weeks of that issue arriving in our mailboxes. Let's dedicate this space to those who lost their lives on that fateful day.

Ten Years Ago In Pop'Comm

Check out those surveillance and wireless mic frequencies on page 12 of the September 1996 magazine; they're still good, and often overlooked by many scanner enthusiasts! How times have changed, and in only 10 “short” years. Case in point: The “new” Magellan GPS 2000 Satellite Navigator—it was certainly loaded with neat features for 1996! Also new were the Lowe HF250 receiver and the Xplorer Test Receiver from Optoelectronics.

Twenty Years Ago In Pop'Comm

We celebrated W1AW's 50th anniversary a couple of years early in the September '86 *Pop'Comm*, but that was okay (better to be early than not remember an anniversary!). Early or not, it was a great article with some now-historic photos of the League's station in Connecticut. How many remember the M-800 Facsimile Unit from Universal Shortwave Radio? This was a state-of-the-art system that allowed you to receive press and wire photos along with weather maps and a whole lot more. Plus you could print it with the M-800 that, “Uses inexpensive Epson type dot matrix printers.”

Alinco's EDS-9 Front-Control Unit Separation Kit For The DR-635T

In June's *Pop'Comm* we reviewed the new Alinco DR-635T dualbander with extended receive, including 108 to 173.995 MHz, 335 to 479.995 MHz, and 87.5 to 107.995 MHz. We told you at the time that we'd also be checking out Alinco's EDS-9 separation kit that allows you to mount to 635T's head virtually anywhere in your vehicle, while using the radio's provided metal bracket to mount the body elsewhere (your trunk, under a seat or wherever works for your particular situation). So, let's look at the EDS-9 kit right now and see how it worked in a Hyundai Sonata.

Previously I'd mounted the 635T on a piece of homebrew plastic that fit fairly snugly in the Sonata's change/catch-all tray. While that worked fine, it's not exactly a permanent mounting solution. But then again, it can be close to perfect because you're able to remove the transceiver when you leave the vehicle—you simply unscrew the antenna, unplug the radio, and you're good to go. For a more permanent mounting solution, however, Alinco offers the EDS-9 kit.

Honestly, I'd like to see every radio have a detachable front panel. Wouldn't that be a great idea? Slide off the front panel and Velcro it where it works best for you, or use the manufacturer's kit, and hit the road! Of course, that's not always a possibility, but with the 635T, it is. And, best of all, the optional EDS-9 separation kit lists for about \$46; you'll obviously find it for less.

I decided to mount the body of the 635T in the trunk using the metal bracket and two self-tapping sheet metal screws with lock washers. The separation kit comes with a 16-foot-long



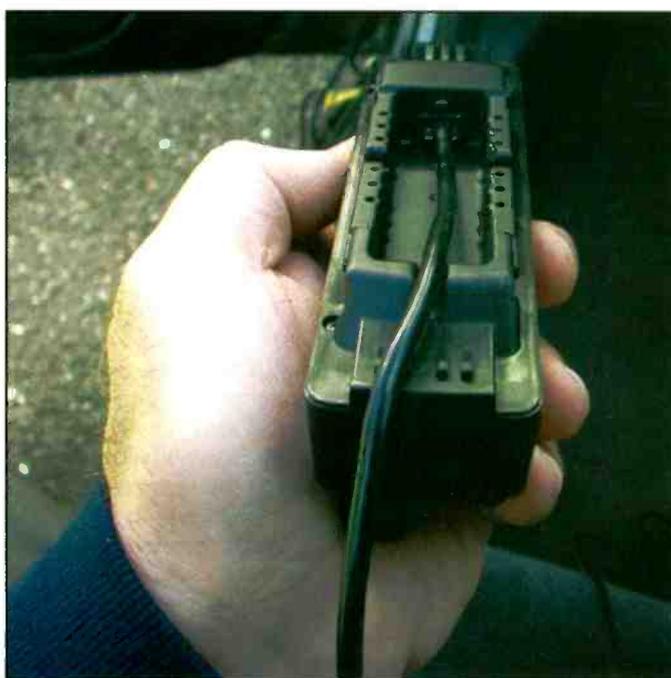
The best mounting location in our vehicle required using both the plastic and angled metal bracket.

black cable with modular connectors on each end. Simply slide off the 635T's front panel from the main body, remove the short connecting cable, and plan your mounting location. The long cord provided with the kit allowed me to connect the front panel all the way up front where it's visible (but not in the way) and have the remotely mounted body where it's easily mountable.

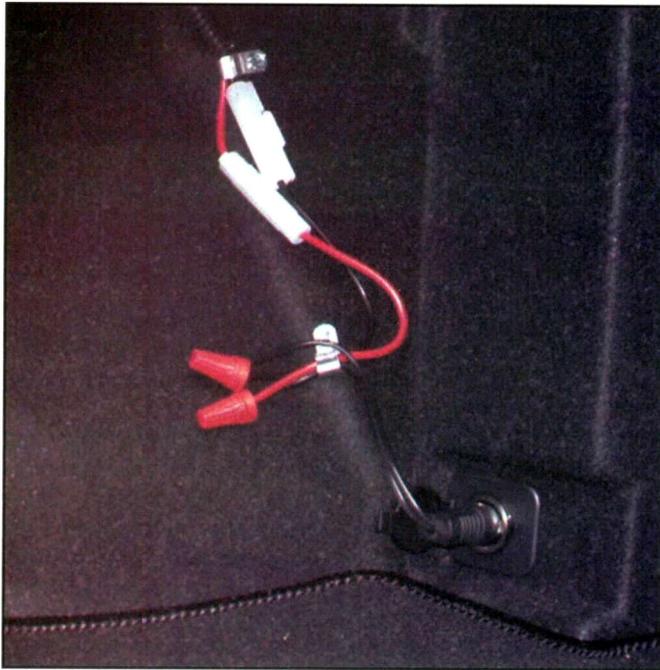
Once you've planned your installation, always being careful



The DR-635T's main body is securely bolted to the upper portion of the trunk below the rear deck. Here, our cables haven't been completely protected with split tubing, but this view is shown to give you an idea of how out-of-the-way the main body is, even compared to the vehicle's factory-installed radio speaker, to the right. At the bottom right of the photo is the 12-VDC power cord plugged into the trunk's power receptacle.

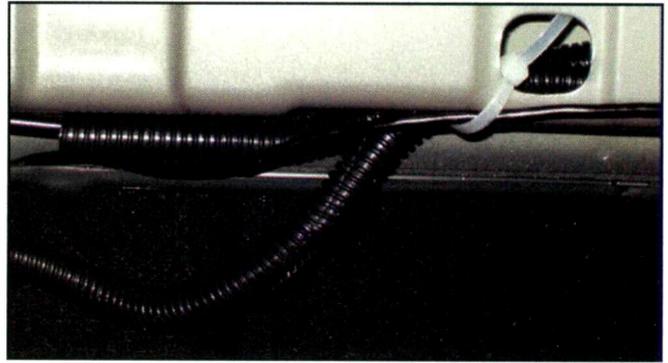


One end of the 16-foot modular cable plugs into the 635T's front panel; the other end routes to the 635T's main body. Ours is in the trunk.



A close-up showing the 12-VDC cable.

when routing cables under your vehicle's plastic door floor panels and through any metal holes, you can mount the radio's front panel to the plastic housing or metal bracket from the EDS-9 kit in any of three different ways. You can use just the kit's plastic bracket, mounting it directly to the vehicle (you'll attach the



A close-up of the completed cable routing showing how it's protected from bumps and bruises with split tubing and cable ties.

radio's front panel to this piece). Or you can use the plastic bracket and small folding metal bracket, or just the metal bracket.

The kit comes complete with small screws to attach the metal and plastic bracket together, or you can use them to attach just the metal bracket to the back of the front panel. You also get self-tapping screws to attach the assembly to your vehicle. Frankly, the 635T's front panel is so light that you could probably use Velcro to attach the plastic bracket if you're careful and don't yank the mic cord.

Part of my mobile installation had already been planned and previously used. I had a glass-mount antenna, with the PL-259 up front, so I had to re-route the end of the coax back into the trunk, where I tucked it neatly into the rear deck using split tubing (available at hardware stores or RadioShack) to keep the entry and exit points protected from the edges of sharp metal holes.

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- Beeper and vibrator alert
- 1000 memories & 65,000 hits per memory
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Antenna sold separately
 (DB32 antenna shown, \$39)
 US Patent 5471402 & US Patents
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The 635T's front panel mounted to the plastic bracket, which tilts for just the right viewing angle. The modular cable is routed to the left and under the door floor panels.

The same approach worked well for the long connector cable. It's routed from the front of the vehicle to the trunk, and also neatly cable-tied in another "convenient" cubbyhole. It was careful not to poke and prod too much because there *are* wires there including the rear third taillight and speaker wires.

Powering my Alinco DR-635T's body from the trunk is a cinch. The Sonata (I'm guessing like many other vehicles) has a convenient 12-VDC receptacle inside the trunk. My rig's 12-VDC power cable was wrapped and cable-tied and stored behind the trunk's soundproofing material on the

passenger side right above the 12-VDC receptacle. I then used two cable holders to securely fasten the cable out of the way. If you're careful how you store things in the trunk, it doesn't present a problem. Of course, you wouldn't keep it plugged in all the time, either.

What About Aunt Millie's Luggage?

No problem here if you're careful in your planning stage. In my particular remote installation, the 635T is less noticeable and obstructive than the vehicle's passenger side speaker magnet, and is even closer to the upper portion of the trunk's deck, so it's out of the way. You do want to ensure that all your cables aren't hanging sloppily, because if they are, they *will* get caught on items you place in the trunk and cause problems! If you've planned your remote mounting location carefully and have the few additional accessories you need, such as cable ties and mounting clips, you'll be up and running in no time!

Mounting The Components

But what about the speaker? Remember, the main unit's speaker is now in your *trunk*! Somewhere in the garage I had a small RadioShack speaker (No. 19-318A) from a previous mobile radio installation—and amazingly I found it! It came with a very long cable and standard jack on the other end. Its audio is great, and best of all it's small enough (just a couple of inches square) to be mounted practically anywhere. I decided not to route yet another cable up to the front of the vehicle, so I simply put a small piece of Velcro on the bottom of the speaker, sticking it perfectly to the inside rear deck of the car! As I said, the audio is great, so

What You Get

- Plastic bracket
- Angled metal bracket
- Sixteen-foot separation cable
- Self-tapping screws (6)
- Screws (4)
- Hex nuts (4)
- Double-face tape

even though it's not up front, it still fills the car with good radio volume. If you can't get this speaker, another small extension speaker will work.

Up front I mounted the radio's front panel on the driver's side near the cruise control buttons. It's not perfect, and if I'm not careful the microphone cord could become entangled in the steering wheel. But again, exercising caution when driving (remembering that driving is your primary job on the road, not playing radio!) is what counts. The 635T's front panel controls are easily accessed and the display is easily readable from this position.

Could it have been mounted elsewhere? Sure, but I didn't want the control cable crawling up the center of the console, which would be the case if the panel were mounted up high in the center of the console. And if it were under the ashtray, my concern was all the junk that gets placed in the car's tray would eventually scratch the radio.

When I don't plan on using the mobile I detach the front panel from the mount and fold the plastic piece back flush against the car; the control cable is held in place with three small black clips available at the hardware store. When I go mobile, the cord is unclipped and inserted into the front panel. The microphone hangs from a clip near the air conditioning vent.

A Cinch!

From start to finish the mounting process took about an hour or so, and that included stopping a few times to take photos. This also had to pass muster with the Better Half, so I wanted it extra neat and spiffy! The one-sheet instruction manual is very clear and well illustrated.

If you've got the Alinco DR-635T extended receive dualbander, consider the EDS-9 mounting kit; it'll save you a lot of headaches down the road. Be sure to tell Alinco, at www.alinco.com or through your favorite dealer, that you read about it in *Popular Communications*. ■

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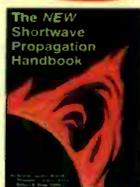
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Station NRK, Norway, Is History— What It Means For AM Radio

This is big news. By the time you read this, the flamethrower of the Arctic Circle, NRK Kvitsøy, Norway, should be history. The long anticipated closure of the 1200-kW powerhouse at 1314 kHz over the summer is another in a growing list of casualties as AM radio appears to be slowly fading away. It's a process that began in the 1970s when FM radio rapidly gained popularity.

Now with ever increasing competition from various sources of digital radio, including streaming audio on the Internet, podcasting, subscription satellite radio, and FM HD radio, is AM "ancient modulation" about to become extinct? Actually, you might be surprised to learn that digital radio isn't the only reason why AM radio could someday be relegated to dusty museum displays alongside spark gap transmitters and the telegraph.

Norway, No Way

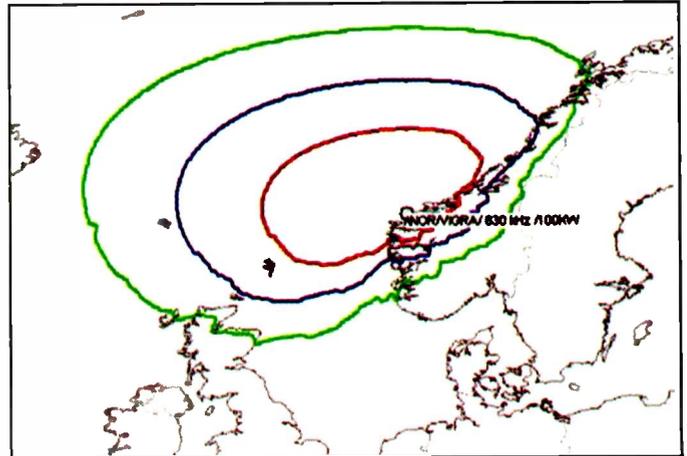
According to the NRK website (www.nrk.no), only four AM radio stations remain on the air: the longwave station from Ingøy at 153 kHz, and three mediumwave stations at 630 kHz in Vigra, 675 kHz in Røst, and 1485 kHz in Svalbard. With a maximum power of 100 kW at 153 and 630 kHz, none compare to the megawatt-powered signal that dominated the Arctic at 1314 kHz from Kvitsøy.

The closure of 1314 represents a move in Norway toward the digital age. The powerful AM signal that once served fishing fleets at sea with important weather information will be replaced by a satellite weather channel via Thor 2. However, the signals at 153, 630, and 675 kHz will continue to provide coverage to the north in the Arctic Ocean where satellite service might be compromised. Still, it's a serious blow to DXers who used 1314 as a weathervane for reception conditions from northern latitudes. The signal was a prime target for DXers worldwide, often heard with a local-like signal in east coast North America, and one of only a handful of European mediumwave signals that would reach the West Coast on a regular basis.

Neighboring Finland is undergoing a similar transition to FM and digital radio, leaving AM radio behind. Stations at 254, 540, 1242, 1278, and 1404 kHz are long gone, and the two remaining YLE mediumwave outlets at 558 and 963 kHz are likely to be phased out in the near future.

Electromagnetic Pollution

In Italy, the AM radio dial is changing for another reason. Italy has taken a lead role in the reduction of urban electromagnetic pollution. Long-term exposure to high-power radio signals is believed to cause cancer and other health problems. Transmitters in Rome and Vatican City have been forced to reduce power and broadcast hours, or shut down entirely. High power RAI network stations at 846 kHz (500 kW) and 1332 kHz (300 kW) once easily received in the United States, have been replaced by FM signals with a maximum power of 100



The 100-kW coverage area of the 630 kHz NRK station on the northeast coast of Norway. (www.nrk.no)

kW. The Radio Vaticana station at 1530 kHz operates with reduced hours and power cut from 600 to 300 kW. The short-wave broadcast schedule is also affected.

Oh No, Canada

AM radio stations in Canada have been migrating to FM at a steady rate. While some of the abandoned AM assignments are reclaimed by new broadcasters or stations seeking to move from less desirable frequencies, many AM signals will never be heard again.

The Maritimes will likely be the first to completely disappear from the AM radio dial. The only two AM radio stations on Prince Edward Island, 630 CFCY and 720 CHTN, are both moving to FM this year. 960 CHNS Nova Scotia is another high-profile signal preparing to move to FM.

The transition to FM hasn't always been easy, though. When the CBC moved 690 CBF and 940 CBM in Montreal to FM, there were problems with poor coverage. Listeners previously served by reliable clear channel 50-kW AM signals were finding it difficult to receive FM, prompting the installation of FM relay stations to fill the gaps. In the meantime, commercial all-news outlets took over the frequencies as CINF "Info 690" and CINW "940 News" while vacating historic 600 CFCF (later known as CIQC). Canadian radio pioneer CFCF was the self-proclaimed first broadcasting station in North America started in 1919, now a distant memory.

U.S. Real Estate Reality

FM and digital broadcasting aren't the only competition faced by AM radio in the United States. The real estate boom and rising property taxes have aging AM stations under enor-

mous pressure to sell. Because of the long wavelength of AM broadcast band frequencies and nighttime skywave propagation, most AM radio stations use directional antenna systems requiring a phased array of tall antenna towers consuming several *acres* of land. In California and the northeast corridor from Washington D.C. to Boston, a half-acre undeveloped house lot can be valued at well over \$100,000. An antenna site surrounded by suburban sprawl can easily be worth millions of dollars to a real estate developer.

This year 1590 WSMN Nashua, New Hampshire, was the latest victim of the real estate bubble; its three-tower array razed to make way for a housing development. 1590 WSMN has since returned to the airwaves, a shadow of its former self, as a low-power omnidirectional signal diplexed with the 900 WGAM antenna. It's unlikely that WSMN will ever find a new location for a directional antenna array due to the high price of real estate and so-called NIMBY "not in my back yard" prohibitive zoning laws. WSMN used to be a favorite target of European DXers with a 5-kW signal beamed east over the Atlantic to protect co-channel signals to the south and west from interference.

AM Endangered Globally

Several nations have abandoned AM entirely, moving exclusively to FM and satellite services. St. Pierre and Miquelon, a tiny island enclave of France located off the coast of Newfoundland, mothballed its only AM station on 1375 kHz in favor of FM. This is another huge loss for DXers as it was a prime target as the only radio station on the frequency worldwide.

Cameroon, the Central African Republic, French Guiana, Martinique, and Suriname have all dropped off the AM dial. Others hang on with a single AM station covering the nation, including Austria on 1476, the British Virgin Islands on 780, Chad on 840, Denmark on 1062, Gabon on 549, Luxembourg on 1440, and Sweden on 1179 kHz. England wants to phase out AM radio within the next decade, to be replaced by FM and out-of-band terrestrial digital radio using the Eureka standard.

Still more nations are losing AM stations by attrition. This year 702 Talk Radio in South Africa decided to move to FM after its AM transmitter burned down. Only a handful of AM stations remain. Iceland's sole mediumwave signal, the Armed Forces Network station at 1530 kHz, was silenced by the closure of the



This three-tower array once belonged to 1590 WSMN in New Hampshire. It was knocked down earlier this year to make way for a housing development.

U.S. military base this year. Fortunately Iceland can still be found on longwave at 189 and 207 kHz broadcasting to Atlantic fishing fleets.

New Signs Of Life

Not all the news is bad for AM radio, though. After a long absence, Mauritania returned to the airwaves at 783 kHz, giving DXers a fresh opportunity to log this West African country. New Caledonia is a new DX target in the South Pacific with a new station on 729 kHz. The Middle East has become a focal point for the Voice of America, BBC, and Arab broadcasters via new high-power AM installations at 702, 1170, 1431, 1548, 1575, and 1593 kHz. Burkina Faso has signed on a new 100-kW transmitter at 747 kHz.

AM radio is quite active in Latin America, especially in Argentina, Brazil, Colombia, Cuba, Mexico, and Venezuela, with music, news, and sports. Germany continues to lead the way toward implementation of digital AM using the Digital Radio Mondial (DRM) system, Europe's version of in-band on-channel digital. DRM signals are now on 177, 693, 729, 855, 1386, and 1485 kHz in Germany. Croatia and the Vatican are also experimenting with DRM. However the viability of digital AM as an alternative to ana-

log remains unclear in Europe as well as in the United States.

AM Broadcast DX Loggings

Despite all the changes, it's probably going to be another generation or two before AM radio becomes extinct, if indeed ever. Until then, keep an ear to your AM radio. With sunspot activity at minimum, conditions are ripe for DX-citing reception across the AM broadcast band. Here are some worthy targets. All times UTC.

594 R. Renascença, Muge, Portugal, full data QSL card received in 6 weeks for one IRC. The signer's name is illegible, but the title is "Director." My second QSL from Portugal. I sent a letter in English, as well as a computer-translated version in Portuguese (yes, these are almost laughable!). The QSL card looks as yellowed as some of my shortwave QSL cards from the 1960s, so an incorrect address there. But the return address on the envelope is as in the 2006 WRTH: Grupo Renascença, Rua Ivens 14, 1249-108 Lisboa. This is MW/LW transatlantic QSL #50. (Renfrew-NY)

630 KHOW Denver, Colorado, at 1130 with "Coast to Coast" and mixing with an unidentified co-channel station. (Barton-AZ)

648 Gambia Radio, Banjul, Gambia, at 2145 glimpses of African talk, fades, news at 2200, definite English at 2204, news ended at 2222, then African music with few (or no) breaks between songs, ID as the "Gambia Radio and Television Service in Banjul" at 2230. (Burnell-NL) At 2220 the end of African news in English, then African steel drum vocals, at 2230 ID, "You've been listening to the Gambia Radio and Television..." (Conti-NL)

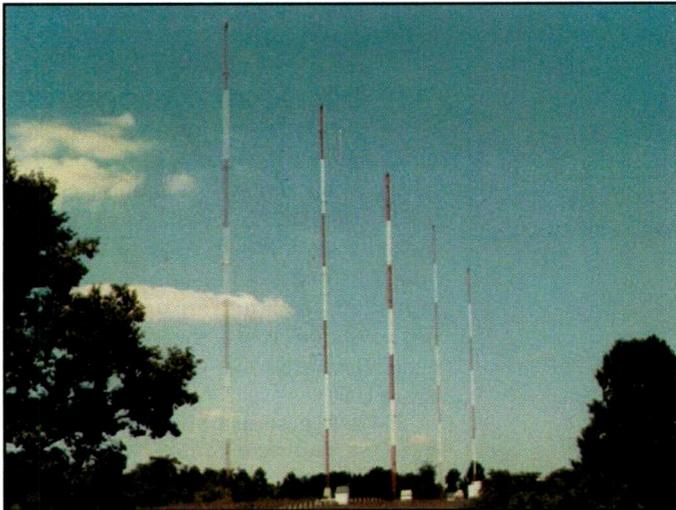
657 R. Pulpit, Meyerton, South Africa, at 2120 faded up nice over RNE5 Spain; melow music and man in Afrikaans. (Conti-NL)

660 YVNA Ondas de los Médanos, Coro, Venezuela, heard at 0154 a fair signal; merengue music, "Más exitos en Popular 660." (Conti-NL)

675 Arrow Classic Rock, Lopik, Netherlands, QSL: Full data letter with two stickers received in 14 months after two follow-ups. Address: Arrow Media Group BV, Postbus 116, 2501 CC Den Haag, Netherlands. (Renfrew-NY)

680 HJZO R. Nacional de Colombia, Sabanagrande, Colombia, at 0005 good; jazz and contemporary music, "la radio nacional de Colombia" IDs. This is a new station, HJZO Sabanagrande per Ministerio de Comunicaciones listing at www.mincomunicaciones.gov.co. (Conti-NL)

690 HCJBI Voz de los Andes, Pifo, Ecuador, at 0806 Andean flute music, no announcement until 0819 but too low to comprehend, better at 0836 with talk in indigenous language, parallel 3220 kHz at 0836 (SW not audible earlier). (Burnell-NL)



This impressive 1380 WAMS tower site in Delaware is history, also replaced by a housing development.

WVNN Athens, AL **QSL**

Licensed Class B AM Station Non-Directional Daytime
 Transmitter Power 7000 Watts

Directional Nighttime Transmitter Power 250 Watts 4 Towers

Daytime Transmitter Location 34° 44' 59" N, 86° 47' 55" W
 Nighttime Transmitter Location 34° 50' 21" N, 86° 55' 44" W

Date Received 1/20/06 Hours 11:59 AM CST
 Josh Bohn, Chief Engineer

[Signature]

770 WVNN Athens, Alabama, QSL card.

750 CMHV R. Progreso, Trinidad, Cuba, at 0245 good, over WSB in lightning noise; a nostalgic vocal parallel 890 kHz. (Conti-NH)

770 WVNN Athens, Alabama, a nice QSL card received in 90 days for DX test. (Martin-OR) QSL card received in 90 days for DX test reception report with cassette tape and return postage, signed Josh Bohn, Chief Engineer. Address: Cumulus Broadcasting, 1717 Hwy 72 East, Athens AL 35611. (Conti-NH)

846.04 Umhlobowenene FM, Komga, South Africa, at 2233 African music, African language but very little chat. (Burnell-NL)

850 CX16 R. Carve, Montevideo, Uruguay, at 0211 football play-by-play, ID at 0217 "Esta es la nueva Carve, la más potente del Uruguay." (Burnell-NL)

900 YVMD Ritmo 900, Maracaibo, Venezuela, at 0730 a good signal; "Venezuela Mara Ritmo 900" and "la primer radio de Zulia." (Conti-NL)

910 YVRQ Caracas, Venezuela, at 0737 good; time check, "en RQ 910 AM Center," and romantic nostalgia. (Conti-NL)

990 LRH203 Formosa, Argentina, at 0823, "AM 990" slogan then tango, "Mitre" network ID at 0832, slowly losing to Venezuela. (Burnell-NL)

990 XEHG La Paz, Mexico, at 0322 a Latin music program and ID as "Radio Nueve Noventa!" (Barton-AZ)

990 YVTA R. Tricolor, Barquisimeto, Venezuela, at 0827 slogan "AM 990," which was confusing considering mixing with LRH203, but clear "Radio Tricolor" IDs from 0839 to 0856. (Burnell-NL)

999 Magic 999, Longton, England, at 0324 in COPE Spain null; "This is Magic Nine-Nine-Nine," and pop music. (Conti-NL)

1008 Radio 10 Gold, Flevoland, Netherlands, at 0005 continuous "goldies" including "Superfreak" by Rick James, then "Horse with No Name" by America; to good peak over jumble. (Connelly-MA)

1020 KCKN Roswell, New Mexico, really a cool QSL card with a picture of an alien wearing a cowboy hat! Received in 16 days for a CD recording of DX test reception. Signed Don Niccum. Address: PO Box 220, Roswell NM 88202-0220. (Martin-OR)

1026 EP de Manica, Chimoio, Mozambique, at 2125 tentative reception with a subcontinental Indian male/female vocal. 2151 possible ID with emissor mention before lost to Nigeria. (Conti-NL)

1026 Jigawa Radio, Dutse, Nigeria, at 2129 in a mix of three stations, ID in English as "Radio Dutse" at 2129, African talk at 2151 mentioned "Abecuta" a couple of times, African music at 2158 to 2200, then likely religious talk to 2203, then ID in English "Jigawa Radio in Dutse," and may have gone off at that moment. Other stations on the channel were Spain and a station in Portuguese that peaked around 2132. This latter station was likely Mozambique. (Burnell-NL)

1039.61 YVLB La Voz de Carabobo, Valencia, Venezuela, at 0114 a Spanish vocal, ID "La Voz de Carabobo"; loud, stronger than

the adjacent 1040 WZNA, HION, ZYK537, and CJMS dogpile. (Connelly-MA)

1050 XEG La Gigante, Monterrey, Mexico, at 0450 rancheras, "Las 10 con 50 minutos en La Gigante, XEG." Requests, "para la familia..." Mostly romántica music. Good, mostly atop KCTC. (Wood-HI)

1080 KSCO Santa Cruz, California, at 1030 the morning talk show with three co-hosts, heard after nulling out KRLD Dallas with loop. Later began mixing with an unidentified Mexican station playing cumbias. (Barton,AZ)

1090 XEPRS Rosarito, Mexico, at 0500 La Hora Nacional, usual cultural and educational contents. 0600 woman in English with Spanish accent, "This is XEPRS," then a man in Spanish, "XEPRS 1090 AM Rosarito, Baja California," abruptly into English sports in mid-sentence. Good over/under KING, new. (Wood-HI) 0550-0600 with Fox Sports, CBS News, IDs with slogan "The Mighty Double-X." (Barton-AZ) At 0725 Tahiti Village Hotel ad with Tanya Roberts, slogan "The Mighty Double-X Sports Radio...The Home of the Padres, The Mighty Double-X Sports Radio," back to Fox Sports Radio 7 seconds behind 1050 KTCT. (Park-CA)

1120 KANN Roy, Utah, at 0300 a nice Christian rock program with mentions of "20 countdown magazine" and website. (Barton-AZ)

1150 WGEA Geneva, Alabama, at 0748 local news and information, and a campaign ad for Roosevelt Harris, Alabama House of Representatives, District 70. A good signal in the morning static. (New-GA)

1190 LR9 R. América, Buenos Aires, Argentina, at 0000 "Radio América Informa" news. (Burnell-NL) At 0315 good with a "Radio América punto com" promo. (Conti-NL)

1190 WIXE Monroe, North Carolina, at 2333 country music and a promo for advertising on the station, "WIXE, Monroe Broadcasting Company..." A decent signal with fades. (New-GA)

1197 Family Radio, Lancer's Gap, Lesotho, at 0013 probably this with a Black Gospel-style group vocal; poor, in WKOX slop. Auroral at the time, Europe unlikely. (Connelly-MA) At 2050 with U.S.-accented religion, 2059 "Thanks for listening to Family Radio," then perhaps off. (Burnell-NL)

1233 Pure FM, Rocourt, Belgium, at 2215 a good signal; "Ecoutez Pure FM" ID and pop/rock music. (Conti-NL) At 2356 unusual spacey music, quick "Pure FM" jingle at 0000. (Burnell-NL)

1300 YVKH R. Recuerdos, Caracas, Venezuela, at 0902 good with a "Radio Recuerdos...tu AM Center" ID. (Conti-NL)

1310 WISE Asheville, North Carolina, at 1200 top of the hour ID and ESPN Sports, "WISE Asheville" and "ESPN Radio 1310." A decent signal in the mix. (New-GA)

1332 România Actualitata, Galati, Romania, at 0022 parallel 855, 1152, and 1179 kHz with dance club music, Romanian talk; very good, better than adjacent WRCA. (Connelly-MA)

1360 ZYJ464 R. Bandeirantes, Rio de Janeiro, Brazil, at 0600 news, then ZYJ464 callsign ID by a man into vocals. Good, fairly clear, some KFIV and KLSD noted later, Rio 1220 and 1280 also booming in. New, 4th Brazilian IDed this year, plus three unIDs. (Wood-HI)

1377 R. Free Africa, Mwanza, Tanzania, at 2103 a deep-voiced man in Arabic-influenced African language, ID at 2107, under France Info. (Burnell-NL)

1380 CB138 R. Corporación, Santiago, Chile, at 0702 a lengthy list of affiliates by region: "La Cadena Portales. En la primera región Radio Portales 1380 AM...en la segunda región Radio Portales de Valparaiso 840 AM...en la tercera región Radio Portales de...en la cuarta región Radio Corporación 96.1 FM...en la octava región Radio Corporación de Lota 1530 AM...Cadena de Emisoras Portales ¡Por Chile!" then religious melodies. A very good signal, occasional KTKZ interference. First Chile heard since 1980s. (Wood-HI)

1386 KBC Maralal, Kenya, at 0300 a good signal; "This is KBC Radio" into a march/anthem, and "Topping the news..." (Conti-NL)

1390 WXTC Charleston, South Carolina, at 2259 urban contemporary gospel music. A weak signal that faded into the evening static. "You are listening to WXTC, Charleston's Inspiration Station, AM 1390." (New-GA)

1431 R. Sawa, Arta, Djibouti, at 2307 rhythmic Arabic dance music with female vocal and drums, then talk with Sawa ID; fair. (Connelly-MA)

1440 WGVV Greenville, South Carolina, at 2201 top of the hour ID and Spanish music, "La Radio de Todos...WGVV from Greenville, South Carolina." A decent signal in the evening static. (New-GA)

1470 XERCN Tijuana, Mexico, heard with a talk program hosted by a nice sounding female, ID as "Radio Hispania." (Barton,AZ)

1521 BSKSA Daba, Saudi Arabia, at 2159 parallel 9555 and 9870 kHz with two men in Arabic, echoey acoustics of a large empty room; fading up, loud by 2207, more than 90 minutes before sunset. 2232

female Arabic vocal, strings; huge. 2300 energetic vocal, pips, news; blasting in. (Connelly-MA)

1570 XERF La Poderosa, Cd. Acuña, Mexico, at 0847 good with a woman hosting the morning show, cuckoo clock time checks, and a clear Poderosa 1570 ID. (Conti-NL)

1575 R. Farda, Al Dhabiya, United Arab Emirates, at 2255 Middle East dance music; mixing with SER Spain. (Connelly-MA)

1670 KHPY Moreno Valley, California, at 1100 with a religious program and Spanish gospel music. A good signal but sometimes mixing with a co-channel sports talk station, probably KNRO. (Barton-AZ)

Special thanks to Rick Barton who discovered an interesting broadcast band DX receiver, the Sonar DF7X with a built-in rotating loop, saying, "This radio was made for mariners to get DF fixes on coastal MW stations and longwave non-directional beacons. The loop antenna makes for some sharp nulls for MW DXing." We'll have to visit the local marine equipment store to investigate further.

September is AM DX club convention month. Patrick Martin says, "Come to Seaside, Oregon, for the 2006 International Radio Club of America (IRCA) Convention! It will be held at the Comfort Inn on September 22-24, 2006." Visit www.ircaonline.org for info. The National Radio Club and DX Audio Service will hold its annual convention over the Labor Day weekend at the Best Western in Akron, Ohio, when the latest edition of the *AM Radio Log* is set to be released. Visit www.nrcdxas.org. Google search "BAMLog" for links to more AM radio clubs and resources. Thanks to AM broadcast DXers Rick Barton, Jean Burnell, Mark Connelly, Patrick Martin, Bert New, Dale Park, Jim Renfrew, and Richard Wood for their contributions. 73 and Good DX! ■

FCC Callsign Changes

Pending							
New Call	Location	Freq.	Old Call	WBEC-FM	Pittsfield, MA	95.9	WUPE-FM
KINF	Lompoc, CA	1410	KTME	WRYP	Wellfleet, MA	90.1	WWTE
WTKL	North Dartmouth, MA	91.1	WSMU-FM	WHTS	Hart, MI	105.3	WCXT
				WLAW	Newaygo, MI	92.5	WKOQ
				KXPZ	Las Cruces, NM	99.5	KROL
				KKSC-LP	Silver City, NM	100.1	New
				KTUR	Tucumcari, NM	91.7	New
				WBKW	Beekman, NY	88.3	New
				WEHN	East Hampton, NY	96.9	WHBE
				KDVI	Devils Lake, ND	89.9	New
				WHJM	Anna, OH	88.7	New
				KAJT	Ada, OK	88.7	KQUJ
				KMMY	Soper, OK	96.5	New
				KSPF	Spearfish, SD	90.9	New
				KTDA	Dalhart, TX	91.7	New
				KDLI	Del Rio, TX	89.9	New
				KHRE	Hereford, TX	90.9	New
				KVIL	Highland Pk., TX	103.7	KVIL-FM
				KKXI-LP	Mount Pleasant, TX	92.3	KJUK-LP
				KRZX	Monticello, UT	106.1	New
				WLFV	Ettrick, VA	93.1	WJZV
				WIGO	White Stone, VA	104.9	WNDJ
				KQMV	Bellevue, WA	92.5	KLSY-FM
				WPJW	Hurricane, WV	91.5	New
				KSHW	Sheridan, WY	89.9	New
				WDCW	Washington, DC	50	WBDC-TV
				WMYD	Detroit, MI	20	WDWB
				WCWN	Schenectady, NY	45	WEWB-TV
				WPMY	Pittsburgh, PA	22	WCWB
				WMBF-TV	Myrtle Beach, SC	32	New
				WMYT-TV	Rock Hill, SC	55	WWWB
				KUQI-DT	Corpus Christ, TX	38	New
				KHCW	Houston, TX	39	KHWB

Sending Out An SOS

Do you own an FRS radio? Have you heard about the “National SOS Program”? If so, are you taking full advantage of it?

Among those watching the Hurricane Katrina communications calamity unfold on TV before our eyes last year was Eric Knight. An aerospace engineer and avid radio operator, Knight resolved then to take action before another hurricane season. He challenged REACT International, Inc., Midland Radio, the DC Emergency Radio Network (DCERN), and others to join in. The result: the National SOS Program.

SOS uses FRS-1* in emergencies. REACT had recognized the potential of FRS to save lives from its inception. Over and over, FRS has proved REACT correct. Meanwhile, Midland Radio developed its familiar “Midland-1” program that advocated use of FRS-1 as a “call” channel or frequency (462.5625 MHz). Other organizations had also endorsed the concept of FRS-1 as an unofficial emergency and call channel. Those separate initiatives have all come together to create SOS.

FRS is a short-range radio service. It is popular and inexpensive. Millions of people already have FRS units, making it ideal for neighbors who want to communicate in emergencies when phones are out. FRS may also allow people to communicate with authorities. During Katrina, FRS could have sped up the rescues tremendously, saving more lives.

Most rescue helicopters had FRS radio capability. If those below, on rooftops or at windows, had inexpensive FRS radios

* (no tone)

as well, rescuers could have evacuated the most serious cases first. If the helos had FRS radios to lower to victims the result could have been similar. Instead, rescuers were forced to rely on hand signals. It became a random effort, and some flood victims died needlessly as they awaited rescue.



September Is National Preparedness Month—And A Great Time To Learn!

Neighbors need to plan in advance. Talk up the SOS idea in your neighbourhood. Get together to plan. People need to become comfortable using FRS. Select a channel the group will use (not FRS-1, since it is for urgent calls), and conduct weekly (preferable) or monthly drills. Be sure to include blind or disabled people in the program for their safety.

Encourage participants to use the neighborhood channel routinely between drills, and to monitor FRS-1 when not on the air. Remind them to keep spare batteries on hand. Radios that use AA batteries are likely best since those are common to other electronic devices as well.



Waterloo Regional REACT (ON) lights the scene for a late-night, multi-force vehicle safety inspection blitz by authorities. Note the wisdom of reflective markings on the REACT truck to provide high visibility in situations like this one.

Just hearing another human voice in an emergency can be very reassuring. That voice may be able to help you directly, or get help for you on FRS-1, if circumstances warrant. But FRS-1 offers a safety bonus, too. Licensed GMRS radio operators, using more powerful radios, can also hear and respond to your calls for help on FRS-1. Their greater range, and access to repeaters, means they can pass your emergency messages farther afield to authorities. Licensed GMRS operators are increasingly monitoring FRS-1 to be of service in emergencies. Scanner operators are likewise able to hear emergency calls on FRS-1. They may be able to relay your requests to authorities by other means, such as ham radio.

Get It Right

That raises the *vital* important matter of emergency message content. Learn to use FRS-1 to its fullest advantage. You must broadcast *repeatedly* key details that will enable any station hearing you, near or far, to send help. This can mean the difference between life and death.

First, broadcast *repeatedly* **WHERE** exactly you are, and your name. Give state, town, major intersection, street and number, and type of building. In a rural area give a crossroad, landmarks, etc. to help emergency services find you.

Next, broadcast **WHAT** is wrong. Is there a fire? Are there injuries? Is anyone trapped? Plan your message. Keep each broadcast the same. Monitors may have to piece it together over several repetitions. These same steps apply to whatever type of radio you are using. Learn to use them properly, so SOS can serve you well.

If you haven't done so already, this is the ideal time to take positive action. Introduce your neighbors now to FRS-1 and National SOS.

Let There Be Light

Waterloo Regional REACT (Ontario) got a call for help from police recently. That wasn't unusual, but this time it wasn't REACT's radio expertise police were seeking. Instead, police asked REACT to provide support in the form of its portable lighting equipment. Authorities were conducting vehicle checks at night and needed additional lighting for the inspection area. REACT was happy to oblige. Far better to remove unsafe vehicles from the roads *before* they

cause the carnage REACT Teams too often must report to police.

Federal Case

Lake County REACT (South Dakota) recently made a strong case to federal authorities. It resulted in a federal grant to assist the Team in purchasing new state-of-the-art radios and related equipment. REACT held a local fund-raiser that boosted the federal grant by another \$10,000. Obviously, Lake County REACT's dedicated volunteers are highly valued by the communities the Team serves.

Fish Story

McLennan County REACT (Texas) recently helped make a day of fishing possible for local youngsters. REACT helped TADPOLE, a non-profit organization that attempts to interest kids in fishing, organize another successful tournament. REACT assisted with traffic control while a parade of school buses, fire trucks, and police cars transported the eager fishermen to a private lake. The kids came home with plenty of fish and lots of fish stories, too.

SKYWARN Payback

Flagler County REACT (Florida) participates in SKYWARN as one of its contributions to area residents with REACT radio operators alerting National Weather Service personnel to possible severe weather. Recently, the Team received a nice letter of appreciation from the NWS, Jacksonville. The letter commended its volunteers on being a "vital component" of the office's "warning process." It recognized the "potentially dangerous weather" observations the REACTers relay to NWS and expressed gratitude for the REACT involvement. If you crave more excitement in your life, Flagler County REACT has just the thing for you.

What's Happening In Your Town?

Time to go, again. Let us know how National SOS works in your area. We welcome your comments on other aspects of emergency radio, too. Is there a REACT Team you'd like to recognize for the help it's provided to you or others? Your comments are welcome at "REACT In Action," *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801.

September 2006 Survey Questions

I'm thinking of buying a new handheld scanner.

- Yes.....1
- No2
- No Sure3

My reasons for wanting a new handheld scanner is because (mark all that are appropriate):

- I need more channels/banks.....4
- I need additional frequency coverage.....5
- The agencies I want to monitor have gone to trunked systems.....6
- My current scanner isn't working properly.....7
- My current scanner is difficult to program.....8
- No particular reason—I just want a new scanner.....9

Price is important to me when it comes to a new scanner purchase:

- Yes.....10
- No11

The two most important concerns I have when buying a new handheld scanner are:

- Price12
- Ease of operation13
- Frequency coverage14
- Dealer reputation and helpfulness..15
- Appearance of the scanner.....16
- Size of the radio17
- Type of battery it uses.....18
- Published reviews about the scanners.....19
- Quality of manufacturers' past scanner20
- Durability of the scanner21

I prefer a handheld scanner because (mark all that are appropriate):

- Small size compared to a base unit.....22
- It's easily portable.....23
- I don't have room for a base antenna.....24
- Most of my listening is away from home.....25
- It's less money26

Capitol Hill And FCC Actions Affecting Communications

Commissioner Appointment Shifts Political Balance Of FCC

For the first time in more than a year, the FCC has returned to its full five-member capacity with the swearing-in of Robert M. McDowell as a commissioner—giving the body a Republican majority. He fills the seat vacated in December 2005 by Kathleen Q. Abernathy. McDowell's term will expire June 30, 2009.

"I am honored and humbled to be joining such a distinguished group of commissioners as well as the fine career public servants at the FCC," McDowell said in a statement. "I am confident that our efforts will help bring the most advanced and efficient communications systems in the world to all American consumers."

The appointment gives the FCC a Republican majority for the first time in the tenure of Chairman Kevin J. Martin. Prior to filling the vacancy, the commission had been split evenly between two Republicans and two Democrats. In addition to Martin, McDowell, a telecommunications attorney, joins fellow Republican Deborah T. Tate, who officially joined the FCC on January 3. The Commission's two Democrats are Michael J. Copps, who is in his second term, and Jonathan Adelstein.

McDowell has nearly 16 years of private-sector telecommunications industry experience. Prior to his FCC appointment, he served as senior vice president and assistant general counsel for the Competitive Telecommunications Association (COMPTEL).

Army Orders Secure Battlefield Communications Systems

ITT Industries has received a \$407 million order from the U.S. Army for additional SINCGARS (Single Channel Ground and Airborne Radio System) tactical radio systems, according to the online edition of *Military Information Technology*. The contract with the Army's Communications/Electronics Command is for 60,458 systems, with 60,000 for ground use and 458 airborne. The order was made under the service's SINCGARS Omnibus program awarded to ITT in 2004.

"SINCGARS is the backbone tactical radio system for the Army and is deployed globally with frontline troops from active, reserve and National Guard units," a news item on the Military Information Technology website said. "The system provides secure voice and data communications across the battlefield. Approximately 275,000 SINCGARS are deployed with U.S. and allied forces worldwide, and with this request, a total of 130,000 units are currently on order. SINCGARS is a constantly evolving system that has produced four generations of tactical radios."

The online edition of *Military Information Technology* can be accessed at www.military-information-technology.com/.

APCO Introduces Fire Service Communications Course

A new fire service communications training course—Fire Service Communications, First Edition—has been introduced by the Association of Public-Safety Communications Officials (APCO), International. The program "provides comprehensive in-service training for fire service telecommunicators," accord-

ing to a description on APCO Institute's website. "Topics include an overview of firefighting and fire service apparatus and equipment, the role of the fire service telecommunicator, and understanding and responding to fire service incidents including technical rescue incidents, HAZMAT incidents, and terrorism incidents. The new curriculum also offers comprehensive training on the U.S. Department of Homeland Security's (DHS) National Incident Management System (NIMS) and Incident Command System (ICS), covering FEMA IS-700 and IS-100 training requirements," the description continued.

Also being released is the new Fire Service Communications, First Edition Instructor course, which combines instructional techniques training with specific training on how to conduct the Fire Service Communications, First Edition student course, APCO said. They also reported, "The accompanying Fire Service Communications, First Edition Instructor Guide Package includes instructional techniques for trainers, lesson plans, the student text, a PowerPoint presentation, games and puzzles, exercises, role-plays, and training tips and guidelines."

"APCO Institute's new Fire Service Communications, First Edition raises the bar for fire service communications training programs," said APCO Institute Director Candice Solie. "It is a continuation of our efforts to provide public safety communications professionals with the most up-to-date and comprehensive in-service training available within our industry."

For more information on the new Fire Service Communications, First Edition student and instructor courses visit www.apcoinstitute.org.

Amateur Radio Antenna Bill Signed By Vermont Governor

Wording of the limited federal preemption PRB-1 has been put into Vermont statutes regarding amateur radio antenna legislation with Governor Jim Douglas' signature.

"Today we reached a milestone in Vermont amateur radio history," said David Cain, W1DEC, who chaired the PRB-1 Committee and serves as the Vermont government liaison for the American Radio Relay League. The legislation, H.12, passed Vermont's General Assembly on May 10. Vermont is the 23rd state to adopt an amateur radio antenna law.

According to a statement from the ARRL, "the new law requires local ordinances to comply with 97.15(b) 'by allowing for the erection of an amateur radio antenna or an amateur radio antenna support structure at a height and dimension sufficient to accommodate amateur radio service communications.'"

Cain, who said PRB-1 bill has been "in the General Assembly hopper in Vermont for more than three years," added that lawmakers "recognized the value of ham radio and the need for reasonable accommodation."

"Section 1 of the bill declares it Vermont policy 'that amateur radio use and amateur radio antennas and support structures protect and promote the public interest by providing important communications support to both government and the public during times of emergency when other communications infrastructure is disabled or overburdened and by presenting the public with an opportunity for public service, self-training, communications and technical investigation,'" the ARRL reported.

BPL Study Becomes Part Of U.S. House Telecoms Bill

The Communications Opportunity, Promotion and Enhancement (COPE) Act of 2006 was passed by the U.S. House of Representatives, leaving intact language that would require the FCC to study the interference potential of BPL systems. By a margin of 321 to 101, HR 5252 was adopted June 8.

U.S. Rep. Mike Ross, WD5DVR (D-AR), one of two radio amateurs in Congress, sponsored the BPL study requirement—titled “Study of Interference Potential of Broadband over PowerLine Systems”—contained in Title V, Section 502 of the bill.

According to the American Radio Relay League’s *The ARRL Letter*, HR 5252 now goes to the U.S. Senate, “where a separate—and very different—telecoms bill, the Communications, Consumer’s Choice, and Broadband Deployment Act of 2006 (S 2686) is still in committee.”

“We were concerned that a representative might be persuaded by BPL interests to introduce an amendment to delete or dilute Section 502,” ARRL CEO David Sumner, K1ZZ, said. “As it turns out, that didn’t happen, although we had taken

steps to counter it if it had. So for now, our focus returns to the Senate Commerce, Science and Transportation Committee.”

The ARRL Letter said that Section 502 calls on the FCC to “conduct, and submit to the Committee on Energy and Commerce of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, a study of the interference potential of broadband over power line systems,” within 90 days of the bill’s enactment.

FCC Katrina Panel Recognizes Hams’ Contributions

The role of amateur radio operators in the response to Hurricane Katrina was recognized by the FCC’s “Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks.” The panel’s final report to the Commission on June 12 included a paragraph on the Amateur Radio Service, which stated:

11. Amateur Radio Service. As with other communications services, amateur radio stations were also adversely affected by Katrina. Equipment was damaged or lost due to the storm

and trained amateurs were difficult to find in the immediate aftermath. However, once called into help, amateur radio operators volunteered to support many agencies, such as FEMA, the National Weather Service, Hurricane Watch and the American Red Cross. Amateurs provided wireless communications in many locations where there was no other means of communicating and also provided other technical aid to the communities affected by Katrina.

Among the panel’s many recommendations was one that, in a disaster, any restrictive amateur radio rules be waived in order to permit any “transmissions necessary to meet essential communications needs.” The FCC issued a Notice of Proposed Rule Making on June 19, seeking comment on the panel’s recommendation. EB Docket No. 06-119 may be accessed on the FCC website at http://hraunfoss.fcc.gov/edocs_public/atchmatch/FCC-06-83A1.pdf. Note that the NPRM is 82 pages long and includes the entire report of the Independent Panel. Comments will be due 60 days after publication of the Notice in the Federal Register, and may be filed online using the FCC’s Electronic Comment Filing System (ECFS) at <http://gulfoss2.fcc.gov/ecfs/Upload/>. Be sure to reference the docket number above. ■

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Vast Improvements In Radio Wave Propagation!

Autumn is right around the corner, bringing a radical improvement in radio propagation conditions. At the end of September the sun will be directly over the equator. On the Autumnal Equinox, in the low to middle latitudes of the world, the hours of daylight are mostly equal to the hours of darkness. This results in an ionosphere of almost similar characteristics over large areas of the world, which makes for one of the two best times of the year for long DX openings between the temperate regions of the northern and southern hemispheres on all shortwave bands.

Expect a vast improvement on the higher frequencies (22 meters on up) with more frequent short-path openings from mid-September through mid-October between North America and South America, the South Pacific, South Asia, and southern Africa. The strongest openings will occur for a few hours after sunrise and during the sunset hours. Many international short-wave broadcast stations will soon change from their summer

schedule to a winter schedule, taking advantage of this change in propagation.

Long-path openings also improve during the equinoctial periods. A variety of paths are opening up on 31 and 22 meters. Expect a path from southern Asia around sunset, daily morning openings from southern Asia and the Middle East, expanding to Africa. Also look for signals from the Indian Ocean region long-path over the North Pole. Afternoons will fill with South Pacific long-path, and then extend to Russia and Europe. Look for possible long-path openings on 31, 41, 49, 60, and 75 meters for an hour or so before sunrise and just before sunset.

Winter On The Horizon—Get Ready For DX!

Getting excited about shorter days might seem unusual, but for radio listening, it can't be beat. The winter DX season is slowly approaching, making for exciting DX conditions. While

The Ap Index And Understanding Propagation Terminology

The Ap index, or Planetary A index, is a 24-hour averaging of the Planetary K index. The Planetary K index is an averaging of worldwide readings of Earth's geomagnetic field. High indices (Kp > 5 or Ap > 20) 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>.

the weather is still warm and fair, tighten hardware on your antenna system, check coax cables, and fine tune your radio station. Get ready to reap the DX.

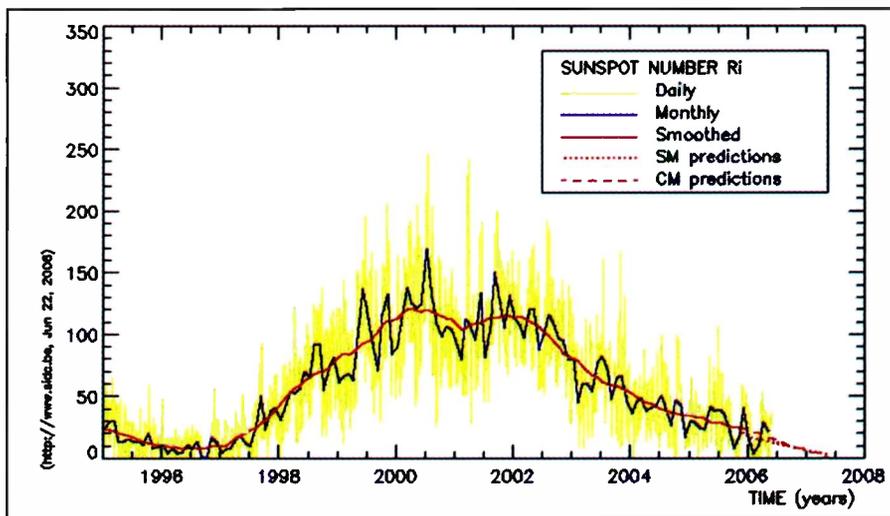
HF Propagation For September

With the 10.7-centimeter flux levels averaging in the 70s during September, propagation on 11 through 22 meters will be limited. On some of the days conditions will be much as they have been during the summer. Other days (and more often), conditions will be more like those experienced during the winter season. Overall, though, conditions on the higher frequencies (above 22 meters) will be marginal during the month.

Sixteen meters, used by a larger group of broadcasters, will usually supply day-path propagation even over the polar paths. While a considerable improvement is expected over summertime conditions, with the band opening shortly after sunrise and remaining open until after sunset, remember that we are at the end of the current solar cycle (Solar Cycle 23), and there is just not enough energy pumping into the ionosphere to keep these higher frequencies propagating worldwide. Sixteen meters will not stay open late into the night like it typically does during the spring season. Openings, weak and short, should be possible from all areas of the world, with conditions best from Europe and the northeast before noon, and from the rest of the world during the afternoon hours. Openings from the South Pacific, Australia, New Zealand, and the Far East should be possible in the early evening.

The 19- and 22-meter bands compete with each other for the best daytime DX band this month. Look for 19 and 22 to open for DX at sunrise and remain open from all directions for a few hours. It should be possible to hear many areas of the world throughout the daylight hours, with a peak in the afternoon. Nighttime conditions will favor openings from the south and tropical areas, but some openings will also be possible from other areas, especially during High Normal or better days. Look for polar gray-line propagation from Asia. Long-path is common on 19 from southern Asia, the Middle East, and northeastern Africa as well as the Indian Ocean region via the North Polar path.

The 25- and 31-meter bands are all-season bands. Expect an incredible



This sunspot index graphic shows the daily (yellow), monthly (blue), and monthly smoothed (red) sunspot numbers since 1994, together with predictions for 12 months ahead. SM (red dots) is the classical prediction method, based on an interpolation of Waldmeier's standard curves; CM (red dashes) is the combined method (due to K. Denkmayr), a regression technique coupling a dynamo-based estimator with Waldmeier's idea of standard curves. (Source: SIDC, Belgium, <http://sidc.oma.be/html/wolfjmmms.html>)

amount of activity on these two hot bands. Many broadcasters choose these, targeting their audiences during prime times (morning and early evenings). The conditions prevalent on 19 and 22 are more pronounced, and last much longer, on these bands. Look for exotic stations a few hours before sunrise through early morning, then again in the early evening before sunset, until around midnight.

Expect an improvement in nighttime DX conditions on 41, 49, 60, 75, 90, and 120 meters during September and October. This is due to the ever increasing hours of darkness and a seasonal decrease in the static level. Forty-one meters should be best for worldwide DX from sunset to sunrise. Forty-nine and 60 meters are used by a lot of the larger, stronger broadcasting stations, so you can always depend on hearing signals from early evening (from before sunset) to a few hours after sunrise. For exotic regional signals, check 75 through 120 meters during the hours of darkness, especially for an hour or so before local sunrise.

Mediumwave Propagation

With an increase in geomagnetic activity, with associated Aurora, MW DX over the northern latitudes is severely attenuated. This can be a blessing for those trying to DX tropical AM broadcast stations and mid-latitude medium- and low-power stations, since the interference from strong over-the-pole stations is

reduced. Signals below 120 meters will improve, with longer hours of darkness and the decline of noise-producing weather. Seasonal static, which makes it difficult to hear the weak DX signals, is decreasing little by little as we move away from the Autumnal Equinox. Stretch out those beverage antennas and start looking for signals along nighttime paths.

VHF Conditions

The strong sporadic-E (Es) season we experienced earlier in the year is pretty much over now. There will be a few openings late this year, but this is not the month typically associated with Es.

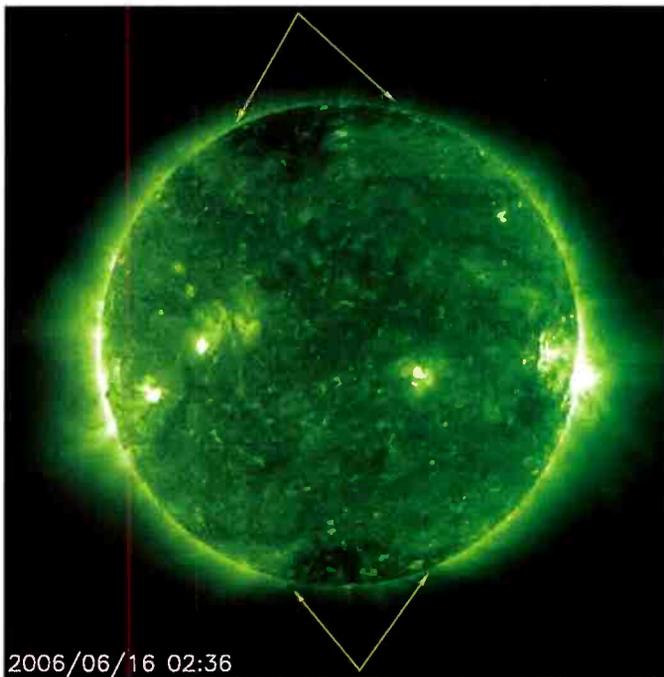
Tropospheric ducting is a real possibility, however. Look for signals on paths crossing through stalled high-pressure zones in the mid-west, or along cool, wet air masses. Toward the end of September trans-equatorial propagation will begin to occur between southern North America and northern South America. Openings will generally occur in the late afternoon to early evening. Tropospheric conditions are generally very good for many of the VHF bands during September with the appearance of different weather fronts. This will be the primary mode for working up to 300 miles.

Current Cycle 23 Progress

Two years ago, I reported the observed monthly mean sunspot number of 55 for

Optimum Working Frequencies (MHz) - For September 2006 - Flux = 70, Created by NW7US

UTC	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
TO/FROM US WEST COAST																									
CARIBBEAN	21	20	19	17	15	14	13	12	11	11	10	10	9	13	16	18	19	20	21	21	22	22	22	21	
NORTHERN SOUTH AMERICA	27	27	26	24	22	20	18	17	16	15	14	13	13	14	18	20	22	24	25	26	26	27	27	27	
CENTRAL SOUTH AMERICA	27	24	22	20	19	17	16	15	14	14	13	13	13	16	21	23	25	26	26	27	27	28	28	27	
SOUTHERN SOUTH AMERICA	27	26	24	22	20	18	17	16	15	14	13	13	14	13	17	20	23	25	27	28	29	29	29	29	
WESTERN EUROPE	9	9	9	8	8	8	9	9	9	8	8	8	13	15	16	17	18	18	17	17	16	15	14	12	
EASTERN EUROPE	9	8	8	9	12	12	9	9	9	8	8	8	12	14	15	16	16	16	15	14	14	13	11	9	
EASTERN NORTH AMERICA	23	21	20	17	15	14	13	12	12	11	11	10	10	17	20	21	23	23	24	24	24	24	24	24	
CENTRAL NORTH AMERICA	13	12	12	11	9	8	7	7	7	6	6	6	6	7	10	11	12	13	13	13	14	14	13	13	
WESTERN NORTH AMERICA	7	7	6	6	5	4	4	4	3	3	3	3	3	3	4	5	6	6	7	7	7	7	7	7	
SOUTHERN NORTH AMERICA	22	21	20	18	16	15	14	13	12	11	11	10	10	10	15	18	19	21	21	22	22	23	22	22	
HAWAII	19	19	19	18	18	17	15	14	13	12	11	10	10	9	9	8	11	13	15	17	18	18	19	19	
NORTHERN AFRICA	11	10	9	9	9	8	9	9	8	8	8	8	13	15	17	17	18	18	18	17	16	13	12	11	
CENTRAL AFRICA	14	13	12	12	11	10	9	9	9	8	8	8	13	15	16	17	18	18	19	19	19	18	16	15	
SOUTH AFRICA	18	17	15	14	13	12	11	11	10	10	10	10	15	18	20	21	22	23	23	23	23	23	21	19	
MIDDLE EAST	9	9	8	8	13	11	9	9	9	8	8	8	12	14	16	17	17	17	15	12	11	10	10	9	
JAPAN	19	19	19	18	17	16	14	10	10	9	9	9	8	8	8	9	9	9	8	11	15	17	18	19	
CENTRAL ASIA	19	19	19	18	17	16	14	10	10	9	9	9	8	8	8	11	14	13	12	11	12	11	12	17	19
INDIA	14	14	14	14	14	14	12	9	9	9	8	8	8	8	8	8	8	8	8	10	11	12	13	13	
THAILAND	17	19	18	18	17	16	14	10	10	9	9	9	8	8	8	12	15	15	14	13	12	12	11	14	
AUSTRALIA	24	26	27	28	27	25	22	21	19	17	16	15	14	13	13	15	14	14	13	15	18	21	23	27	
CHINA	18	19	18	18	17	16	14	10	10	9	9	8	8	8	8	9	9	9	8	8	8	8	12	15	17
SOUTH PACIFIC	29	29	29	28	27	26	24	21	20	18	17	16	15	14	13	13	13	13	15	19	23	25	27	28	
UTC TO/FROM US MIDWEST																									
CARIBBEAN	24	23	21	19	18	16	15	14	13	12	12	11	13	16	19	21	22	23	24	24	25	25	25	24	
NORTHERN SOUTH AMERICA	25	25	23	21	19	18	16	15	14	13	13	12	12	15	17	19	21	22	23	24	24	25	25	25	
CENTRAL SOUTH AMERICA	27	24	22	20	19	17	16	15	14	14	13	13	15	19	22	23	25	26	26	27	27	28	28	27	
SOUTHERN SOUTH AMERICA	27	26	24	22	20	18	17	16	15	14	13	13	13	16	20	22	24	26	27	28	29	29	29	28	
WESTERN EUROPE	9	9	9	8	8	8	8	8	8	8	8	14	16	17	18	18	18	18	18	17	16	15	14	11	
EASTERN EUROPE	12	9	10	11	10	9	9	8	8	8	8	13	15	16	16	16	16	16	15	15	15	14	14	13	
EASTERN NORTH AMERICA	16	15	14	12	11	10	10	9	9	8	8	8	10	13	15	16	17	17	18	18	18	18	17	17	
CENTRAL NORTH AMERICA	8	7	7	6	5	5	4	4	4	3	3	3	3	5	6	7	7	8	8	8	8	8	8	8	
WESTERN NORTH AMERICA	13	13	12	11	9	8	8	7	7	6	6	6	6	7	10	11	12	13	13	14	14	14	14	13	
SOUTHERN NORTH AMERICA	15	15	14	13	12	11	10	9	8	8	8	7	7	9	11	13	14	15	15	16	16	16	16	16	
HAWAII	23	22	21	20	19	17	15	14	13	12	11	11	10	10	11	10	13	16	18	19	21	21	22	23	
NORTHERN AFRICA	14	13	11	10	10	9	9	8	8	8	8	14	16	17	18	19	19	20	20	20	19	17	16	15	
CENTRAL AFRICA	15	14	11	10	9	9	9	8	8	8	8	14	16	17	18	19	19	20	20	19	19	17	16	16	
SOUTH AFRICA	18	17	16	15	14	13	14	14	14	13	13	15	21	24	26	27	28	29	28	27	25	23	21	19	
MIDDLE EAST	9	9	9	8	9	9	8	8	8	8	8	14	16	17	18	18	18	17	16	13	12	11	10	10	
JAPAN	19	18	17	16	15	12	10	9	9	9	8	8	8	8	9	9	9	8	8	10	15	17	18	19	
CENTRAL ASIA	19	18	17	16	15	11	10	9	9	9	8	8	8	11	14	14	13	13	12	11	11	11	16	19	
INDIA	10	11	12	12	11	9	9	9	8	8	8	8	13	12	12	11	11	9	8	8	8	8	8	8	
THAILAND	17	18	17	16	14	10	10	9	9	8	8	8	8	13	15	16	16	15	14	13	12	12	11	13	
AUSTRALIA	25	26	27	26	24	22	20	18	17	16	15	14	13	13	14	16	15	14	13	16	19	21	23	27	
CHINA	18	18	17	16	14	10	10	9	9	9	8	8	8	10	10	9	9	9	8	8	8	8	11	15	16
SOUTH PACIFIC	29	29	28	27	25	23	21	19	18	17	16	15	14	13	14	14	13	13	17	21	24	26	27	28	
UTC TO/FROM US EAST COAST																									
CARIBBEAN	19	18	17	15	14	13	12	11	10	10	9	9	12	14	16	17	18	19	19	20	20	20	20	20	
NORTHERN SOUTH AMERICA	22	22	20	18	17	15	14	13	12	12	11	11	12	15	16	18	19	20	21	22	22	22	22	22	
CENTRAL SOUTH AMERICA	26	23	21	20	18	17	16	15	14	13	13	14	18	20	22	23	25	25	26	27	27	27	27	27	
SOUTHERN SOUTH AMERICA	27	25	23	21	19	18	17	16	15	14	13	13	16	19	21	23	25	26	27	28	28	28	28	28	
WESTERN EUROPE	9	9	8	8	8	8	7	8	8	8	9	13	15	17	17	18	18	18	17	17	16	15	13	9	
EASTERN EUROPE	9	9	8	8	8	9	8	8	8	8	14	16	17	18	18	18	18	17	17	16	15	14	12	9	
EASTERN NORTH AMERICA	8	7	6	6	5	5	4	4	4	4	4	4	6	7	7	8	8	8	9	9	9	9	8	8	
CENTRAL NORTH AMERICA	17	16	14	13	12	11	10	10	9	9	8	8	11	14	16	17	18	18	19	19	19	19	18	18	
WESTERN NORTH AMERICA	23	22	20	17	15	14	13	13	12	11	11	11	10	17	20	22	23	24	24	25	25	25	24	24	
SOUTHERN NORTH AMERICA	19	18	17	15	14	13	12	11	10	9	9	10	13	15	17	18	19	19	20	20	20	20	19	19	
HAWAII	24	23	21	19	17	16	15	14	13	12	11	11	11	12	12	11	14	17	19	21	22	23	24	24	
NORTHERN AFRICA	15	14	13	12	12	11	11	11	11	10	17	20	21	23	24	24	25	24	24	23	21	19	18	16	
CENTRAL AFRICA	15	14	13	12	12	11	12	11	11	10	17	20	21	23	24	24	25	24	24	23	21	19	18	16	
SOUTH AFRICA	18	17	16	15	14	13	14	15	14	13	14	19	22	24	26	27	28	29	28	27	25	23	21	19	
MIDDLE EAST	12	12	11	10	10	9	9	9	8	9	14	16	18	19	19	20	20	20	20	18	16	15	14	13	
JAPAN	17	16	14	10	10	9	9	9	8	8	8	9	10	9	9	9	8	8	8	9	14	16	17	18	
CENTRAL ASIA	17	16	14	10	10	9	9	9	8	8	8	12	15	17	15	14	13	13	12	11	11	11	16	18	
INDIA	8	8	8	9	9	9	9	8	8	8	8	12	15	15	15	15	14	14	13	13	12	10	9	8	
THAILAND	15	15	11	10	9	9	9	8	8	8	8	10	14	16	17	18	17	15	14	13	13	12	11	11	
AUSTRALIA	26	27	26	23	21	20	18	17	16	15	14	13	13	17	17	16	15	14	14	13	16	20	22	24	
CHINA	17	15	13	10	9	9	9	8	8	8	8	14	15	13	10	9	9	9	8	8	8	8	14	16	
SOUTH PACIFIC	29	28	27	25	23	21	19	18	16	15	14	14	13	14	13	12	12	19	23	25	27	28	29	29	

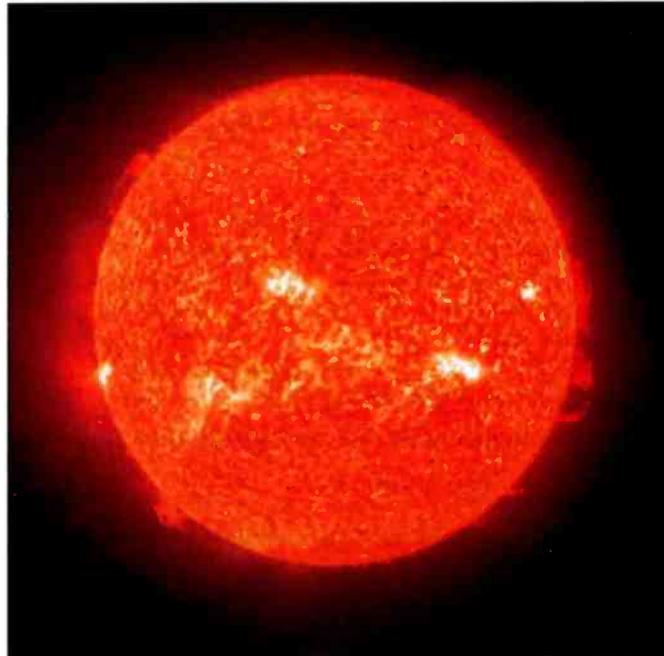


This photo shows the sun as green with arrows at top of photo. The most striking features of the sun in this photo are the dark areas at the northern and southern polar regions (seen here on 16 June 2006) when viewed in ultraviolet light. Since coronal holes are “open” magnetically, strong solar wind gusts can escape from them and carry gas from the solar atmosphere out into space. These magnetic fields in polar coronal holes must extend from one pole to the other, but they extend so far out into space that we have not been able to track them with certainty. Polar holes are most easily visible when the sun is near its period of least activity (solar minimum) in the 11-year solar cycle. At this point, the sun’s magnetic field is simplifying into a “dipole,” like the magnetic field around a bar magnet, but it won’t stay that way for long. Before very long, the cycle of increasing activity will begin again as the magnetic poles begin to reverse places over the next 11 years. Coronal holes appear darker because there is simply less ionized gas. (Source: SOHO/NASA)

May 2003, and the 12-month running smoothed sunspot number centered on November 2002 as 151. I also reported that the 10.7-centimeter observed monthly mean solar flux for May 2003 was 116, and that the 12-month smoothed 10.7-centimeter flux centered on November 2002 was 154. Two years ago, the observed monthly mean planetary A Index (Ap) for May was 24, and the 12-month smoothed Ap index centered on November 2002 was 16.

This year, the last year of the current solar cycle, the period of least sunspot and solar flare activity, we see these numbers much lower than two years ago. There are even periods where there are no sunspots at all on the visible side of the sun.

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for May 2006 is 22.2, just down from April’s 30.2. The lowest daily sunspot value during May, recorded on May 14 through May 17 was zero (0). The highest daily sunspot count was 37 on May 28 (two years ago, the highest daily sunspot count was 99). The 12-month running smoothed sunspot number centered on November 2005 is 42.1. A smoothed sunspot count of 9 is expected for September 2006, but can be anywhere from a high of 22, down to zero, which is increasingly likely as we near the very end of Solar Cycle 23.



The sun this week showed off a variety of small prominences, so many that they could be described as a kind of fringe. While these prominences lasted for several days, they were most prolific on May 26, 2006. On that day one could count five or six of these smaller prominences sprouting out along the edge of the sun as seen from SOHO (Solar and Heliospheric Observatory). These are more prominences than are usually seen around the sun, and amateur solar observers are having a field day with them. Prominences are cooler clouds of gas suspended above the surface of the sun. They’re controlled by powerful magnetic forces, and we are witnessing the force a magnetic field exerts on the plasma (that is, electrically charged material) trying to move across the field. (Source: SOHO/NASA)

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-centimeter observed monthly mean solar flux of 81 for May 2006. The 12-month smoothed 10.7-centimeter flux centered on November 2005 is 86.7. The predicted smoothed 10.7-centimeter solar flux for September 2006 is about 72, with a range from a high of 92 to a low of 60.

The observed monthly mean planetary A-Index (Ap) for May 2006 is 8. The 12-month smoothed Ap index centered on November 2005 is 11.1. Expect the overall geomagnetic activity to be quiet to unsettled during most days in September, with one or two possibly stormy periods.

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 that 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. Until then, happy signal hunting! ■

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	UTC	Freq.	Station/Country	Notes
0000	7345	Radio Prague, Czech Republic		0300	6200	Radio Prague, Czech Republic	SS
0000	11800	RAI Int., Italy		0300	13690	Central Peoples Broadcasting Station, China	CC
0000	9845	Radio Nederland Bonaire Relay		0300	9704	Radio Ethiopia	Amharic
0000	11815	Radio Brazil Central, Brazil	PP	0300	4780	Radio Djibouti	AA
0030	9870	Radio Austria International		0300	13790	Voice of Islamic Rep. of Iran	AA
0030	11920	HCJB, Ecuador	PP	0300	3340	Radio Misiones Int., Honduras	SS
0030	11780	Radio Nacional Amazonia, Brazil	PP	0300	3250	Radio Luz y Vida, Honduras	SS
0030	7475	Voice of Greece	Greek	0300	15720	Radio New Zealand Int.	
0030	12010	Voice of Russia	SS	0300	7200	Republic of Sudan Radio	AA
0030	11940	Radio Romania Int.	SS	0300	6940	Radio Fana, Ethiopia	Amharic
0030	7440	Radio Ukraine Int.		0300	11855	BBC Relay, Oman	
0050	7305	Vatican Radio	PP	0300	4976	Radio Uganda	
0100	5025	Radio Rebelde, Cuba	SS	0300	9780	Republic of Yemen Radio	AA
0100	9570	China Radio Int., via Albania		0330	6115	Radio Tirana, Albania	
0100	4780	Radio Cultural Coatan, Guatemala	SS	0330	7285	Voice of Croatia, via Germany	
0100	9665	Voice of Russia, via Moldova		0330	6005	Deutschland Radio, Germany	GG
0100	10330	All India Radio	Hindi	0330	5930	Murmansk Radio, Russia	RR
0100	4052.5	Radio Verdad, Guatemala	SS	0330	3240	Trans World Radio, Swaziland	unid
0110	11710	Voice of America relay, Sri Lanka		0330	5890	Radio Thailand, via US	Thai
0130	3310	Radio Mosoj Chaska, Bolivia	SS	0330	7390	Channel Africa, South Africa	
0130	11905	Sri Lanka Broadcasting Corp.	Hindi	0330	6080	VOA relay, Sao Tome	
0200	9895	Adventist World Radio via Austria	Urdu	0330	7215	Trans World Radio via South Africa	
0200	11710	RAE, Argentina	EE	0330	11740	BBC, via Cyprus	
0200	11700	Radio Bulgaria		0330	11805	Sudan Radio Service, via UK	
0200	3279	La Voz del Napo/R. Maria, Ecuador	SS	0400	9970	RTBF, Belgium	FF
0200	6055	Radio Exterior de Espana, Spain	SS	0400	9745	HCJB, Ecuador	
0200	9560	KBS World Radio, S. Korea, via Canada		0400	7190	RT Tunisienne, Tunisia	AA
0200	9655	VOIRI, Iran	SS	0400	5500	Voice of the Tigray Revolution, Ethiopia	vern
0200	11895	Radio Boa Vontade, Brazil	PP	0400	9905	Radio Nile, via Madagascar	Sat/Tue
0230	4985	Radio Brazil Central	PP	0400	9645	Vatican Radio	AA
0230	6060	Radio Havana Cuba	SS	0400	9885	VOA relay, Botswana	
0230	6035	La Voz del Guaviare, Colombia	SS	0500	5005	Radio Nacional, Equatorial Guinea	SS
0230	4819	La Voz Evangelica, Honduras	SS	0500	4770	Radio Nigeria, Kaduna	
0230	6973u	Galei Zahal, Israel	HH	0500	4845	Radio Mauritanie, Mauritania	AA
0230	6135	Radio Romania Int	FF	0530	6140	Radio Lider, Colombia	SS
0230	6010	Radio Sweden, via Canada		0530	9460	Voice of Turkey	TT
0230	9720	RT Tunisienne, Tunisia	AA	0600	6070	CFRX, Canada	
0230	8775	Radio Farda, US, via Greece	Farsi	0600	7125	RETV Guineenne, Guinea	FF
0230	6175	Voice of Vietnam, via Canada	SS	0600	6185	Radio Educacion, Mexico	SS
0230	4909	Radio Chaskis, Ecuador	SS	0600	4835	Radio Mali	FF
0300	4850	Radio Nacional, Angola	PP	0600	4760	ELWA, Liberia	
0300	7270	Radio Cairo, Egypt		0700	3291	Voice of Guyana	

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0700	5940	Radio Melodia, Peru	SS	1630	17745	RDP Int., Portugal	PP
0730	6010	Radio Mil, Mexico	SS	1630	11920	YLE/Radio Finland Int.	Finnish
0800	4990	Radio Apinte, Surinam	DD	1700	15190	Radio Africa, Equatorial Guinea	
0830	5054	TIFC, Costa Rica	SS	1700	15475	Africa No. One, Gabon	FF
0830	5910	Marfil Estereo, Colombia	SS	1700	13675	Kol Israel	HH
0830	9765	Radio Tikhy Okean, Russia	RR	1700	11990	Radio Kuwait	AA
0900	4885	Radio Clube do Para, Brazil	PP	1720	21470	BBC, England	
0900	6135	Radio Santa Cruz, Bolivia	SS	1730	15450	IBRA Radio, Sweden, via Germany	unid
0900	6160	CKZN, Canada		1730	15315	BSKSA, Saudi Arabia	AA
0930	3925	Radio Nikkei, Japan	JJ	1730	11875	Radio Nacional, Venezuela, via Cuba	SS
0930	4387	Radio Imperio, Peru	SS	1730	15515	UN Radio, via Ascension	
1000	5014	Radio Altura, Peru	SS	1800	15120	Voice of Nigeria	
1030	4770	Radio Tarma, Peru	SS	1800	17860	Deutsche Welle Relay, Rwanda	AA
1100	9580	Radio Australia		1800	15695	Radio Free Southern Cameroon, via Russia	Sundays
1100	9870	Radio New Zealand Int.		1900	15345	RT Marocaine, Morocco	AA
1100	9795	Radio Nederland via Singapore	Indonesian	1930	15190	Radio Pilipinas, Philippines	
1100	7120	Wantok Radio Light, Papua New Guinea		2000	15325	Radio Canada Int.	
1100	5020	Solomon Is. Bc. Corp.		2000	15455	Voice of Russia	
1100	4605	RRI-Serui, Indonesia	II	2000	11620	All India Radio	
1130	9840	Voice of Vietnam	CC	2030	12085	Radio Damascus, Syria	AA
1130	3905	Radio New Ireland, Papua New Guinea		2030	15495	Radio Kuwait	AA
1200	5050	Voice of the Strait, China	CC	2100	13725	Voice of America relay, No. Marianas	FF
1200	4790	Radio Republik Indonesia-Fak Fak	II	2100	11740	Radio Free Asia, via No. Marianas	CC
1200	15150	Voice of Indonesia		2130	9990	Radio Cairo, Egypt	
1230	5860	Voice of Jinling, China	CC	2130	11965	Star Radio, Liberia, via S. Africa	
1230	17770	Voice of Turkey	TT	2200	12050	Radio Cairo, Egypt	AA
1230	15240	Radio Sweden		2200	13640	Radio Taiwan Int.	JJ
1230	4890	NBC, Papua New Guinea		2200	12005	Radio France Int., via Russia	CC
1230	9965	Voice of Hope, Palau	CC	2230	11830	Radio Anhanguera, Brazil	PP
1300	11660	Radio Australia	CC	2230	7210	Cyprus Broadcasting Corp.	GG
1300	17540	Radio Prague, Czech Republic		2230	13700	China Radio Int., via Canada	SS
1300	11705	Radio Japan/NHK, via Canada	JJ	2230	15340	Voz Cristiana, Chile	SS
1300	6150	Radio Singapore Int.		2230	15320	Adventist World Radio, Guam	
1300	9405	FEBC Int., Philippines	CC	2230	15315	Deutsche Welle, Germany	GG
1300	6160	VOA relay, Philippines	XX	2230	11585	Kol Israel	
1300	7245	CNR-2/China Business Radio		2230	9885	Radio Kuwait	AA
1330	15050	All India Radio	Hindi	2230	11895	Radio Japan/NHK, via Fr. Guiana	JJ
1330	9865	The Voice-Africa, Zambia		2230	15315	Radio Nederland Bonaire relay, Neth. Antilles	DD
1330	13715	YLE/Radio Finland Int.	Finnish	2230	11820	BSKSA, Saudi Arabia	AA
1400	7295	Radio Malaysia/Traxx FM		2230	9605	BBC relay, Seychelles	
1400	15140	Radio Sultanate of Oman		2230	5470	Radio Veritas, Liberia	
1400	11945	BBC relay, Singapore		2230	6165	Radiodiffusion Tchadienne, Chad	FF
1400	12130	FEBC Radio, Philippines		2230	9830	Voice of Turkey	TT
1430	9975	Trans World Radio, Guam		2300	15345	RAE, Argentina	SS
1500	15715	CVC, Australia		2300	11500	Radio Bulgaria	SS
1500	11710	Voice of Korea, North Korea		2300	9925	Voice of Croatia, via Germany	Croatian
1500	15265	Radio Taiwan Int.		2300	9420	Voice of Greece	Greek
1530	17675	Voz Cristiana, Chile	SS	2300	17810	Radio Japan/NHK	unid
1530	13780	Deutsche Welle, Germany		2300	7320	Radio Jamahiriya, Libya via France	AA
1530	17630	Africa No. One, Gabon	FF	2300	12133.5	AFN/AFRTS, Florida	usb
1530	11690	Radio Jordan		2330	9545	Deutsche Welle, Germany	GG
1530	13765	Vatican Radio		2330	9575	Radio Medi Un, Morocco	AA
1600	15225	Adventist World Radio, via UAE		2330	9875	Radio Vilnius, Lithuania	
1600	17850	Radio France Int.		2330	13700	RDP Int., Portugal	PP
1600	11570	Radio Pakistan		2330	9705	All India Radio	
1630	13675	Radio Austria International, via Canada					
1630	17830	BBC, via Ascension					
1630	17670	Radio Marti, US	SS				
1630	17700	Radio Solh via UK	AA				

New, Interesting, And Useful Communications Products



AOR's AR-ALPHA is a high-end communications receiver that tunes from 10 kHz to 3.3 GHz. It debuted at the recent Dayton Hamvention; AOR has not yet announced a price.

Sneak Peek At AOR's New AR-ALPHA Communications Receiver

It debuted at Dayton Hamvention and is so new that we only saw a prototype there. AOR is literally fine-tuning the specs and targeting the release of the AR-ALPHA for the end of the year. But here's what we do know from AOR. According to the company, "The AR-ALPHA is designed to meet the increasingly complex needs of monitoring professionals with coverage from 10 kHz to 3.3 GHz, continuous, with no gaps."

It includes digital signal processing on the IF stage and demodulate stage; frequency processing by means of FFT; multi-mode receive: WFM (in stereo, selective de-emphasis), NFM, AM (synchronous AM, diversity synchronous AM), ISB, RZSSB, USB, LSB, CW, P25, TV, FM, AM, and NTSC/PAL. The receiver includes multiple IF filters (200 Hz, 500 Hz, 3 kHz, 6 kHz, 15 kHz, 30 kHz, 100 kHz, 200 kHz, and 300 kHz), digital noise filter, auto notch filter, noise blanker, IF shift, AFC, variable CW pitch, voice descrambler, voice squelch, CTCSS, and DCS. It has a six-inch color TFT screen that displays up to 100 MHz bandwidth, and also features an analog signal level indicator.

For more information, visit AOR USA, Inc., on the Web at www.aorusa.com or phone them at 310-787-8615. And keep checking *Pop'Comm* for the latest on this new high-end receiver! At press time no price had been announced by AOR.

MFJ's New 4.5-Watt ATV Transmitter

The new MFJ-8709 is a high-performance amateur radio ATV transmitter module that can put out 4.5 watts. RF power output is controlled by an analog potentiometer from near zero output to 4.5 watts maximum. Current draw varies with power

The new MFJ-8709 is an amateur radio ATV transmitter module that sells for \$199.95. →



level selected. Frequency control on the MFJ-8709 is provided by means of a digital integer-N phase locked loop. Dual PLLs provide a frequency locked video carrier and an audio sub-carrier. Transmit frequency is selected via a four-position dip switch; four standard US ATV frequencies 426.25, 427.25, 434.00, and 439.25 MHz are offered.

Video modulation is accomplished by a 12-bit digitally controlled DAC-digital to analog controller. An embedded software algorithm controls the modulation depth and pre-distortion level. Transmitting over 0.5-watt output requires an external heatsink; with external heatsink, the MFJ-8709 can be used for extended key down operation. Reverse polarity protected.

The MFJ-8709, with dimensions of .75 x 2.35 x 2.8 inches (HWD), is priced at \$199.95. It's protected by MFJ's No Matter What one-year limited warranty. To order, get a free catalog, or for your nearest dealer, contact MFJ, 300 Industrial Park Road, Starkville, MS 39759; Phone: 800-647-1800; Fax: 662-323-6551; Web: www.mfjenterprises.com.

Xantrex Introduces New Home And Office Back-up Power Solution

Xantrex Technology, Inc., announced its new Xantrex XPower PowerSource 400, which it describes as a "backup power solution with extended runtime for the small office and home office (SOHO) market." This stand-alone power solution can provide up to eight hours of uninterrupted electricity during a power outage, depending on the devices being used.

The Xantrex XPower PowerSource 400 provides extended runtime so you can continue working through a power outage and remain productive. It's also ideal for powering your radios and accessories in an emergency!



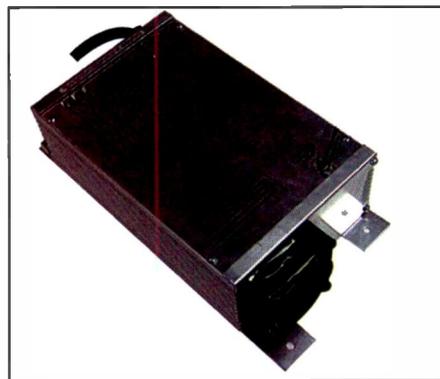
The XPower unit will support a laptop computer, an Internet modem, an inkjet printer, a cordless phone, a small light source, or any other essential small office device. It's a reliable source of electricity in a home, a small office, or at a remote location with unreliable utility power. The average power outage lasts between three and four hours, and the up to eight hours of power a fully charged XPower unit can provide means continued productivity. Other back-up power products for the SOHO market provide limited runtime that only allow enough time to save computer data. The unit is permanently connected to a wall outlet and up to five electronic devices can be plugged into it. When the power goes out, the XPower PowerSource 400 seamlessly switches to backup power for continuous operation of the connected devices.

The Xantrex XPower PowerSource 400 is available at Best Buy, and will be distributed by the world's largest technology wholesaler, Ingram Micro. It can also be purchased online at www.xantrex.com/buy.asp. It has a suggested retail price of \$199.99. For more information on the XPower PowerSource 400 and other XPower products, please visit www.preparedwithpower.com/backup.

Regular readers of *Popular Communications* will recall our extensive review of the XPower Powerpack 1500 by Xantrex in our March 2006 magazine. We hope to review the new Xantrex XPower PowerSource 400 in an upcoming issue as well.

New Ameritron 75-Amp Switching Power Supply

The new Ameritron SPS-75 Switching Power Supply is perfect for Ameritron's ALS-500M 500-watt solid-state amplifier. It gives 75 amps output continuously, is tiny 3.5 x 6.5 x 10 inches (HWD), and



Ameritron's new SPS-75 switching power supply is priced at \$359.95 and gives 75 amps continuously. It weighs in at under 8 pounds.

weighs 7.8 pounds. It has less than 100-mV peak-to-peak ripple under 75-amp full load. Load regulation is better than 1.5 percent under full load. The SPS-75 offers reverse polarity protection, brown-out input protection, and over-current and over-temperature protection. It also features a thermal-controlled quiet fan. Output Boost steps up the output from 13.8 to 14.2 VDC to compensate for line loss. Input is 108-132 VAC, 50/60 Hz. It draws 18 amps and can also be used to charge your car battery.

The Ameritron SPS-75 is priced at \$359.95. To order, get a free catalog, or for your nearest dealer, contact Ameritron, 116 Willow Road, Starkville, MS 39759; Phone: 800-713-3550; Fax: 662-323-9810; Web: www.ameritron.com.

GAP Antenna Products New Mono GAP

An exciting offering from GAP is the Mono GAP, a single-band antenna that functions as an asymmetrically fed vertical dipole. Each Mono GAP is rated to handle the legal power limit and to provide continuous coverage under 2:1 across the entire specified band. Mono GAPs are supplied with a three-wire counterpoise and drop-in ground mount. They also include a feedline that is an electrical halfwave, cut for the center of the band of operation, and terminated with a PL-259 connector.

The Mono GAP for 20-meters is \$129.95; other models are available for 10, 12, 15, 17, and 40 meters and are ideal for shortwave enthusiasts as well as radio amateurs. For more information, contact GAP Antenna Products, Inc., 99 North Willow Street, Fellsmere, FL 32948; Phone: 772-571-9922; Web: www.gapantenna.com. Be sure to tell them you read about the Mono GAP in *Pop'Comm*.

The Mono GAP is a single-band amateur antenna that's ideal for shortwave listening/DXing as well. It's available in six models: 10, 12, 15, 17, 20, and 40 meters.



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Low Power, Natural High!

I just did the unthinkable: I relocated to a new city and moved into a townhouse, complete with a neighborhood association, deed restrictions, and a pile of covenants. A few years back I wrote a handy book on the subject (*Stealth Amateur Radio*), which is now out of print, so I'm in pretty good shape when it comes to getting on the air commando-style. To add insult to injury, though, I'm mixing a healthy dose of nostalgia with my radio masochism. Yep, I'm gonna run low power with the same sneaky antenna that I used to work a whole bunch of DX countries in the early 1980s—while running only 1 watt of Morse code.

I'm going to load up the 25-foot-tall downspout on my two-year-old townhouse. Back in the day I used a crappy antenna tuner and a short piece of brass brazing rod as my sole RF ground. This time around I'm using a much bigger RF ground (still invisible) and my trusty SGC autotuner, which is known for its wide matching range and lightning-fast band changes. Hey, when I was a kid I camped in a small tent. Now, I want a 60-foot RV with a big air conditioner. But I digress!

The real kicker in my new scenario—and the one I want you to pay attention to the most—is the fact that, despite a less-than-perfect antenna situation and insane restrictions, I'm running low power, commonly called QRP, the “official” pursuit of low-power ham radio. Yes, QRP means running low power for the *fun* of it (and sometimes because you want to be sneaky or just a good neighbor)!

Almost every modern HF transceiver puts out 100 W of RF, which is about 20 times more power than the 5-W CW output (10-W PEP output) that commonly defines “QRP power levels.” But many QRPers don't stop there. Some veteran low-power ops run 1 W, 500 mW, 10 mW, or even 1 mW of output power. “Microwatters,” a polite term for the masochists who run less than 1 mW of output power, are a breed unto themselves!

Worldwide, part- and full-time QRPers number in the hundreds of thousands (probably not in the millions, but there are a lot of us lurking out there). You're more than welcome to join the ranks. Your comrades in spirit like nothing better than the challenge of working fellow hams while running just enough power to get through. Your 1-W signal won't dominate the band, but with the right conditions, you can easily work all 50 states and a lot of DX, even with a fairly cruddy antenna.

The Cold Equations

It's the New Math: A 1-W signal is only a little more than three S units weaker than a 100-W signal. Yes, it's true. So, if your 100-W signal is S-9, your 1-W signal will be about S-6. And that's *plenty* of signal! You'll listen more and call CQ less, perhaps, and persistence pays off, as does using the right approach. Beginning QRPers often call only the loudest stations. That's not necessary, although it's a good idea to have decent copy on the stations you do call.

QRP frequencies? When the sunspot cycle is high (as it was when I first used my “Downspout Special”), 20, 15, and 10



Yaesu's teeny FT-817ND is the new and improved version of the company's backpack-portable QRP HF/VHF/UHF uber-radio. It puts out 5 W on all modes from DC to daylight and, as you can see, it's amazingly compact. This rig has a veritable cult following, so if you want to join in the fun, point your web browser to www.yaesu.com. This radio also receives shortwave and FM broadcasts, and may dice and slice salad ingredients in a pinch! It's about \$600 new and \$450 on eBay. (This photo is from SMØFV's RigPix database at www.rigpix.com)

meters are awesome, and stations with just about any kind of antennas can work the world. If you don't believe me now, you'll see during the next solar cycle run-up (unfortunately, still a few years away).

Twenty meters, of course, is the all-time bread-and-butter band, with lots of high-power competition. Forty and 30 meters are excellent bands for stateside QRPing, especially when sunspots aren't cooperating (generally, today's conditions). They can even deliver a fair amount of DX in the evening and overnight hours, especially if you live near one coast or another. Thirty meters is favored by many QRP ops because it's quiet, uncrowded, and “open for business” nearly 24 hours a day. Eighty meters is another good stateside QRP band, but it's not as popular as 40 meters because propagation is usually not as good, except for close-in contacts. Eighty also has DX potential, but competition is fierce and the physics of propagation are working against you. On MF (160 meters) QRP contacts are possible, especially when the band is quiet, but because the other HF bands offer much easier hunting, 160 can be a pretty lonely band for casual QRPers.

Forget That You're Running Low Power

When it's time to get on the air, forget that you're running low power. After all, your signal is only a few S-units down from the big guns—but *do* let the other ops know that you're running low power. If you're tuning an uncrowded band, don't be afraid to call CQ. But do it like this: CQ CQ CQ DE QRP NTØZ NTØZ K. When replying to a CQ, try W1XYZ DE QRP

NTØZ NTØZ. If you get that "QRP" out there *right away* your response rate will soar.

QRP Gear Is Everywhere!

Nowadays, finding a rig for QRP work is extremely easy. There are many QRP-only rigs available, new and used. If you're a bit nostalgic, look for Heathkit's long-popular HW series, Ten-Tec's Argonaut line-up, or a Wilderness Radio Sierra. MFJ makes several single-band QRP CW transceivers, and if you're into kit building, check out the transceivers offered by Elecraft (www.elecraft.com), which pretty much define the state-of-the-art in low-power radios.

The big Japanese makers offer several low-power models, including Yaesu's FT-817ND, a teeny radio that puts out 5 W on HF and works on several VHF bands as well. Collectively, ham magazines have published hundreds of home-brew QRP construction projects in the past 10 years, so if you want to delve into homemade radio, QRP is a good place to start.

If you don't want to invest in a dedicated QRP rig, it's relatively easy to reduce the power output of most modern solid-state rigs. The drive control can usually be used to trim the RF output to within acceptable QRP limits. Your rig's instruction manual will probably have more information.

Resources

Many clubs exist to serve the interests of QRPers, and new ones seem to sprout weekly! One of the oldest and most prominent is the QRP Amateur Radio Club International (QRP ARCI, www.qrparci.org). Its members-only magazine, *QRP Quarterly*, has been around forever and is still definitive. Other clubs

"Nowadays, finding a rig for QRP work is extremely easy. There are many QRP-only rigs available, new and used."

include the Michigan QRP Club (www.qsl.net/miqrclub) and the G-QRP Club (www.gqrp.com/), based in England (its publication, *Sprat*, can be hard to find here in the States, but is a nice read if you can subscribe). A simple Google search of "QRP" will have you reading for days.

Awards are very popular among QRP clubs and QRPers. QRP ARCI issues QRP versions of many popular awards and several exclusive awards, such as the 1,000-mile-per-watt award. Contests are also popular among low-power enthusiasts. About two-dozen QRP-only contests are held throughout the year, and many mainstream contests have QRP entry classifications.

As for books on the subject, you need look no further than your favorite amateur radio products dealer. Look for titles on QRP operating and QRP gear/construction. Check out *ARRL's Low-Power Communication: The Art and Science of QRP*, written by veteran QRP'er and *Pop'Comm* columnist Rich Arland, K7SZ (he's forgotten more about QRP operation than most of us will ever know), *More QRP Power*, and *QRP Basics* for starters.

How Low Can You Go?

Ham radio is all about skill and persistence. So, if you want to experience one of amateur radio's greatest thrills, crank down the power and go QRP. ■



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Candohm Resistor Replacement

A few months back I received correspondence from reader Mike Grimes regarding his Zenith 805 tombstone radio. The set had a defective four-section *Candohm* resistor, and while the schematic provided the Zenith part number and resistance values, alas there were no power ratings shown! Mike had decided to replace each *Candohm* section using discrete power resistors, but he wasn't exactly certain how to ensure that he selected parts with adequate wattage ratings. Mike's question is a good one, and I'll admit it took some thought to properly answer his query! First, let's cover some groundwork before delving into Mike's problem.

What Is A Candohm Resistor?

The Muter Company in Chicago manufactured Candohm resistors. I haven't been able to uncover much information about Muter or its products. A Muter Candohm resistor, along with an unidentified and more modern device, is shown in **Photo A**.

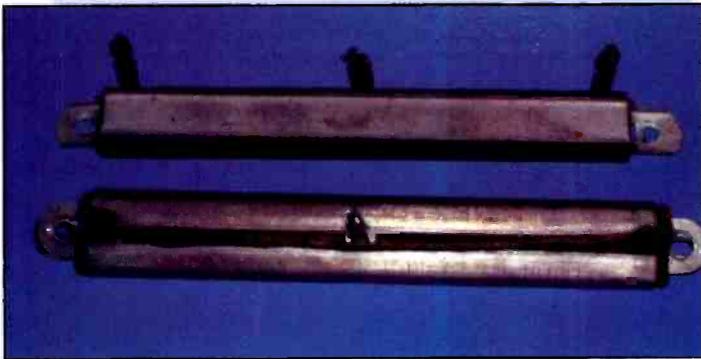
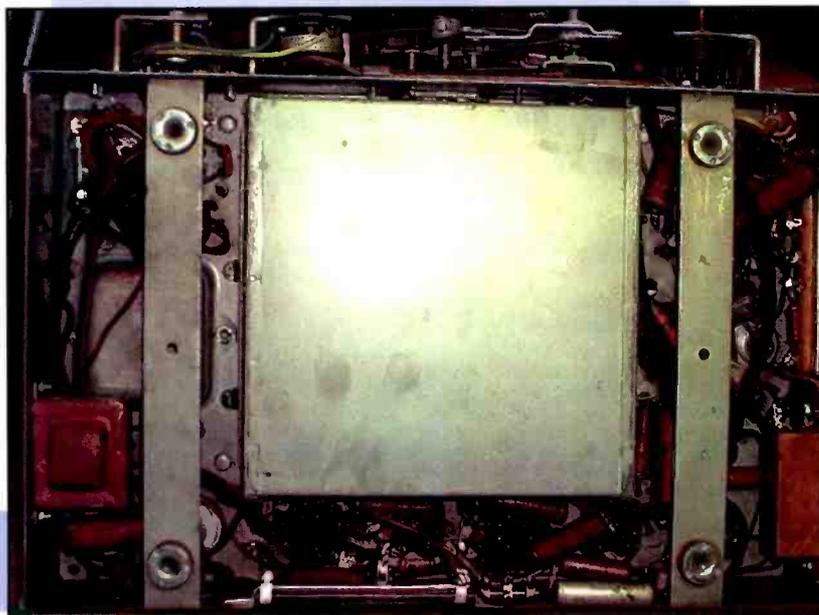


Photo A. Here are few examples of vintage Candohm-style resistors. The unit in the foreground is an original Muter Company Candohm resistor.



I suspect, in time, the Candohm trademark was indiscriminately applied to similarly styled competitive products.

Larger sets made during the 1930s and 1940s frequently used Candohm resistors. Almost every large Zenith chassis has one. **Photo B** shows an RCA 10T radio chassis with two Candohms, and a Candohm resistor can be seen in a Zenith 5905 chassis in **Photo C**. By the way, that Zenith 5905 chassis is from my 9S232 Zenith "Walton" tombstone and will be featured in an upcoming column.

Candohm resistors are wire-wound resistors. Unfortunately, they are failure prone and replacing them, regardless of how they test, is good practice, unless you're willing to accept some risk in the interest of keeping the under chassis looking original.

Candohm resistors (and their generic look-alikes) consist of a resistive element made by winding nichrome resistance wire over a long, slender rectangular-shaped insulated form. In turn, the element is wrapped with paper insulation and covered with a protective metal sheath. Most Candohms serve as voltage dividers; the desired tap points are provided by a mechanical connection between the nichrome wires and solder terminals. They were usually riveted to the chassis, which serves as a heatsink.

How A Candohm Fails

The most common Candohm failure is open sections. Unlike carbon resistors, wire-wound power resistors will either test good, or test completely open on an ohmmeter. When overloaded, the resistance wire can act like a fuse and flash open. Many repairmen took the easy way out by simply bridging the open terminals with a replacement axial lead power resistor. This was probably an acceptable repair practice 60 years ago; after all, repeat business a few years down the road was always welcome! I advise against doing so, however. If the nichrome wire did burn open, it's possible that the surrounding paper insulation could have been compromised, leading to voltage flashovers to ground or unwanted resistive leakage paths.

Also, it's possible that the resistor has gone open because of a poor mechanical connection between the terminal and the nichrome resistance wire. Years of thermal cycling, metal fatigue, and corrosion may have resulted in an intermittent open connection that might self-heal at any time! Ditto for burned sections: the nichrome wire can shift and self-heal without warning.

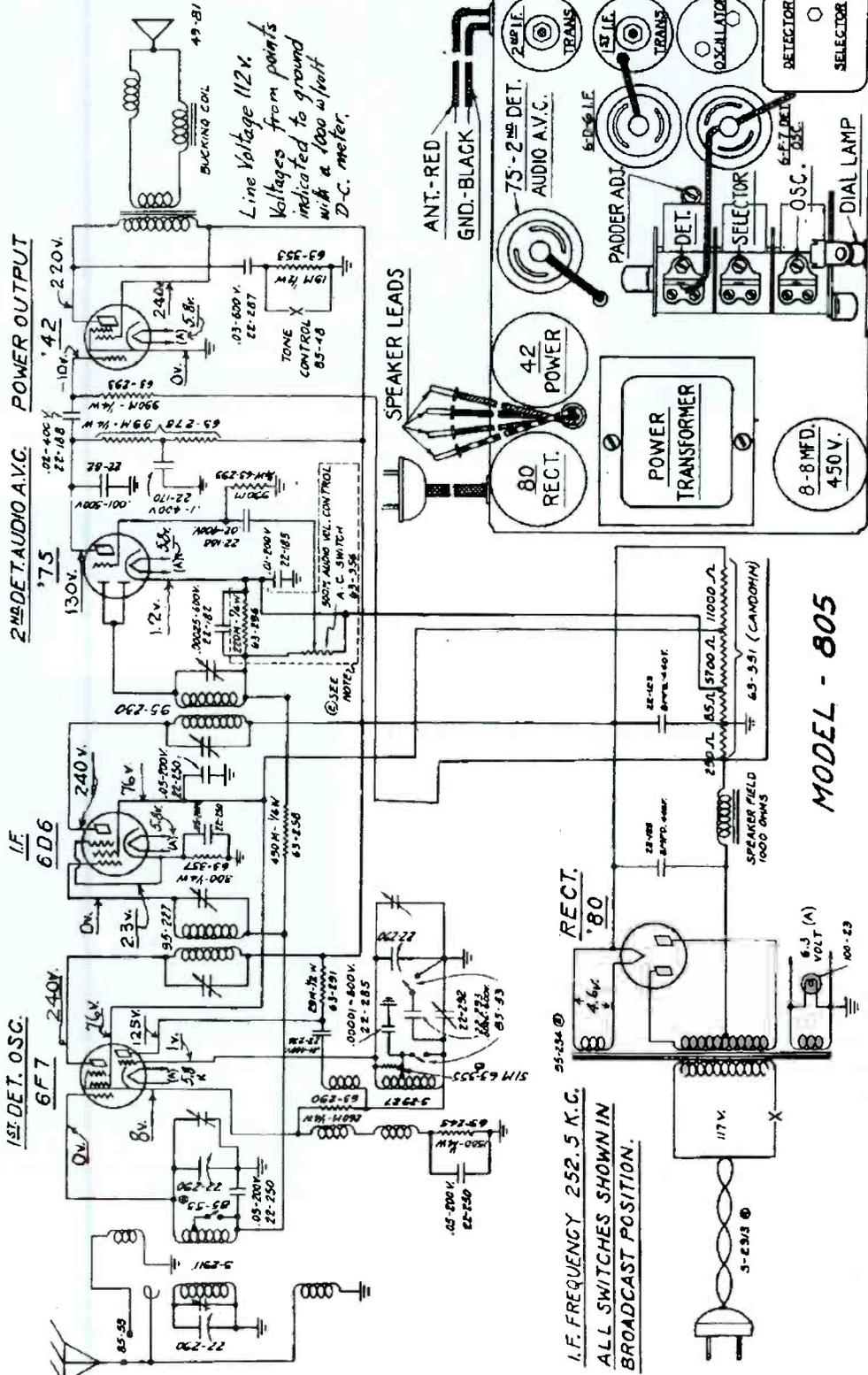
Cracklies!

A very annoying problem that sometimes occurs in restored radios is an intermittent crackling noise emanating from the set's speaker. Finding the source

Photo B. Can you spot the two Candohm resistors mounted to the chassis walls on this RCA 10T radio chassis?

MODEL 805,845
Schematic
Socket Layout
Voltage,Alignment

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CHASSIS 550Z

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CHICAGO, ILL. U.S.A.
A.P.B. 5-30-34

Figure 1. This is the schematic drawing for the Zenith model 805 tombstone radio. We're interested in finding the wattage ratings for the resistors comprising the Candohm package (part #65-351) shown to the left of the speaker field coil winding in the lower center of the drawing.

of the problem can be challenging, especially if the noise only manifests itself for a few minutes after the set is first turned on from a cold start, or if it happens on a very intermittent basis while you're listening to it! If the set has a Candohm style resistor, chances are good that it could be causing the problem. The electrical connection between the terminal and resistance wire is often the source of electrical noise. As the device heats up, the metal parts expand and the connection can improve, eliminating the noise; or conversely it can worsen, increasing the crackling noises!

Back To Mike's Problem!

Mike's nemesis was a Candohm found in his Zenith 805 tombstone. These sets predate Zenith's large black-dial radios covered by collectors, and they are often available at reasonable prices. These early 1935 Zeniths, with their small cream-colored dials, are arguably some of the best performing sets made by Zenith.

Figure 1 is the schematic for the Zenith 5502 chassis used in the 805. The Candohm resistor is shown as part #63-351 and is located to the left of the speaker field coil winding on the schematic. The 250-ohm section of Mike's Candohm was open. Normally there are enough clues on the Rider schematic to allow calculating the wattage or other ratings. But alas, here's where things can also go very, very wrong!

Going Astray!

My first inclination was to tell Mike to simply determine the wattage by using the -10 volts shown on the grid of the 42 audio output tube in the power formula for when the resistance and voltage are known quantities. Let me back up a bit here. We know that the 42 audio power stage is single ended, and *thus must be running Class A in order to linearly amplify an audio signal*. Likewise, we also can surmise, because the stage must be biased for Class A operation, that there's no grid current being drawn, that there would be no voltage drop across the grid bias resistor (Zenith #63-278, 99k-ohms), and that the entire -10 volt bias is developed across the 250 ohm Candohm section.

Here's where we put to work the radio math we discussed earlier this year. Knowing that $W = E^2 / R$, or $W = (10 \times 10) / 250$, we can determine that the resistor is dissipating $W = 100/250$, or 0.4

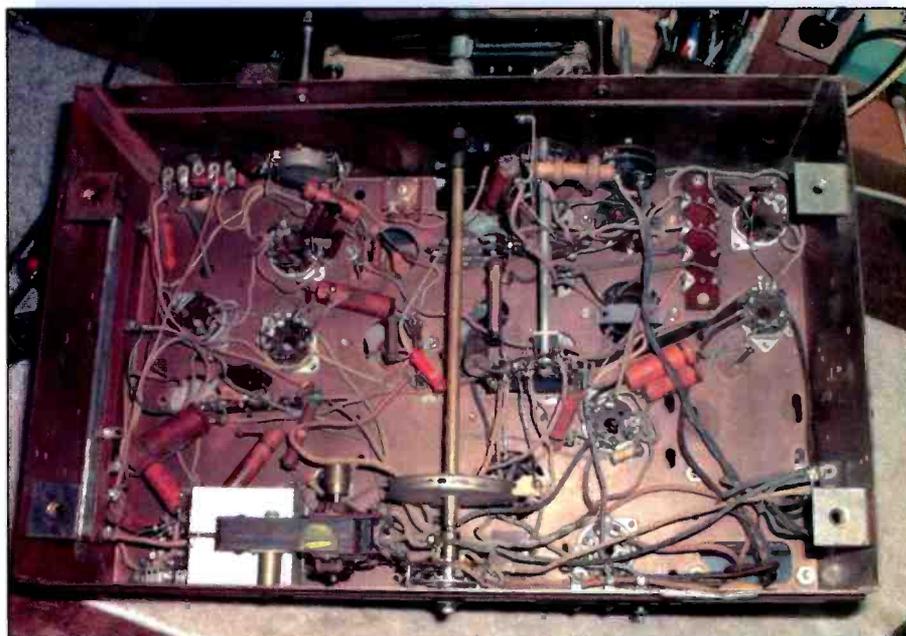


Photo C. The Candohm mounted on the inner left chassis wall of this Zenith chassis is typical of what you'll encounter in numerous other Zenith models.

watts. Whoa! Unfortunately, while our approach appears to be technically sound, it is also completely wrong! Why? Well, because the schematic is very misleading! This is where even experienced restorers can get into trouble rather quickly.

Rethinking Our Approach

Let's examine where I erred. First, we must know how the 10-volt bias voltage shown on the schematic was measured and under what conditions. Remember that back in the 1930s most schematics included the *ohms-per-volt* specification for the voltmeter being used on the drawing! A 5000-ohm-per-volt spec was common for typical service instruments of the day. Thus, a vintage volt-ohm-milliamperere (VOM) meter set for the 50-volt DC range would also shunt the circuit being measured with a 250,000 resistance. Using this meter to measure the grid voltage on the 42 audio output tube would cause the voltage to read low, because the meter's 250,000 ohms would form a voltage divider with the existing 99,000 grid bias resistor! This means that the actual bias voltage being fed to the 99k-ohm bias resistor would be closer to 14 volts.

My tube manuals show that a '42 tube requires a bias voltage of -16 volts for Class A, based on the plate voltage and screen voltages found in that radio. How can we account for the -10-volt reading showed on the schematic? The vintage

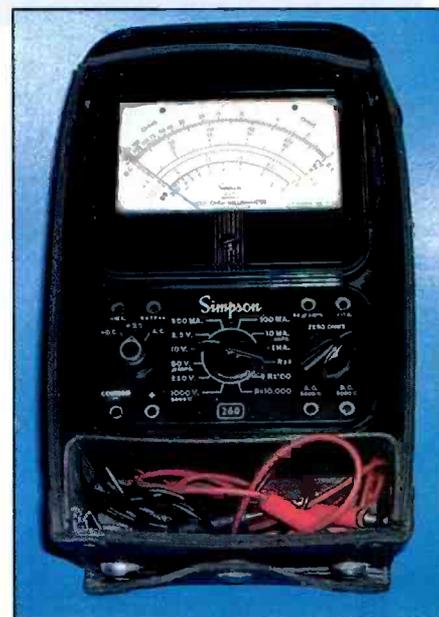


Photo D. The Simpson 260 series VOM meters remain in daily use in the electronic industry. While the increasingly popular, and low-cost, modern digital meters have lessened their popularity, the 260s are still in production.

meter used for the measurements shown on the schematic loaded the circuit, reducing the grid bias. The lower bias caused the tube to draw more current, increasing the current across the 250-ohm "back biasing" resistance, which raised the grid bias voltage, but probably not enough. All of these adverse influences

on the circuit's operation could account for the slightly low (-14 volts) figure we estimated in the previous paragraph.

Sometimes things are not as simple as they first appear. How much error the meter introduces is directly related to the impedance of the circuit being measured! *Always remember the voltages shown on vintage schematics are provided for troubleshooting purposes, and they may not accurately reflect the true voltage present at those points in the circuit!* Also, keep in mind that the circuit operating parameters may have been adversely affected while the readings were being made!

If you use a modern digital meter or even a vacuum tube voltmeter (VTVM), you'll probably see voltages that are considerably higher than those shown on the schematics. The Simpson 260 (shown in **Photo D**) features a 50,000-ohm-per-volt rating—thanks to the availability of economical 50- μ A meter movements!

Why did they do this? To be a useful troubleshooting aid, the voltages shown on the serviceman's schematics had to be based on what was readily available to the average service shop of the era. Here's a quick service tip: if you're using a modern high-impedance meter, you can bridge the meter jacks with a fixed resistor to emulate an early 5000-ohm-per-volt meter! For example, in the 50-volt range, shunting the meter with a 250,000-ohm resistor will give the readings that would have been read on a 5000-ohm-per-volt instrument. The resistor value is determined by multiplying the selected voltage scale by 5000. There is some error because the meter's ohm-per-volt rating isn't being accounted for (for exact readings the resistor would be slightly higher) but this method is close enough for our purposes.

The Solution

My initial attempt at "reverse engineering" was based on erroneous assumptions. I assumed that the schematic voltages accurately depicted the true circuit voltages—not taking into account that those readings were based by measurements influenced by the limitations imposed by the test equipment available during that era. The proper approach would be based on the recommended operating parameters shown in the tube manufacturers' reference manuals. If you need a tube manual, the *early ARRL Amateur Radio Handbooks* from the 1940s and 1950s include tube data.

(By the way, the 6F6 is the "modern" octal-based equivalent for the earlier type '42 tube.)

The correct bias for the '42 audio output stage would be about -16 or -17 volts. Thus the math will show these results: $W = (17 \times 17) / 250 = 1.156$ watts. The dissipated wattage would be about 1.2 watts. A 2-watt carbon resistor would work, but it would run hot and probably shift value over time. A 5-watt 250-ohm wire-wound resistor would be a good choice here, as would a 3-watt metal oxide.

More Solutions!

Let's analyze the schematic and come up for some wattage ratings for the remaining Candohm sections. **Figure 1** shows that the three remaining resistances in the Candohm are 11,000 ohms, 5,700 ohms, and 85-ohms. These are connected in series to form a voltage divider between B+ (the cathode of the type-80 rectifier) and ground. Based on the voltages shown at the plates of the 6F7 and 6D6 tubes (these are low impedance points), it's safe to assume that the voltage across this voltage divider is in the area of 240 volts.

We can determine that the voltage dropped across the first 11,000-ohm section is around 164 volts because the low end of the 11,000-ohm resistor supplies the 76 volts for the screen grids of the converter and IF stages. We get $240 - 76 = 164$ volts.

This is all we need to know to determine the wattage needed for the resistor that will be used to replace this section of the Candohm resistor. We can safely assume that the loading effect of a 5,000-ohm-per-volt meter would have been negligible when it was used to take the 76-volt measurement (500,000 ohms on the meter's 100 volt range) in this circuit!

The wattage is found by using $W = E^2 / R$, or $(164 \times 164) / 11,000 = 2.45$ watts. Again, a 5-watt wire-wound would be a good choice, while a 3-watt oxide would be too close to its maximum ratings. Since 11,000 ohms is not a commonly available value for power resistors, a 12k-ohm resistor would be a reasonable substitute. For general consumer equipment you can easily get away with a 10- or 15-percent change in resistor values.

Using the same approach, we can determine the voltage drops across the remaining two sections. The 5,700-ohm section is dropping about 75 volts, the power formulas show this section of the Candohm resistor is dissipating about 1

watt ($(75 \times 75) / 5,700 = 0.987$ watts), so a 3-ohm metal oxide or 5-watt wire-wound resistor would be a more than adequate replacement.

This leaves the last section, the 85-ohm resistance to ground. There's a voltage drop of about 1.2 volts across it to provide cathode biasing for the '75 first audio and detector stage. Again, the power formulas show this section is dissipating less than 0.02 watts, so any 2- or 3-watt carbon film or metal oxide resistor will do here.

Be Neat!

Fortunately, most chassis have enough room to permit mounting terminal strips to accommodate the multiple axial lead power resistors used to replace a Candohm component. The original mounting holes used for the Candohm package can be used to mount Phenolic terminal strips to facilitate their installation. The resistor leads will often reach points in the set that the Candohm sections were wired to, eliminating the need for additional tie points.

Adios until next month! Keep those old tube sets glowing, and your soldering irons warm! ■

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Intruder Alert!

How Secure Is Your Home Computer?

Back in 2004, I wrote a column that looked at the rising phenomena of computer intrusion, where I outlined some very scary statistics. As I pointed out back then, computer attacks were taking place in roughly 64 percent of businesses that used the Internet, up from 45 percent in 2003.

It's now two years later and, according to an FBI report released last spring, that figure has risen significantly. In January of this year alone there were 19 major e-mail-based virus attacks, of which eight (42 percent) were graded "low intensity," seven (37 percent) "medium intensity," and four (21 percent) "massive intensity" attacks. A rare occurrence for a single month.

As the FBI pointed out, in the United States alone, 85 percent of businesses using the Internet experienced an attack. These attacks took place despite the fact that 98 percent of American businesses with Internet connections are using some form of anti-virus/computer intruder protection. These intrusions are more than simple annoyances, and serious financial repercussions occur with each attack, with an average cost of about \$24,000 per event. If you multiply that number by the hundreds of thousands of businesses affected, you begin to see the huge costs incurred across the country.

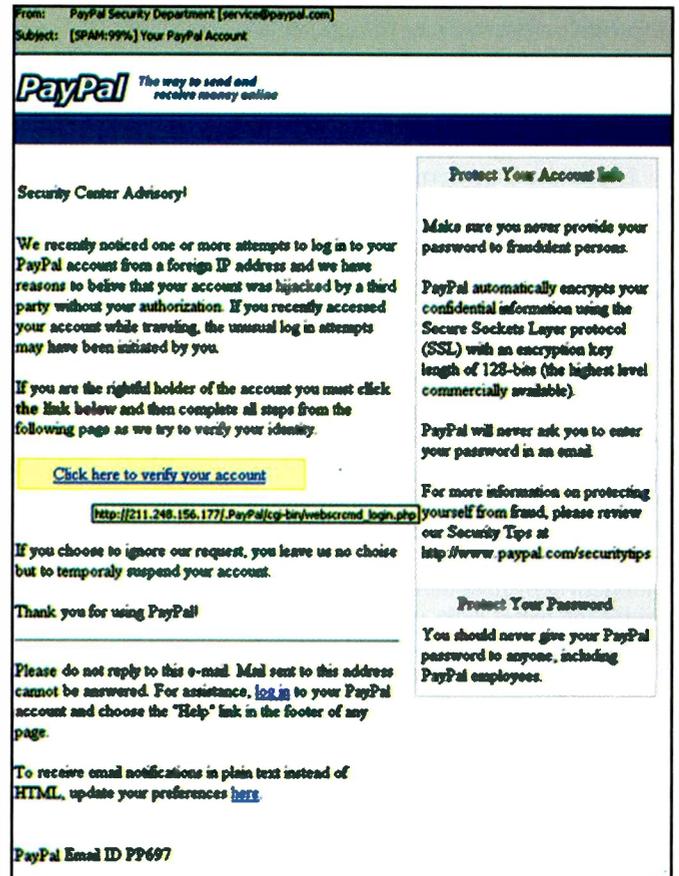
Another disturbing trend is that these deliberate attacks are no longer the work of computer geeks, or "hackers." Hackers earned their nickname because they would use crude methods to "hack" their way into a computer system, often by brute force methods. In the early days of computers, hackers were generally bored students who had little difficulty working the primitive security methods of the times.

That has all changed, however, and today there are sophisticated computer specialists with university degrees who make serious money working for organized crime and terrorists. These days, the term that most accurately describes the new breed of criminal is "intruder."

Who Are The Computer Intruders?

Rather than simply pulling annoying pranks or causing relatively minor damage, these intruders focus their efforts on gaining control of highly confidential information, and even accessing 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 so the same things, but go one step further: they also wish to damage or cripple computer systems, costing businesses and governments billions of dollars in repairs.

As I wrote two years ago, what most home computer users are not aware of is that they are now being deliberately "recruited" by intruders. Most people are now familiar with the early forms of computer virus and know that they can wreak havoc on computer systems. Today, however, such threats can be silent and unnoticed.



Here's an example of a true "phishing" e-mail presenting itself as legitimate, but certainly not so. It claims that it was sent by PayPal (a legitimate Web-based service) and requests that you provide account information by clicking on the link provided, which will take you to a fake website where the fraud will continue. Note the reminder to not give out your password and personal information to "unauthorized" sources. Never let it be said that criminals don't have an ironic sense of humor (at the expense of their victims).

According to the U.S. Department of Homeland Security CERT (Computer Emergency Readiness Team) Coordination Center at Carnegie Mellon University (which monitors attacks on computer systems around the world), terrorists once simply exploited vulnerabilities in attempting to take control of a home computer system to use in an attack on other computer systems around the world. However, over the past two years there's been a significant shift in the way intruders have been conducting their attacks.

Today most corporate and government computer systems are better insulated thanks to new methods of computer protection. It's simply not as profitable as it once was to try and break into professionally operated computer networks to obtain access to financial information and confidential data. So intruders are now

Great Resources For Anti-Intruder Defenses

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, so you are strongly advised to do your own research. Also, using the resources provided here does not guarantee that your home computer and network will be completely protected from an outside attack. The amount of protection you can achieve with your particular computer will depend upon many factors, including your level of skill and understanding in its maintenance and operation.

Always back up your important information and store it on separate media from the computer on which it was created. Also be certain to 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, which provides an up-to-date advisory of attacks that are taking place on the Internet as intercepted by computer specialists employed by the Homeland Security Department.

www.us-cert.gov—United States Computer Emergency Readiness Team home page offers advisories and valuable 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 provided by Symantec, Inc. (makers of the Norton Anti-Virus program), and will provide you with a complete (and secure) system check for vulnerabilities, whether 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 is a free commercial product that you can download. Well designed and easy to use, it's one of the more popular products. 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 that you need to have on your home computer for the best possible protection from spyware. And all three products are free! (Ironically, in comparison tests conducted with expensive commercial software, the free software worked better.)

www.lavasoftusa.com—Ad-Aware SE is one of the first, and still considered the finest, spyware removal programs available. It's easy to use and operate, with updates to their malware list provided regularly.

www.javacoolsoftware.com—Spyware Blaster is a must-have program if you surf the net. This product runs all the time and blocks spyware from being installed on your computer.

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

WARNING: The above sites are to be trusted and have good reputations. 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 will be infected with spyware. Likewise, don't allow any site to download and install what is professed to be an anti-spyware program. These are fakes that can compromise your computer's security.

Popup Blockers

www.google.com/downloads/—Google Search Engine Toolbar 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 is similar to the Google Toolbar, but with some added features for Microsoft products and services. It offers good popup protection and it's free.

Anonymizer Software

There are several commercial products available today, and some anti-virus packages, such as those offered by MacAfee, now include them.

www.stayinvisible.com/—This is one of the best sites for obtaining current information on the new products and services available.

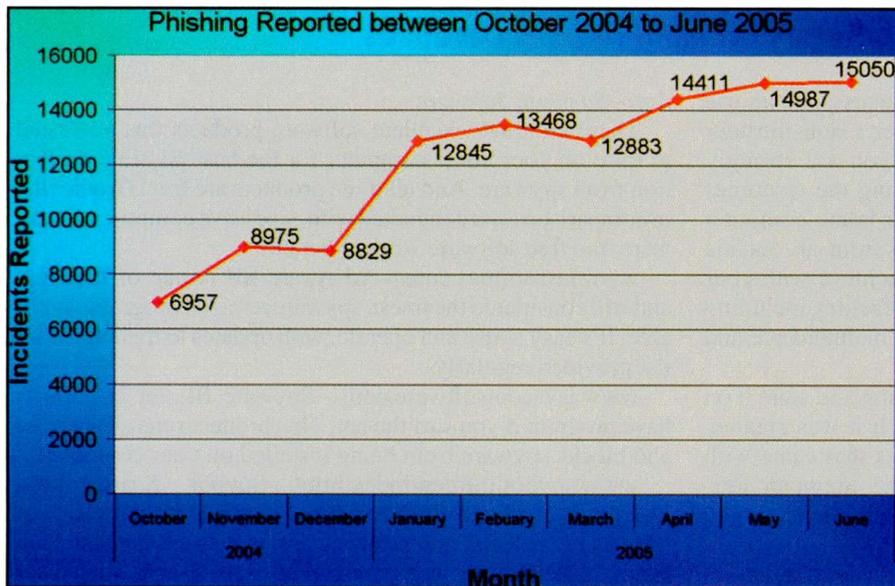
focusing on ordinary people who are not properly protecting themselves when they connect to the Internet.

Identity Theft—The New Threat

With improved computer protection strategies employed by home computer users, such as anti-virus software and firewalls, many intruders are using new tools to gain access. One of the most successful of these doesn't exploit the shortcomings of the computer, but simple human vulnerability. This technique is called "phishing," and it's one of the simplest and most effective approaches used today. It's based upon simple social engineering techniques—and most people's lack of computer knowledge.

"Don't be tempted to click on popups that say 'your computer may have been infected with spyware, click here to remove it.'"

It works like this: a would-be intruder masquerades as a trustworthy person or business in order to defraud someone of confidential information. Often someone will receive an e-mail constructed to appear to be from a legitimate business, often using a logo, typeface and layout design used in legitimate correspondence. These e-mails often say that the company has either lost information or needs to have current information updated in some way. There's a request that the e-mail recipient click on a link to a webpage that also appears legitimate.



This chart is based upon information gathered by the Anti-Phishing Work Group (www.antiphishing.org/index.html) for 2004/2005. As you can see, the number of incidents is rising and the trend has continued into 2006. The reason is simple—phishing works! Check out the website to learn how to protect yourself against this rapidly growing form of fraud.

The instructions that appear on that webpage direct the person to provide all of his or her personal information, which may include address, phone numbers, passwords, credit card numbers, social security number, and even a mother's maiden name. Once intruders get the desired information, they may use it directly, such as in the case of credit card fraud, or they can use it for other fraudulent activity.

The ability of the website to "harvest" this information lies in its success at convincing the person of its legitimacy. All the "cues," such as the design layout, logos, the fonts, and even the grammar and spelling, must perfectly match the viewer's expectations. Again, the people undertaking these "phishing expeditions" are now professionally trained computer programmers and webpage designers who can produce very high-quality websites. More importantly, they're very sophisticated in their understanding of human psychology and how to build trust through good design. Intruders have adopted many of the same techniques used by legitimate commercial web designers for a good reason: they get results!

Phishing is itself becoming increasingly sophisticated. For example, an e-mail may have a link to a fake website that will ask for a password, and the once that information is harvested, you'll be forwarded to a legitimate website, none the wiser of the theft of personal infor-

mation. There is also the exploitation of security weaknesses in programs used to view webpages, such as Microsoft Internet Explorer. Intruders are able to camouflage the URL of their own websites with ones that appear legitimate, so that the victims will not detect the deception. Moreover, intruders can install small programs called browser helper objects (BHOs) to modify the operation of Internet Explorer so that it may be directed to fake websites used by an intruder to steal personal information.

Is Your Home Computer Vulnerable?

The key point to understand is that intruders have begun moving away from attacking corporate, military, and government computers because home computers are simply easier to invade and control. These intruders have also found that this new target group is a surprisingly lucrative one.

In the past, the possibility of stealing money or information from a large corporation was worth the risk of discovery because cybercrime was a relatively new and hard-to-detect phenomenon. However, with the resources now invested in corporate and government computer security, most intruders are looking for new victims. And it seems that ordinary people are easy to defraud and some have exceptionally large amounts of credit

available to them on their credit cards. It's simply a number's game—it's easier to steal 100 credit card numbers, and take \$1,000 off each card, than to break into a corporate account and steal \$100,000 once.

Intruders also take advantage of the often poorly maintained security of the home computer to take control of them. While corporations, government, and the military spend millions on network security, most home computers users are only vaguely aware that such issues even exist, making them poorly prepared for such attacks. An intruder can turn 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. Estimates of the number of such zombies in operation in the United States are in the millions! They allow intruders to use a home computer to send out phishing e-mails, with the intruder having complete outside control of the compromised computer.

So how does an intruder take control of a home computer? Generally, through what's known as computer "vulnerability." Vulnerability is anything within your computer system that allows an intruder access, sometimes called "exposure." These exposures are the result of the many design flaws found in a home 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 per week in its software and operating systems, with roughly 30 of these being found in Windows XP. Likewise, there may be weaknesses in how computer security is *set up* in your computer. These could allow an intruder to see information about your computer, particularly its network identity. This is something over which *you have direct control* and need to properly set up and monitor on a regular basis.

Our Old "Friend"—The Computer Virus

Then there's the computer virus. This term has come to refer to several different types of attacks that can affect your computer system. In general, a true computer virus refers to a software program that can run itself (often causing damage to your computer system) and then reproduce itself so it can infect other computers.

From : FRANK BRITISH <british_11@man.com>
Sent : November 24, 2005 11:39:17 PM
Subject: CONGRATULATIONS

The National Lottery
PO Box 1010
Liverpool
L70 1NL
United Kingdom.

Ref: LSUK/2031/7168/67
Batch: R3/A377-69

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LOTTERY, online Sweepstakes International Program held on sat 12 nov, 2005. Your e-mail address attached to ticket number: 56475600949199 with Serial number 5677/78 Drew the lucky numbers: 12, 13, 25, 30, 45, 47, and a bonus ball of 42 which won the jackpot prize. You have therefore been approved to claim a total sum of £5,377,290 (five million, three hundred and seventy seven thousand, two hundred and ninety pounds sterling) in cash credited to file U/023029908/07.

All participants for the online version were selected Randomly from the World Wide Web through a computer draw system and extracted from over 100,000 unions, associations, and Corporate bodies that are listed online. This promotion Takes place weekly. Please note that your lucky winning number falls within our European booklet representative office in Europe as Indicated in your e-mail coupon. To view of this issue

This is an older form of using human psychology. This e-mail does not have the fancy bells and whistles of contemporary phishing scams, but it's still very effective and you'd be surprised how many people fall for it each year. Often called the "Nigerian E-mail Scam," after its basic formula, the variations have the same aim: to exploit human greed and naivete by playing upon them. Don't assume that you're immune—these bad guys are very clever in coming up with original ways of hooking new victims.

There are other types of software-based threats, too, such as worms (which simply reproduce themselves repeatedly, taking up computer processing power and system resources). Among the worst computer plagues are Trojan Horses, which hide within other programs and, when run, allow intruders to remotely control a computer, again 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, and so have installed anti-virus software to protect themselves. However, an increasing number of these types of programs are entering personal computers when people "surf the Web" with an Internet viewing program like Microsoft's Internet Explorer.

As mentioned earlier, intruders try to install small programs known as BHOs to modify the operation of Internet Explorer when people view a particular webpage. These webpages can be perfectly legitimate in their content and be connected to legitimate business use, but they can hide more malicious purposes embedded in the sophisticated programming that intruders now employ.

To circumvent the anti-virus software now installed on most home computers, intruders are increasingly employing a new kind of weapon, called "spyware." This is software that's installed on 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 Web browsers to communicate with each other. However, intruders 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 (which is why it's called spyware).

Once a spyware program is installed, an intruder can do something as simple as track the Internet sites you visit, or as dangerous as actually taking remote control of your computer. Some intruders also use websites to plant Trojan horse programs on your computer.

There's also a threat hidden in those annoying popup windows that often appear when you visit a website. An intruder 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 the one that says, "Click here and win a free prize."

New Levels Of Protection

The question then is, How do you protect your computer from the real threat of intruders, other than be completely disconnecting your computer from the Internet?

The consensus today among computer experts is that there are six types of protection that you need to install on your home computer if you want to use the Internet. They are: 1. Anti-Virus Software; 2. Firewalls; 3. Operating System and Application Software Patches; 4. Anti-Spyware Software; 5. Popup Blockers; 6. Anonymizer Services.

Now some of you may be thinking that you already have security software installed. However, as has been found in many studies done on home computer use, most people don't use their security software effectively, making them just as vulnerable as if they had no software protection at all. So let's look at each with an eye toward using your security features effectively.

Anti-Virus Software

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

Viruses, worms, and Trojans are released onto the Internet on an almost daily basis and you need to have the *latest* information on hand in order to protect yourself. It really doesn't matter which program you use as long as you ensure that it's working when your computer is running and that it's the most current version and has the most up-to-date information.

Don't practice false economy by using an old version of an anti-virus program. Do yourself a favor and every year buy the most up-to-date version of whatever program you're using.

Firewall

A firewall is a software program (which sometimes has a hardware component as well) that acts like a barrier between the Internet and your personal computer. It checks what information is flowing in from the Internet to ensure that only "safe" information gets into your computer.

Some firewalls also check the information that's leaving your computer for the Internet to ensure that *your* computer is not being used to send out unauthorized information. Firewall software is now built into routers, which can be used to connect one or more computers on a home network to the Internet. Once you have installed a firewall, you can set it up to make your exposure to threats on the Internet as wide or as narrow as you wish.

Again, it doesn't matter which firewall software you use— if it's not turned on, improperly configured, or out of date, you might just as well have no firewall at all.

Operating System and Software Patches

If there's one area that really leaves your personal computer open for compromise or attack, it's the failure to install system updates on a regular basis. These updates (or patches) fix security problems that are often only discovered after the operating system has been released.

If you use the Windows operating system, for instance, there's an easy-to-use computer update function, which obtains a patch from Microsoft and then installs it onto your computer. You can set up this function to be automatic so you don't have to be involved at all. 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.

If you have any questions on how to set up this function, the information provided in the online help that comes with all Microsoft products will assist you.

Anti-Spyware Software

Over the past year anti-spyware software has become a requirement for Internet security, partly because of the disturbing trend toward using Internet websites to distribute "malware." Malware (short for "malicious software") is a new variant of the traditional com-

puter virus, worm, or Trojan. Mainly only the method of delivery is changed.

Today anti-virus software is designed to detect spyware and malware (another good reason to keep this software up to date), but its main focus is still on traditional virus delivery, such as via e-mail. The solution here is to use a separate anti-spyware program to protect your computer. These programs act like anti-virus software when you receive an e-mail.

If you've been doing a lot of net surfing over a long period of time without using an anti-spyware program, be prepared for a shock when you run it for the first time. You may find that you've picked up a large number of spyware programs that will need to be removed. Many people report that after removing these programs, their computers "come alive" again, running tasks and programs faster than before. That's because spyware programs use a significant amount of computer resources (memory space and CPU power) without the person knowing they were even running.

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

Popup Blockers

These are fairly straightforward and can be added to whichever version of Web browser you're using, such as Microsoft's Internet Explorer or Netscape.

Popup blockers are add-on components that prevent popups from appearing when you visit a website that employs them. Just be aware that some legitimate web-based services 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 so they will work properly when you visit them.

Again, you'll also need to make certain that you have the popup blocker properly configured and operating when you're surfing the Web. In that regard 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 isn't working as you think it should, don't leave things to chance; either check with the software's technical support people or get a better blocker.

Anonymizer Services

This is a relatively new approach to Web surfing, whereby a software pro-

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gram installed on your home computer lets you visit websites without information about your computer, and any personal information stored on it, being stolen. This information can include your e-mail address, geographic location, computer type, operating system, web browser version, and previous websites visited.

People engaged in phishing can collect all this information when you visit a website, often one that's actually legitimate). What many people don't understand is that when they land on a website, all those advertisements that you see displayed on screen are connected to separate web servers. So your personal information may be "harvested" by several different sources, even though you have only visited one website. You'll see evidence of this when you suddenly begin receiving emails saying that you've subscribed to goods or services when you have not. This indicates that your e-mail has been harvested while you were surfing. Anonymizers work by re-directing your Web search into a proxy server, which masks your personal information, so it cannot be harvested.

This is an emerging area of technological development, and is not without controversy. Some see anonymous Web surfing as a fundamental right (the right to privacy), while others see anonymizers as a means to prevent the detection of illegal activity, such as terrorism or viewing child pornography. Some have also found that the technology used by certain services is not really as "anonymous" as the services claim, thus lulling users into a false sense of security.

Still, if you want to have an extra layer of protection when surfing the Web, this is the next level of protection to install to stay one step ahead of the bad guys. So even if you only want to surf "legitimate" websites, this technology will protect you against an increasing number of hidden threats that are lurking out there on the World Wide Web.

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 properly installed and configured, fully operationally, and regularly maintained. Lack of maintenance or improper operation is the most common cause of security compromises in a home computer.

If you have a computer connected to

the Internet, make it a point to sit down and check it over to see if you have the proper defense systems in place. Given the importance that the maintenance of your personal computer now plays in Internet security, it should also be viewed as assisting in America's Homeland Security.

For further information on home computer network security and software resources, please see the sidebar "Great Resources For Anti-Intruder Defenses."

Coming Up

Next month I'll take a look at the current technology used in capturing large amounts of analog information, converting it into digital form, processing it, and then successfully converting information back into analog form. There's a wide range of such converters available today and, best of all, they're becoming increasingly inexpensive.

As always, if you wish e-mail me with any questions contact me at carm_popcomm@hotmail.com. I can't answer general questions on computers, but will be more than happy to help you with any issues raised in the columns.

The prediction when I wrote this column was that the summer was going to be one of the worst on record for storms. I hope this prediction has not come true, but if it has please send a donation now to the American Red Cross (www.redcross.org/donate/donate.html) to help your fellow Americans. However, there are many good (and ethical) organizations that you can contribute to, so please use them if you wish but do not give into "charity fatigue."

If you have a job, a family around you, and live in a stable neighborhood, then frankly show your thanks for that wonderful good luck by sharing with someone less fortunate, and do so regularly.

Let us also not forget our troops overseas who continue to need our support, particularly as fighting in the Middle East and Afghanistan remains sustained. Please refer to the U.S. Department of Defense's official webpage, "Defend America." The section found at www.defendamerica.mil/support_troops.html has an amazingly wide range of practical and useful ways that you can directly help.

Again, if you are fortunate enough to live in the United States of America, please remember to give thanks for your personal blessings by passing on that blessing to others through regular acts of selfless sharing.

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Monitoring The 2006 Hurricane Season

One of the less obvious reasons that I always advise newcomers to the radio hobby to keep a detailed log of their activities is that I often simply find it enjoyable to look back at my own old logs. Never mind the fact that after awhile your own logs become one of your very best reference sources (which is the main reason you should keep a detailed log of your listening!), it's also fun just to sit and try to think back to the time when the various events recorded in your logs were occurring.

I like trying to remember what was going through my mind during some of the more memorable logs of the past. For me, it's almost like re-living those events and whatever juicy "catches" were recorded in my logbook as a result. In addition, for me, like many of you, the most memorable monitoring of 2005 was no contest—it had to be the hurricane season.

The 2005 hurricane season was the most costly ever, in terms of both damage and loss of life, and was punctuated on August 29 when, according to the United States Geological Survey (USGS) department, Hurricane Katrina made landfall as a category 4 storm in Plaquemines Parish, Louisiana. While I'm sure nobody has forgotten the terrifying images that appeared on our television sets each evening for weeks after Katrina devastated the Gulf Coast, leaving much of New Orleans flooded and laying waste to the coastal areas of Louisiana, Mississippi, and elsewhere, the effect this storm had on the monitoring community was unprecedented.

The magnitude of Katrina's destruction caused radio hobbyists who had never bothered much with hurricane-related communications to suddenly take a deep interest in this facet of listening. Experienced radio monitors felt as if every beginner in the hobby was posting to every Internet radio forum with requests for frequency information. There was plenty of information, too, and for beginners and experienced practitioners of the radio arts alike, there was plenty to listen to. The ham radio ARES and RACES frequencies were abuzz. Obscure federal agency nets that were usually only heard testing their systems on Wednesday mornings were suddenly operating at full-tilt. All you needed to do to hear some hurricane-related communications was to know where to listen.

That's where this month's column comes in. By the time you read this, the 2006 hurricane season will officially be well underway. While we certainly hope that this year's events will be significantly less costly and destructive than last year's, the National Hurricane Center has actually predicted an 80-percent chance of an above-normal hurricane season. That, unfortunately, means the odds are that a hurricane is eventually going to ruin someone's day—or worse—and when that happens, the airwaves will again be active with communications activities.

Some Practical Advice

Before we get into the radio aspect of hurricane monitoring, I'd like to offer a few words of advice. If you live in an area that might be in the path of a hurricane, please take the appropriate precautions to safeguard the lives of your loved ones and yourself. Stock up on supplies (you know the drill here, I hope—food, water, flashlights, batteries, medication,

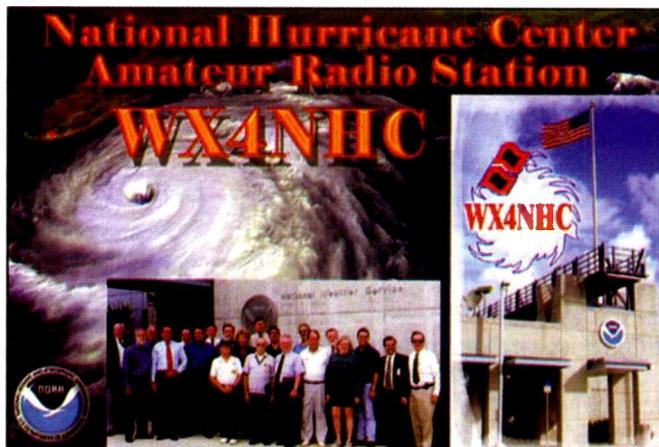


Photo A. Log WX4NHC, the ham station at the National Hurricane Center in Miami, Florida, and this nifty QSL card could be yours!
(Courtesy of the National Hurricane Center)

personal hygiene items, etc.), and have an evacuation route planned out well in advance.

Make sure your supplies include a few radios (and plenty of those aforementioned batteries) so you can keep abreast of the situation and listen for instructions from official sources. You might even wish to include a small portable television set so you can turn it on and watch reporters wearing heavy rain gear stand right next to the ocean and tell you again and again how important it is to stay away from the ocean!

Now, if your home is reasonably well-constructed and is located in Wisconsin, or in the Buffalo, New York area, as mine is, you can probably ignore this advice (at least until winter sets in and the possibility of being hit by severe winter storms rears its ugly head). Otherwise, please take it to heart, and please do it now; don't wait until you turn on the TV and see a weather person pointing to an ominous radar blob out in the Atlantic Ocean that's headed your way!

Hurricanes and tropical storms are capable of wreaking havoc regardless of what they're called, but for future reference, the names that will be used for the Atlantic basin tropical storms and hurricanes during the 2006 season, listed alphabetically, are as follows: Alberto, Beryl, Chris, Debby, Ernesto, Florence, Gordon, Helene, Isaac, Joyce, Kirk, Leslie, Michael, Nadine, Oscar, Patty, Rafael, Sandy, Tony, Valerie, and William. If those names are exhausted (again), subsequent storms will be named with the letters of the Greek alphabet, as is customary.

Who To Listen To And Where To Find Them

Now let's get on to the communications aspect of hurricanes. For several reasons, we begin with ham radio, which is admittedly not the usual target for HF utility station listeners. Under normal circumstances, we UTE monitors aren't too interested in listening to hams, but the aftermath of a disaster is anything but normal circumstances.

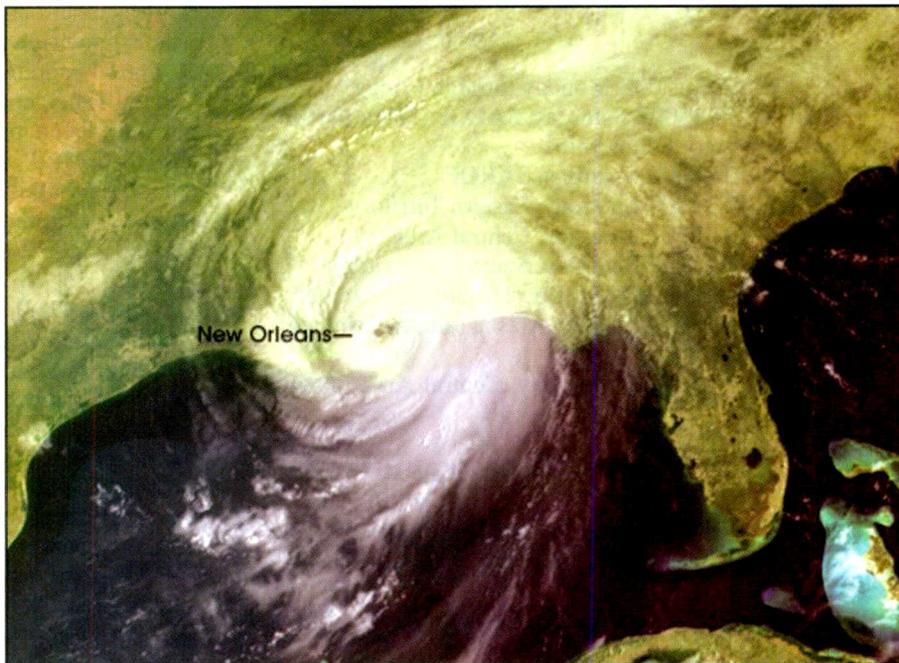
Although I happen to be a ham, I'm not simply tooting the ham radio horn when I begin by telling you that, without question, ham radio plays a very important role in the aftermath of natural (and even man-made) disasters, and hurricanes are no exception. It should come as no great surprise then when I tell you that the best way to hear live reports on a hurricane's progress using your HF-capable receiver is to monitor the Hurricane Watch Net (HWN), which operates in the 20-meter ham band, at 14325.0 kHz. The HWN primarily exists for the purpose of providing information to the National Hurricane Center (NHC) in Miami, Florida.

When a hurricane makes landfall, you'll often hear hams right in the affected area describing what they're experiencing, live on the air, and often while operating on emergency power. This information is summarized and relayed to the NHC, which has a ham radio station of its own, callsign WX4NHC. If you have more than one receiver, it's worth keeping one parked on 14325.0 whenever a hurricane is, or might be, making landfall.

Besides the primary 14325.0 frequency, you can also catch WX4NHC on its 7268.0 Water Way Net/Maritime Mobiles Net secondary frequency, as well as on the Caribbean Net frequencies on the 80-meter ham band: 3815.0, 3950.0 (North Florida alternate), or 3940.0 (South Florida alternate). WX4NHC is also active on EchoLink in the WX-TALK Conference (Node 7203) and as IRLP Node 9219. Finally, you can also log them on APRS using the 30-meter frequency of 10151.0 in LSB. WX4NHC will QSL both ham contacts and SWL reports, so if you "work" or log the station, be sure and contact them for your own personal copy of their nifty QSL card (see **Photo A**).

Incidentally, if you're surfing the Internet and find a website that lists all sorts of juicy HF frequencies for the NHC, you can be absolutely certain that you've found an outdated list that's basically worthless. The *only* HF capability that the NHC currently has is that provided by the aforementioned ham radio station, WX4NHC.

Another good net to monitor is SATERN (Salvation Army Team Emergency Radio Network). The Salvation Army plays an active role in disaster relief efforts and has several regularly scheduled nets, as shown in **Table 1**. For



Hurricane Katrina over New Orleans on August 29, 2005, a category 4 storm with winds of 135 miles per hour. (NASA photo)

licensed hams, there are even a couple of regularly scheduled nets where everyone is welcome to check in. For everyone else, tune to 14265.0 during hurricane relief efforts. You'll find it an excellent frequency to listen to for health-and-welfare traffic as well as communications related to coordinating the Salvation Army's disaster relief efforts.

Table 2 lists several other frequencies for ham radio emergency/disaster/traffic nets in hurricane-prone areas. The actual frequencies that will be used for any particular incident will depend on time of day as well as the location of the affected areas, so tune your receivers accordingly. These frequencies are used by ARES and RACES, the NTS nets, and other nets whose specialties, such as weather or communications with marine vessels, come into play during hurricanes.

The Alphabet Soup Of Ham Organizations!

At this point, I'd better explain the alphabet soup of ham radio organizations involved here (and mentioned in the preceding paragraphs) for the benefit of those readers who may not be familiar with them. ARES (Amateur Radio Emergency Service) is a nationwide organization sponsored by the American Radio Relay League (ARRL), and is a part of the ARRL Field Organization.

ARES members operate under the direction of the Section Emergency Coordinator (SEC) for the area in which they reside. There may also be other Emergency Coordinator (EC) positions besides the SEC, including one or more assistant EC or a District Emergency Coordinator (DEC), for example. This depends largely on the size of the area a particular ARES group must cover and the number of ARES members the leaders must manage.

RACES (Radio Amateur Civil Emergency Service), on the other hand, is sponsored by a government agency that is a bona fide civil defense agency serving the area in which it operates. Under current FEMA guidelines, RACES is implemented at the county level. Ideally, the members of ARES and RACES in any given area are the same bunch of guys and simply "switch hats" when the county agency calls for an activation of RACES. Before that activation occurs, the group can self-activate as ARES for the purpose of getting people notified and to start getting assets in place, so that when RACES is activated, they already have a running start. In addition, as ARES they can also provide public service communications for events such as parades, walkathons, road races, and other community events. Such activities are used as drills and provide at least two valuable benefits to members—namely, they familiarize members with one another, and they give

Table 1. SATERN Net Frequencies

14265 kHz SSB 1500Z Monday through Friday
14265 kHz SSB 1500Z Saturday, SAROF (Salvation Army Radio Operator Fellowship)
7265 kHz SSB 1600Z Saturday, SAROF
7265 kHz SSB 1400Z Saturday, Eastern Territory
7265 kHz SSB 1630Z Saturday, Central Area
7265 kHz SSB 1700Z Saturday, Southern Territory
7100 kHz SSB 0030Z 0930 Local Sunday, Australia
5330.5 kHz SSB 0400Z Daily, Alaska (alternate frequency 5346.5 kHz)
5330.5 kHz SSB 0100Z Tuesday, Central Area (alternate frequency 5346.5 kHz)
3740 kHz SSB 2000CT Monday, Canadian
3920 kHz SSB 2030CT Tuesday, Kansas & Missouri
3977.7 kHz SSB 0400Z Sunday, Western States

Notes:

1. Times are one hour earlier when Daylight Savings Time is in effect.
2. For nets marked with asterisks (*), everyone is welcome to check in.

members experience working in a directed net, both of which are essential when a disaster strikes.

The National Traffic System (NTS) is a network of traffic nets that serves to move messages from one place to another. NTS is also sponsored by the ARRL. NTS operates local nets on VHF and/or UHF frequencies, usually on repeaters, where hams at the local level receive messages for delivery to recipients in their respective areas and inject messages into the system for delivery elsewhere. From the local nets on VHF/UHF messages go to a statewide net and then, if necessary, to a transcontinental net, until they've been moved to the part of the country where the recipient is located. Then the message goes back down the ladder from the transcontinental net, to a state net, and then to a local section or district net where the message is eventually received by an NTS operator, who ultimately delivers the message to the intended recipient.

Other Disaster Relief Organizations Using HF Utility Freqs

In addition to amateur radio, other private disaster relief organizations make use of HF. I already mentioned one of these, the Salvation Army. Another good example is the American Red Cross, which also participates in relief efforts following a hurricane. Here's a short list of frequencies that were monitored during the aftermath of Hurricane Katrina that were active with Red Cross communications (all were USB mode and all are given in kHz): 2802.4, 3171.4, 5136.4, 5141.4, 6859.5, 7550.5, and 7698.5.

Finally, there are the government and military frequencies to consider. Some that were active during Katrina include 5211.0 (FEMA), 5236.0 (the SHARES Coordination Network, a nationwide HF voice coordination net), 7507.0 (the USN/USCG hurricane net primary), 9380.0 (the USN/USCG hurricane net secondary frequency), 10493.0 (FEMA), and 14396.5 (another SHARES Coordination Network frequency).

These agencies' capabilities also include ALE (Automatic Link Establishment), which brings us another group of frequencies for digital monitoring enthusiasts to keep track of. FEMA (Federal Emergency Management Agency) ALE frequencies that have been previously reported include the following: 2658.0, 3341.0, 4780.0, 5402.0, 6809.0, 7348.0, 8050.0, 9462.0, 10194.0, 10588.0, 11130.0, 12216.0, 13446.0, 14776.0, 14885.0, 15708.0, 16201.0, 17519.0, 19969.0, 21866.0, 21866.0, 22983.0, and 24526.0. The frequencies used by SHARES for ALE are 4490.0, 7632.0, 9106.0, 11217.0, 13242.0, 15094.0, 17487.0, 20107.0, and 26812.0.

SHARES, by the way, stands for SHARED RESOURCES, and is a program of the National Communications System (NCS). It's a cooperative venture between numerous state, federal, and industry organizations, 23 in all. Its purpose is to provide a single, interagency emergency message handling system using existing HF radio resources for use when normal communications are either unavailable or have been destroyed. SHARES has three operational levels.

Operational level 3 is the operational level during normal conditions, when no emergencies exist. During this time, the SHARES network is used for training and for non-emergency operations by SHARES personnel. Operational level 2 occurs when the potential for an emergency exists. This includes whenever the Department of Homeland Security (DHS) raises its Threat Advisory Level to HIGH (Orange). When SHARES is at operational level 2, non-emergency operations are suspended. Operational level 1 occurs when an emergency actually exists. This includes whenever the DHS Threat Advisory Level is raised to SEVERE (Red). During operational level 1, national and regional organizations maintain full-period operations.

Last, but certainly not least, is FEMA. With all the publicity FEMA received in the aftermath of Katrina, I'd imagine almost everybody in America now knows what FEMA is, but just in case someone has recently returned from an extended vacation to an extremely remote place (such as on Mars!), FEMA is the Federal Emergency Management Agency and is a part of the DHS.

Other Hurricane-Related Traffic

Besides radio traffic related to the disaster relief efforts, there are, of course, other frequencies and services affected by hurricanes and tropical storms that generate radio traffic for us to listen to as well. For example, with very few exceptions (see the section on Hurricane Hunters), nobody wants to fly an airplane into a hurricane or tropical storm. Thus, the Major World Air Route Area (MWARA) frequencies used by aircraft on the HF bands that are in the affected region can be monitored to observe how aircraft on transcontinental flights maneuver to avoid these storms. There is a sizable network of HF frequencies allocated to voice communications between aircrews and air traffic control facilities. Those used in the Caribbean region, which is split into two regions, are as follows:

(CAR—A) Caribbean Area A: 2887.0, 5550.0, 6577.0, 8918.0, 11396.0, 13297.0, and 17907.0. The frequencies here are used by aircraft communicating with the Barranquilla, Boyeros, Merida, New York, Panama, and Piarco MWARA ground stations.

(CAR—B) Caribbean Area B: 3455.0, 5520.0, 6586.0, 8846.0, 11330.0, and 17907.0. This group of frequencies is used by aircraft communicating with the Barranquilla, Boyeros,

Cayenne, Georgetown, Maiquetia, New York, Panama, Paramaribo, and Piarco ground stations. In both regions, the actual frequency used varies according to several factors, one of which is the effect of radio wave propagation on the HF bands at any given time.

Just as most pilots do not wish to fly their airplanes into hurricanes, most mariners would prefer not to sail their vessels into such storms. Of course, you can't follow ships on the high seas the same way you're able to follow high-altitude aircraft on HF, but there are frequencies on the HF bands that are used for communications between ships as well as between ships and shore stations, and there are maritime weather broadcasts on specified frequencies at regularly scheduled intervals.

In the United States, the U.S. Coast Guard operates the radio stations from which these broadcasts originate. The schedule of these broadcasts was changed last year, so let's make sure everyone has the current schedule. **Table 3** shows the frequencies for each of the six USCG stations that broadcast HF voice maritime weather information. All broadcasts are in USB using the distinctive "Perfect Paul" synthesized voice. The distinctive voice is very helpful in identifying these broadcasts. If you've never heard "Perfect Paul," you can listen to a sample, and make sure your computer's sound capabilities are working properly, by visiting www.nws.noaa.gov/om/marine/hfvoice.wav.

It's also worth mentioning that these HF voice broadcasts may be terminated if they happen to run longer than the available broadcast period. This is probably most likely to happen during the 0515, 1115, 1715, and 2315 UTC broadcasts from New Orleans (NMG) during the hurricane season, during which time the station broadcasts supplementary advisories in addition to the routine forecasts. These broadcasts are also simulcast from station NMN (Chesapeake).

I've found that it's also worth listening to two other frequencies for urgent marine information broadcasts. The frequency 2670.0 kHz carries such broadcasts, after they are first announced on the distress, safety, and calling frequency of 2182.0 kHz.

Digital monitoring enthusiasts aren't left out of the picture either when it comes to maritime weather information on the HF bands. To begin with, there are the NAVTEX broadcasts on 518 kHz. This is an important place to keep track of, since the International Maritime



Photo B. NOAA's hurricane-hunting Gulfstream IV-SP, which uses the radio call sign NOAA-49. (NOAA photo)

Organization has designated NAVTEX the primary means for transmitting coastal urgent marine safety information to ships worldwide.

In the United States, the Coast Guard began operating NAVTEX from Boston in 1983, and currently broadcasts NAVTEX from facilities in Cape Cod, Massachusetts; Chesapeake, Virginia; Savannah, Georgia; Miami, Florida; New Orleans, Louisiana; San Juan, Puerto Rico; Cambria, California; Point Reyes, California; Astoria, Oregon; Kodiak, Alaska; Honolulu, Hawaii; and Guam.

"But hold on a minute," you protest, "I don't own a boat, and I'm not about to spring for one of those expensive NAVTEX receivers!" Well, I have good news for you—you don't need one to copy NAVTEX broadcasts. NAVTEX broadcasts use the same narrow-band, direct-printing forward error correcting (FEC or Mode B) transmission known to hams worldwide as AMTOR. Just use any utility that will copy AMTOR and you're all set. Broadcasts use 100-baud FSK (frequency-shift keying) modulation, with a frequency shift of 170 Hz. If you're using filters on your receiver, expect a bandwidth of about 270 to 340 Hz.

The Coast Guard also broadcasts weather charts, and ice charts are broadcast from Coast Guard communications stations via HF FAX. However, the list of broadcasts from the five stations is very extensive and would fill a couple of pages in the magazine. Fortunately, if you're into digital monitoring, you already have

a computer, so simply visit www.navcen.uscg.gov/marcomms/gmdss/msi.htm. Here you'll find links to the broadcast schedules for each of the five stations: Boston (NMF), Point Reyes (NMC), New Orleans (NMG), Hawaii (KVM-70), and Kodiak (NOJ).

Digital enthusiasts will also want to look into the Coast Guard's HF SITOR broadcasts, which originate from four stations: Boston (NMF), Point Reyes (NMC), Honolulu (NMO), and Guam (NRV). Refer again to Table 3, which also lists the frequencies and start times for these broadcasts. As an added bonus, the International Ice Patrol broadcasts from Boston, sharing the same transmitters on a seasonal basis. These broadcasts use the call letters NIK, and start at 0030Z and 1218Z. So there's an information nugget for you digital monitors to make use of, even when it's *not* the hurricane season!

Hurricane Hunters

No discussion of hurricane-related communications would be complete without mention of the famous Hurricane Hunters. The Hurricane Hunters actually fall into two groups: the military variety and the civilian variety. The military Hurricane Hunters are members of the 53rd Weather Reconnaissance Squadron at Keesler AFB in Biloxi, Mississippi. They're members of the U.S. Air Force Reserve, and they are the only Department of Defense organization that performs the exciting and potentially dan-

Table 2. Commonly Used Gulf-Area Ham Radio Emergency Net Frequencies

3845.0 Gulf Coast West Hurricane	7243.0 Alabama Emergency
3862.5 Mississippi Section Traffic	7245.0 Southern Louisiana
3873.0 Central Gulf Coast Hurricane	7248.0 Texas RACES
3873.0 Louisiana ARES Emergency (night)	7250.0 Texas Emergency
Texas ARES Emergency (night)	7260.0 Gulf Coast West Hurricane
Mississippi ARES Emergency	7264.0 Gulf Coast (health & welfare)
3910.0 Mississippi ARES	7273.0 Texas ARES (alt)
Louisiana Traffic	7280.0 National Traffic System Region 5
3923.0 Mississippi ARES	Louisiana Emergency (alt)
3925.0 Central Gulf Coast Hurricane	7283.0 Gulf Coast (outgoing only)
Louisiana Emergency (alt)	7285.0 West Gulf ARES Emergency (day)
3935.0 Central Gulf Coast Hurricane	Louisiana ARES Emergency (day)
Louisiana ARES (health & welfare)	Mississippi ARES Emergency
Texas ARES (health & welfare)	Texas ARES Emergency (day)
Mississippi ARES (health & welfare)	7290.0 Central Gulf Coast Hurricane
Alabama Emergency	Gulf Coast Weather
3940.0 Southern Florida Emergency	Texas ARES (health & welfare)
3950.0 Northern Florida Emergency	Louisiana ARES (health & welfare, day)
3955.0 South Texas Emergency	Texas ARES (health & welfare)
3965.0 Alabama Emergency (alt)	Mississippi ARES (health & welfare)
3967.0 Gulf Coast (outgoing traffic)	14300.0 Intercontinental Traffic
3975.0 Texas RACES	Maritime Mobile Service
3993.5 Gulf Coast (health & welfare)	14303.0 International Assistance & Traffic
3995.0 Gulf Coast Weather	14313.0 Intercontinental Traffic (alt)
7225.0 Central Gulf Coast Hurricane	Maritime Mobile Service (alt)
7235.0 Louisiana Emergency	14316.0 Health & Welfare
Central Gulf Coast Hurricane	14320.0 Health & Welfare
Louisiana Emergency	
7240.0 American Red Cross US Gulf Coast Disaster	
Texas Emergency	

Note: Frequencies are in kHz; Mode LSB below 10000.0 kHz, USB above 10000 kHz.

gerous job of Hurricane Hunters; namely, to purposely fly airplanes directly into tropical storms and hurricanes.

Equipped with 10 Lockheed-Martin WC-130 aircraft, these aircraft and crews are part of the 403rd Wing of the USAF Reserve, many of whom live along the Gulf Coast. Some of these folks lost their homes, and too many friends, due to the effects of Hurricane Katrina. Keesler AFB itself was part of the affected area, and the Hurricane Hunters were forced to seek refuge in Georgia, where a week later they resumed operations and continued on their mission, all the way through to Hurricane Wilma. The men and women of the 53rd also perform other missions when they aren't flying into hurricanes, including aeromedical airlift operations, search and rescue (SAR), and winter storm reconnaissance.

Unfortunately, the days of hearing live detailed reports from the Hurricane Hunters passed along on HF are history, along with all the old Hurricane Hunter frequencies you still see listed on all too many Internet pages. These reports are now passed in digital formats across

secure UHF military satellite links and cannot be monitored. However, you can read their reports on the Internet (see **Table 4**, which lists this and other handy Internet resources for hurricane monitoring), and you will sometimes hear them on MARS frequencies, such as 13927.0, conducting phone patches for the members of the media who occasionally ride along with them during missions. The usual aircraft callsign is TEAL.

The civilian Hurricane Hunters, perhaps less widely known to the UTE monitoring community than their military counterparts, are from the NOAA (National Oceanic and Atmospheric Administration) Air Operations Center, located at MacDill AFB in Florida. These folks operate a variety of aircraft, including both helicopters and fixed-wing aircraft that are flown in support of NOAA's many scientific missions, one of which is hurricane prediction and analysis. The NOAA-AOC's WP-3D Orions are known as two of the world's premier research aircraft. Also among their assets is a Gulfstream IV-SP (see **Photo B**), which along with the Orions, conducted

flights into and around the eye of Hurricane Katrina, even when she was an extremely dangerous category 5 in the Gulf of Mexico.

Monitors have logged NOAA aircraft on 13270.0 in the past, so listen there during scheduled Hurricane Hunter flights. NOAA-42 and NOAA-43 are the two Orions, while the Gulfstream is NOAA-49.

Air Force Centralized HF-GCS Services

It sounds like business as usual to listeners monitoring the U.S. Air Force's High Frequency Global Communications System (HF-GCS). An Air Force aircraft comes up on one of the primary HF-GCS frequencies, let's say 11175.0, and makes a call using the generic callsign (meaning "any global radio station") assigned to the 14 ground stations located around the world. It may say something like, "MAILSAIL, MAINSAIL, this is REACH 1234 on triple one upper."

Soon enough there comes a reply from one of the ground stations, perhaps

Table 3. USCG HF Maritime/Weather Broadcasts

Voice Broadcasts

Chesapeake (NMN): 4426, 6501, 8764, 13089, and 17314
Start 4/6/8 MHz at 0330Z, 0515Z, and 0930Z
Start 6/8/13 MHz at 1115Z, 1530Z, 2130Z, and 2315Z
Start 8/13/17 MHz at 1715Z

New Orleans (NMG) 4316, 8502, and 12788 kHz
Start at 0330Z, 0515Z, 0930Z, 1115Z, 1530Z, 1715Z, 2130Z, and 2315Z.

Point Reyes (NMC) 4426, 8764, 13089, and 17314 kHz
Start 4/8/13 MHz at 0430Z and 1030Z.
Start 8/13/17 MHz at 1630Z and 2230Z.

Kodiak (NOJ) 6501 kHz
Start at 0203Z and 1645Z

Honolulu (NMO) 6501, 8764, and 13089 kHz
Start 6/8 MHz at 0600Z and 1200Z.
Start 8/13 MHz at 0005Z and 1800Z

Guam (NRV) 6501 and 13089 kHz
Start 6 MHz at 0930Z and 1530Z
Start 13 MHz at 0330Z and 2130Z

HF SITOR Broadcasts (assigned frequencies shown; for carrier frequencies subtract 1.7 kHz.)

Boston (NMF) 6314 (00,01Z), 8416.5, 12579, 16806.5 (12,16Z) kHz
Start Broadcast: 0140Z and 1630Z

Ice (Seasonal, ~Feb-Sep) 0030Z and 1218Z (International Ice Patrol, call letters NIK, no weather)

Point Reyes (NMC) 8416.5, 16806.5 kHz
Start Broadcast: 0015Z and 1730Z

Honolulu (NMO) 8416.5, 12579, 22376 kHz
Start 8/12/22 MHz Broadcast: 0130Z and 2030Z
Start 8/12 MHz Broadcast: 0730Z and 1330Z

Guam (NRV) 12579, 16806.5, 22376 kHz
Start Broadcast 0230Z*, 0500Z, 0900Z*, 1500Z, 1900Z, and 2315Z

Notes:

* = HYDROPAC navigation message, no weather

OFFUTT at Offutt AFB in Nebraska, saying something like, "Station calling MAINSAIL on triple one seven five, this is OFFUTT, go ahead."

Most utility listeners, and even the crew members on the aircraft that calls MAINSAIL, think the reply comes from someone at the facility they've contacted on the radio. Once upon a time, that was even the case, but not anymore. Prior to an upgrade of equipment six years ago, airmen manned the HF stations at each of the 14 ground stations in the HF-GCS. However, today all of the HF-GCS ground stations are remotely controlled by the 789th Communications Squadron at Andrews AFB in Maryland, which con-

trols all 14 stations' transmitters and receivers from the Centralized Network Control Station (CNCS) there.

The 789th has 89 operators, all enlisted airmen, who work 12-hour shifts monitoring designated stations from one of several consoles in the CNCS. A software upgrade currently being performed will eventually allow the operators to sit at any one of the consoles and log into and monitor any of the other consoles. The upgrade will also allow the Air Force to have a second CNCS at Offutt AFB, which will serve as a backup to the Andrews CNCS.

This has been a source of confusion for some listeners who were not aware of the fact that control of the HF-GCS

ground stations had been centralized at Andrews. If you've ever monitored the HF-GCS and heard an operator identify as PUERTO RICO and make a phone patch for an aircraft one minute, then the next minute heard the same operator's voice broadcasting an emergency action message and identifying as OFFUTT, this explains why. That operator was physically located at neither OFFUTT nor PUERTO RICO, but is actually at the CNCS at Andrews!

Incidentally, the government publication that has been the frequency reference for the HF-GCS over the years, namely the DOD's *Flight Information Handbook*, is scheduled to be removed from public access in October of this year. Therefore, if you're ever going to get a copy of this document, now's the time to do it. Run, don't walk, to <https://164.214.2.62/products/digitalaero/planzip.cfm> and download the fih.zip file before it's too late!

Submitting Your Logs To Pop'Comm

Since I seem to have some extra space this month, I'd like to take a moment to thank all the readers who send in their utility logs for inclusion here in the pages of *Pop'Comm*. I would also like to make a couple of requests regarding readers' log submissions.

For example, many of us who have been enjoying the utility monitoring game for many years have become very familiar with what I like to call "radio shorthand," that collection of abbreviations, Q-signals, and other expedients that many of us understand as if it were a second language. We tend to use radio shorthand without a moment's thought, secure in the knowledge that other experienced UTE listeners will know exactly what we mean when we write in our logs, for example, "GOOSE 72 clg MAINSAIL mult times on 11175, no joy before QSY to 8992 due to QRM, rcvg reply DE Offutt, for pp to Eglin Metro for arrival WX, in USB at 1130Z."

That's mostly a fictitious logging that I've concocted to illustrate a point. The meaning of that logging is clear as a bell to me and to most of the experienced monitors out there: GOOSE 72 (probably an MC-130 aircraft en route to Eglin AFB) came up on 11175.0 kHz and called MAINSAIL (a generic callsign referring to any HF-GCS ground station) several times without receiving any reply, then

switched frequencies (QSY) to 8992.0 kHz on account of interference (QRM) and received a reply from Offutt, which provided a phone patch (pp) to Eglin Metro (which is where the folks at Eglin who keep track of weather issues work) so that GOOSE 72 could obtain a report of what the weather was expected to be like when they arrived there (arrival WX).

The Newcomer Needs The CIA To Decipher It!

Unfortunately, it may be anything but clear to a newcomer to our hobby, or someone who isn't even involved in utility listening. Imagine the plight of someone who has just found a copy of *Pop'Comm* on a table in the doctor's office while waiting for his appointment to get his regular yearly physical. He begins flipping through the pages, ultimately landing on the "Utility Communications Digest" column, where someone's nifty shack photo (you did remember to send us a shack photo, right?) catches his eye, reminding him of the impressive pile of radio equipment stacked neatly in a corner of his basement or attic, perhaps inherited from a late uncle who was a ham operator or short-wave listener.

This person might be a prime target for entry into the hobby—if only we didn't chase him away with a lot of technical jargon and other stuff that's second nature to us, but totally undecipherable to him! So before we chase away *many* more potential converts to the radio hobby, I'd like to ask that we include as little technical jargon in our logs as possible. Let's try to make things understandable for newcomers—and potential newcomers—by using plain English as much as possible.

My other request has to do with the format we use for reader logs, which is as follows:

0000 (frequency in MHz): STATION, summary of traffic heard in MODE at 0000Z. (Monitor, Location)

There are numerous examples of the proper format in the readers' logs at the end of this month's column, so the only thing I'll add is, please stick to the standard format, which has been the standard for this column in *Pop'Comm* for ages now. It makes things much easier for everyone concerned if the information is presented in a consistent format; it makes it easier for readers to read and understand

the information, it makes it easier for me to merge the logs received from multiple sources into one document sorted by frequency, and it makes it easier for my editor to proofread the result.

Okay, yes, I admit it—it isn't only me making these requests. My editor is a firm believer in the underlying reasons for these requests as well. So, please try to stick to the standard as closely as possible when submitting your logs...for which I offer you in advance a sincere and hearty "Thank You" from myself as well as my editor!

While I'm on the subject of readers' logs, by now you may have noticed that since I began my stewardship of this column, I have returned to the old convention of including the location from which the logs originated. This is because I believe this information to be of considerable importance. What John Doe on the east coast of the United States hears on some frequency is quite possibly not going to be the same as what Jane Smith in central Australia hears on the same frequency. Therefore, I've started including the location again. Frankly, I was sorry to see the practice abandoned previously, and I've decided to bring it back.

I do understand, however, that some of you may not wish to have any clues as to your whereabouts disclosed, for various reasons. If this is the case, then along with your logs, just include a short comment to the effect of "Location Classified" or give an ambiguous location, such as Northeastern US, Central Europe, Southeast Asia, Somewhere In Japan... you get the idea. We're not asking for your name, address, and phone number here. Make it as specific or as general as you want, or say "Location Classified" and we'll happily include your logs without giving any clues as to where you're listening from!

Now, let's get on to those logs. The following contributions come from the following individuals who did the right thing and submitted logs for this month: Stephen Carmin, Xenia, Ohio (SC/OH), Rick Barton, Arizona (RB/AZ), Larry Weiler, Location Unknown (LAW), Glenn Valenta, Colorado (GV/CO), and your columnist, John Kasupski, Tonawanda, New York (JK/NY).

Reader Logs

2252.0—Unid Link-11 data transmission at 0353. (MC/SC)

3065.0—Unid Link-11 data transmission at 0054. (MC/SC)

4372.0—US Navy Link-11/TADIL-A Net in comms w/KOP, WIQ, 05Y and others, in USB At 0236Z; 0YC and 8YZ in Link-11 coordination net in USB at 2241. (MC/SC)

4469.0—SOUTHEAST CAP 43 net control opening SE Region CAP Net monitored at 0001. (MC/SC)

4585.0—KITTYHAWK 423, KITTYHAWK 4, and MIDDLEEAST 34 in CAP Net at 1223. (MC/SC)

4703.0—Link-11 data transmission at 0055. (MC/SC)

4724.0—ANDREWS with EAM in USB at 0256Z. (JK/NY)

4739.0—ALPHA, MIKE, KILO, and PAPA, USN vessels in Link-11 coordination net at 0004. (MC/SC)

4772.0—Unid Link-11 data transmission at 0052. (MC/SC)

4790.0—T1Z111 (1-111th AVN, FL NG) clg R24631 (UH-60A) in ALE USB at 2221; R26331 (UH-60L #91-26331) clg B1Z171 (1-171st AVN) in ALE USB at 1532. (MC/SC)

4991.0—NK1 (FBI, Newark NJ) clg QT1 (FBI, Quantico VA) in ALE at 0902. (MC/SC)

5171.0—Unid Link-11 data transmission at 0246. (MC/SC)

5320.0—USCGC BELUGA (WPB 87325) working SECTOR EASTERN SHORE to pass information on several vessels in USB at 2239. (MC/SC)

5335.0—INDIA FOXTROT, ALPHA, DELTA, ROMEO, and MIKE, USN vessels in Link-11 coordination net at 0046. (MC/SC)

5574.0—UAL84 clg/wkg SFO and passing position report in USB at 1024Z (LAW); FDX2813 clg/wkg SFO and passing position report in USB at 1036Z. (LAW)

5616.0—DAL126 clg/wkg GANDER for SELCAL check in USB at 2239Z (LAW); DAL128 clg/wkg GANDER for SELCAL check in USB at 2242Z. (LAW)

5708.0—170032 (C-5B # 87-0032) calling ICZ (Sigonella HF-GCS) in ALE heard at 0241. (MC/SC)

5778.5—R26329 (UH-60L) clg B1Z111 (1-111th AVN, FL NG) in ALE at 1343; R23694 (UH-60A) clg T1Z111 (1-111th AVN, FL NG) in ALE at 0146. (MC/SC)

5833.5—G24627 (UH-60A) clg STPOPS (Army Aviation Support Facility, St. Paul, MN) in ALE at 0231. (MC/SC)

6694.0—Z8 & S3 USN vessels in Link-11 coordination net, in USB at 0033. (MC/SC)

6694.0—USN net with WHISKEY ALPHA, WHISKEY FOUR and DELTA FOUR heard in USB at 0346Z. (GV/CO)

6719.4—Unid Link-11 data transmission at 2202. (MC/SC)

6754.0—Trenton Military with aviation WX for "Zagreb" in USB at 0330Z. (RB/AZ)

6760.0—Unid Link-11 data transmission at 0004. (MC/SC)

6985.0—R26258 (UH-60L) clg T12 (12th Aviation Bn, Davison AAF, Fort Bevoir, VA) in ALE at 2256. (MC/SC)

7650.0—T1Z137 (1-137th AVN Ohio NG) calling R26046 (UH-60A) in ALE at

Table 4. Helpful Internet Resources

The following is a very short list of places on the World Wide Web where you can find interesting and/or helpful information on hurricanes, hurricane monitoring, and on several organizations involved in hurricane research or disaster relief efforts.

NOAA Air Operations Center, at MacDill AFB
www.aoc.noaa.gov/index.html

Hurricane Watch Net
www.hwn.org/

SATERN—Salvation Army Team Emergency Radio Network
<http://satern.org/>

Bill Snyder's Hurricane Freqs
<http://aa6kc.home.mindspring.com/>

53rd Weather Reconnaissance Squadron at Keesler AFB, Biloxi, MS
www.hurricanehunters.com/

National Hurricane Center (NHC)
www.nhc.noaa.gov/

Ham radio station at NHC
www.wx4nhc.org/

The SHARES Website
www.ncs.gov/n3/shares/shares.htm

NGA Publication 117 (updated through the Notice to Mariners, for the latest official listing of U.S. Coast Guard broadcast schedules)
www.nws.noaa.gov/om/marine/pub.htm

The British Admiralty List of Radio Signals (an excellent reference source for weather broadcast information)
www.nws.noaa.gov/om/marine/pub.htm

2102; R26125 (UH-60A) calling T1Z137 (1-137th AVN, Ohio ANG, Rickenbacker, ANGB) in ALE at 1635. (MC/SC)

7877.0—Unid OM/SS, probably fishing vessels, chatting about catches and bars, in USB at 0150Z. (RB/AZ)

8065.0—R26606 (UH-60L) clg 1710PS (1-171st AVN) in ALE at 0020. (MC/SC)

8122.0—QUANTUM LEAP and NECESSITY in EE with a maritime medical emergency, before QSY to 12359 kHz, in USB at 0619Z. (GV/CO)

8171.5—R23547 (UH-60A) clg T2Z238 (2-238th AVN IN-NG, Shelbyville, IN) in ALE at 1329. (MC/SC)

8502.0—NMF New Orleans w/ Tropical Surface Analysis wefax at 1820Z. (SC/OH)

8734.0—Olympia Radio, Greece, automated station ID message in USB heard at 0035Z. (SC/OH)

8734.0—SVO (Olympia Radio) YL with repeating freq list weak but readable in USB at 0244Z. (GV/CO)

8864.0—DAL38 calling GANDER but no joy in USB at 2050Z (LAW); PRESIDENTIAL/PRD500 (HPN-OMAA GULF-STREAM) clg/wkg SHANWICK for a flight level change in USB at 2154Z. (LAW)

8912.0—PANTHER instructs 60A to Return To Base, target of interest is reported to have run aground somewhere near their

homeplate, in USB at 2351 (MC/SC) (*Counter-narcotics traffic on known COTHEN frequency. PANTHER is DEA/US Customs, Nassau, Bahamas; "homeplate" is 60A's base of operations for current mission, which is not necessarily where its parent command is located—jk*)

8918.0—New York Radio wkg Air France 790, USAir 319, Delta 766 and others in USB at 1632Z. (SC/OH)

8957.0—Shannon VOLMET weak but readable in USB at 0516Z. (GV/CO)

8971.0—RED TALON 712 (P-3C) clg FIDDLE in USB at 1709. (MC/SC)

8983.0—CAMSLANT Chesapeake wkg USCG 1504, Adv. leaving "Homeplate" (CGAS Elizabeth City, NJ) enrt. to St. Johns with two people on board, in USB monitored at 1504Z. (SC/OH)

8983.0—CG 2134 (HU-25, ATC Mobile) departing en route Key West requests guard from CAMSLANT, in USB at 1349. (MC/SC)

9007.0—CANFORCE 2407 (CC-130) phone patch via TRENTON MILITARY, in USB at 2059. (MC/SC)

11175.0—ANDREWS with EAM TFC in USB at 2118Z. (LAW)

11175.0—NAVY BD570 via PUERTO RICO for phone patch to DSN number at NAS WILLOW GROVE in USB at 2120Z. (LAW)

11175.0—GOOSE 72 (MC-130) via

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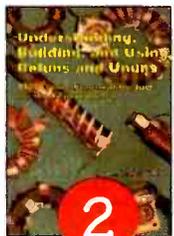


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OFFUTT pp to Eglin Metro for arrival WX in USB at 0211Z. (JK/NY)

11175.0—REACH 370, phone patch via HF-GCS for WX at McChord AFB, in USB at 2342. (MC/SC)

11175.0—DOOM 94 via LAJES pp to DSN number for RHETT OPS in USB at 0100Z. (JK/NY)

11175.0—HEAVYARM (US Mil) calling first ANDREWS and then PUERTO RICO, raising PUERTO RICO, and requesting HF data "with your station." Both stations then went back and forth between this frequency and 9023.0 for several unsuccessful attempts to establish contact before Andrews told HEAVYARM, "We are having technical difficulty setting up our data, we will call you once we get it set up." In USB monitored at 0100Z. (JK/NY)

11205.0—SHARK 13 ops normal report to SMASHER in USB at 1918. (MC/SC)

11220.0—Puerto Rico & Andrews HF-GCS wkg DIVISION for data transmissions at 0119. (MC/SC)

11232.0—KING 21 (HC-130P) phone patch via TRENTON MILITARY to ANGEL OPS in USB at 2054; NATO 041 (E-3 AWACS) p/p via TRENTON MILITARY to CFB Goose Bay informing them they are diverting there for safety inspection due to two lightning strikes, in USB at 0011. (MC/SC)

11265.0—SENTRY 60 (E-3 AWACS) p/p via TRENTON MILITARY to Radar Maintenance at Tinker AFB, in USB heard at 1646. (MC/SC)

11282.0—San Francisco ARINC and AA-254 w/position report before QSY to VHF, in USB at 0202Z. (GV/CO)

11309.0—New York Radio wkg Air France 460, IWorld 9803 and others in USB at 1653Z. (SC/OH)

11315.0—Various commercial aircraft (UP2752, NW71, CO1854, FX653, NW592, NW25, FX3008, NW431, CO377, FX251), position reports in HFDL during period 2151Z through 2204Z. (LAW)

11494.0—CG1706 (HC-130, CGAS Clearwater) phone patch via SERVICE CENTER to Clearwater Air in USB at 2319. (MC/SC)

12602.5—Olympia Radio, Greece, SITOR-A channel marker with CW "DE SVO DE SVO DE SVO" at 2012Z. (SC/OH)

13257.0—SENTRY 60 (E-3 AWACS), phone patch via TRENTON MILITARY to RAYMOND 24 at Tinker AFB, IN USB at 0014. (MC/SC)

13508.5—CANFORCE Meteo with weather conditions summary, 75/850 RTTY. (SC/OH)

13927.1—KING 84 (HC-130), phone patch via AFA6PF to KING OPS, in USB at 1756. (MC/SC)

13927.1—DOOM 91 (B-52H, 96 BS/2 BW), phone patch via AFA2MH Georgia, in USB at 1909. (MC/SC)

15025.0—Puerto Rico HF-GCS clg OMNI 40170 with no answer, in USB heard at 1748. (MC/SC)

Surprise—Good News From Luxembourg!

Ever heard of Broadcasting Center Europe? That's the current name for Radio Luxembourg (RTL), which ended its shortwave broadcasts quite a few years ago. It then returned some years later airing digital programming, which virtually no one in North America is capable of receiving.

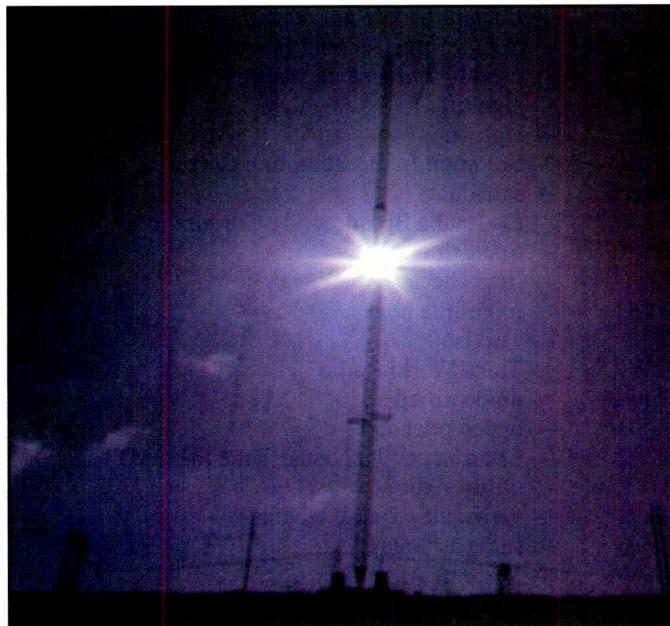
Now there's word that a more complete *comeback* may be in the works. The winter (A06) shortwave frequency registrations show listings for RTL for analog programming in French and English, but only running 10 kW. Check the following:

- 5925 from 0800 to 1000
- 5935 from 0800 to 1500
- 5945 from 0400 to 0600
- 5990 24 hours
- 6035 from 0400 to 0800
- 6055 from 0600 to 0800
- 6095 24 hours
- 7145 from 0800 to 1900 (via Julich)
- 7295 from 0800 to 0900
- 7295 from 0900 to 1700 (from Nauen) (digital)
- 25795 24 hours

We'll see if anything happens on any of this. (Or not.)

Pakistan Coming Back?

A few months ago we mentioned there were plans for a revitalization of Radio Pakistan, which has never qualified as an easy catch in North America. At the time of that announcement the plans seemed little more than wishful thinking. Now, similar scuttlebutt has popped up with Radio Pakistan's head guy announcing that a plan is in motion to cover the country with



Some of the mountaintop transmitting towers of WEWN, Vandiver, Alabama. (Thanks Charles Maxant, West Virginia)



The antenna switching system at WEWN, Vandiver, Alabama. (Thanks Charles Maxant)

Radio Pakistan's signal. Mediumwave and shortwave transmitters are to be "replaced." Some 47 new FM stations are to be built, but it's unclear whether the FMs are replacing the AM and shortwave facilities or these present facilities are also to be upgraded. Stay tuned.

"DX Party Line" Lives On— From HCJB Australia

The passing of HCJB's English language programs won't amount to a total wipe out. The venerable "DX Party Line" will continue, although the length has been sliced in half, down to 15 minutes. HCJB-Australia will continue to carry DXPL as will the more accessible WRMI and WWCN. "DX Party Line" celebrated 45 years on the air in May of this year.

Those Greenville relays of the Voice of Greece have stopped, as have those via Delano, which means we aren't receiving VOG as well or as consistently as we have in the past. This change is likely related to the coming cutbacks at the IBB (VOA) facilities in Greece.

Libya Speaks Louder— In English

Libya seems to have considerably increased its English broadcasts. Its "Voice of Africa" feature, initially just four- or five-minute segments, has been increased to two hours. It's scheduled via France from 1400 to 1600 on 17850 and 21695. The brief English newscasts seem to be still on the schedule, alternating with news in French and Arabic at various times of day.

Radio Nederland plans to revitalize its Bonaire relay station. The four powerful shortwave transmitters at the facility, which have been in use for some 40 years, are to be replaced with two new ones capable of transmitting in standard AM or in digital mode. A new office facility is also being added right at the site.

Help Wanted

Month after month the "Global Information Guide" offers you more logs than any other monthly SW publication! (This month we processed 495* shortwave broadcast station loggings!) Why not join the fun and get your name on the list of "GIG" reporters? Send your logs to your editor at 213 Forest St., Lake Geneva, WI 53147. Or e-mail them to gdex@genevaonline.com, or, if you have problems getting through, to Editor Harold Ort at popularcom@aol.com (see the column for formatting tips). Our deadline is the 25th of each month.

**Not all logs get used; there are usually a few which are obviously inaccurate, unclear, or lack a time or frequency.*

The changes should be completed around the end of 2007.

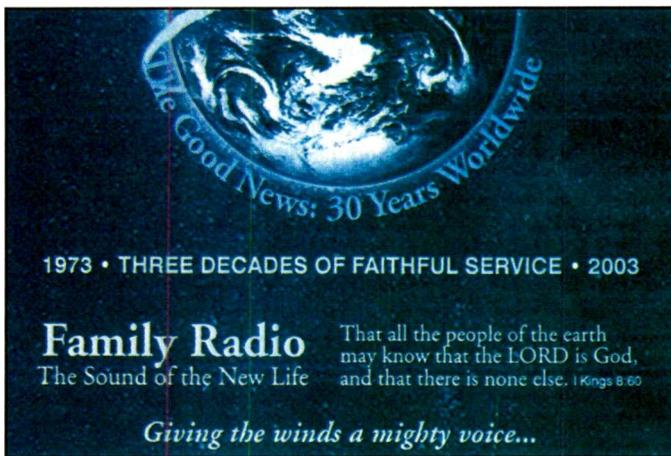
Bhutan's Frequencies

Sometime back we mentioned that the Bhutan Broadcasting Service was due for new equipment. Now we can tell you that, once the update is completed, the frequencies used will be 5035, 6035 (now in use), and 7305. No schedule information is yet available.

A new broadcaster aiming at the Hmong people is on the air. It's called Moj

Abbreviations Used In This Month's Column

*	— before or after a time (time the station came on or left the air)	LSB	— lower sideband
(l)	— after a frequency (lower sideband)	LV	— La Voz, La Voix
(p)	— presumed	NBC	— National Broadcasting Corporation (Papua New Guinea)
(t)	— tentative	ORTB	— Office de Radiodiffusion et Television du Benin
(u)	— after a frequency (upper sideband)	PBS	— People's Broadcasting Station
v	— variable	PP	— Portuguese
//	— in parallel	PSA	— public service announcement
AA	— Arabic	QQ	— Quechua
ABC	— Australian Broadcasting Corporation	RCI	— Radio Canada International
AFN	— Armed Forces Network	Rdf.	— Radiodifusora, Radiodiffusion
AFRTS	— Armed Forces Radio TV Service	REE	— Radio Exterior de Espana
AIR	— All India Radio	RFA	— Radio Free Asia
Anmt(s)	— announcement(s)	RFE/RL	— Radio Free Europe/Radio Liberty
Anncr	— announcer	RNZI	— Radio New Zealand International
AWR	— Adventist World Radio	RR	— Russian
BSKSA	— Broadcasting Service of Kingdom of Saudi Arabia	RRI	— Radio Republik Indonesia
CC	— Chinese	RTBF	— RTV Belge de la Communate Françoise
Co-chan	— co-channel (same frequency)	Relay	— transmitter site owned/operated by the broadcaster or privately operated for that broadcaster
Comml(s)	— commercial(s)	relay	— transmitter site not owned by the broadcaster
CP	— Bolivia, Boliviarf	SCI	— Song of the Coconut Islands (transition melody used by Indonesian stations)
CRI	— China Radio International	s/off	— sign off
DD	— Dutch	s/on	— sign on
DJ	— disc jockey	SIBC	— Solomon Is. Broadcasting Corp.
DW	— Deutsche Welle/Voice of Germany	Sked	— schedule
EE	— English	SLBC	— Sri Lanka Broadcasting Corporation
ECNA	— East Coast of North America	SS	— Spanish
f/by	— followed by	TC	— time check
FEBA	— Far East Broadcasting Association	TOH	— top of the hour
FEBC	— Far East Broadcasting Company	TT	— Turkish
FF	— French	TWR	— Trans World Radio
GBC	— Ghana Broadcasting Corp	Unid	— unidentified
GG	— German	USB	— upper sideband
GMT	— Greenwich Mean Time	UTC	— Coordinated Universal Time (as GMT)
HH	— Hebrew, Hungarian, Hindi	UTE, ute	— utility station
HOA	— Horn of Africa	Vern	— vernacular (local) language
ID	— station identification	(via)	— same as "relay"
II	— Italian, Indonesian	VOAS	— Voice of America
Int	— international	VOIRI	— Voice of Islamic Republic of Iran
IRRS	— Italian Radio Relay Service	WCNA	— West Coast of North America
IS	— interval signal	ZBC	— Zimbabwe Broadcasting Corporation
JJ	— Japanese		
KK	— Korean		



A QSL from Family Radio (WYFR) relayed via the Radio Nederland facility in Madagascar. (Thanks Rich D'Angelo, Pennsylvania)

Them and is scheduled Wednesdays and Fridays from 0200 to 0230 on 15260, apparently via Taiwan.

The sponsoring group is called Hmoob Moj Them and their address is P.O. Box 75666, St. Paul, MN 55175-0666.

The expansions at CVC International (Christian Voice) keep coming. Now they are broadcasting via Meyerton, South Africa, daily from 1905 to 2205 in Portuguese, apparently to Brazil but also for Southern Africa. The service is also active on 9805 from 0600 to 0900.

Reader Logs

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 don't forget that photo of you at your listening post!

We're eager for you to get your 15 minutes of fame!

So let's get the tour started. All times are in UTC and those double capital letters are language abbreviations (SS = Spanish, RR = Russian, AA = Arabic, etc.). If no language is specified the broadcast is assumed to have been in English (EE).

ALBANIA—Radio Tirana, 6115 at 0340 discussing tourist attractions there. And 7110 at 2250 with Albanian folk music. (Brossell, WI) 9920 in FF at 1910. (Charlton, ON)

ANGOLA—Radio Nacional, 4950 with songs in PP at 0255. (Brossell, WI)

ARGENTINA—Radio Nacional/RAE, 11710 at 0200. (Maxant, WV) 0345 in FF. Brossell, WI) 15345 in GG at 2108. (Charlton, ON) 2305 in SS. (MacKenzie, CA)

ASCENSION IS.—BBC Relay, 17830 with soccer commentary at 1650. (Maxant, WV) 21470 to 1900 close. (MacKenzie, CA)

AUSTRALIA—Radio Australia, 6060 at 1104 covering flood emergency. (D'Angelo, PA) 1210 with interview. (Northrup, MO) 9745 at 1303. (Yohnicki, ON) 9580/9710//9745//11880 at 1717. (Burrow, WA) 9560 at 1103, 9580 at 1106, 9590 at 1109 and 11660 in CC at 1312. (DeGennaro, NY) 11660 at 2115. (Charlton, ON) 11880 at 1825, //9475, 9580 and 9710. Also 17785 at 2250. (MacKenzie, CA) 15515 with Waltzing Matilda IS at 2100 sign on. 17785 at 2340 and 21470 at 2200 sign on. (Maxant, WV) 15240//15515 with sports at 0350. (Barton, AZ) 17785 heard at 2345. (Blanco, NY)

ABC Tennant Creek, 4910 heard at 0817 with talks on local matters. (DeGennaro, NY)

CVC International, 13635 at 1710 with pops, discussion of entertainment in Australia and multiple CVC mentions and IDs. (Burrow, WA) 15715 at 1519 with mailbag program. Off abruptly at 1800. (Yohnicki, ON)

AUSTRIA—Radio Austria International, 6155 in GG to Europe at 0540. (DeGennaro, NY) 9870 with "Report From Austria" at 0045. (Clapshaw, WA) 13675 via Canada with mailbag program at 1650. (Charlton, ON) 13775 in EE and GG heard at 1515. (Maxant, WV)

Adventist World Radio, 9895 via Moosbrunn in Urdu to Pakistan at 0215. (Paszkiwicz, WI)

BELGIUM—RTBF, 9970 in FF at 0358 with pop pgm hosted by woman. (Paszkiwicz, WI) 0846 in FF. (DeGennaro, NY)

BOLIVIA—Radio Santa Cruz, Santa Cruz, 6134.8 in SS at 0042 with anmts, lively vocals, IDs, flutes. (Paszkiwicz, WI) 0257 with futbol. (DeGennaro, NY)

BRAZIL—(All in PP) Radio Brazil Central, Goiania, 4985 with local politics at 0220. Also 11815 with futbol at 0003. (DeGennaro, NY) 0020 with talks and commls, //11815. (Alexander, PA) 0314. (Brossell, WI)

Radio Nacional Amazonia, 6180 at 0038 with govt anmts. Also 11780 at 2351. (DeGennaro, NY) 0040. (Charlton, ON) 2321. (MacKenzie, CA)

Radio Nacional, Macapa, 4915 at 0618. (Barton, AZ)

Radio Clube do Para, Belem, 4885 heard at 0618. (Barton, AZ) 0800. (DeGennaro, NY)

Radio Marumby, Florinapolis, 9665 with religious pgms at 0620, //11750, both very weak. (Alexander, PA)

Radio Bandeirantes, Sao Paulo, 6090 heard at 0545. //9645 and 11925. (Alexander, PA)

Radio Boa Vontade, Puerto Alegre, 11895 at 0210 with man preaching, IDs with frequency anmts and more preaching. (D'Angelo, PA)

Radio Anhanguera, Goiania, 4915 monitored at 0800 with music and anmts. Also 11830 at 2251 with news. (DeGennaro, NY) 2245. (Charlton, ON)

Radio Cultura Ondas Tropicais, Manaus, 4845.2 at 0151 with Brazilian pops and man anncr. Off at 0203. (D'Angelo, PA)

Radio Tupi, Sao Paulo, 6060 at 0830 with music, two women talking. Also 9565 with news heard at 0515. (DeGennaro, NY)

BULGARIA—Radio Bulgaria, 9400 in SS to Europe at 0101 and 11700 at 2338 in EE to ECNA. (DeGennaro, NY) 9700 at 2351 with US pops. (Charlton, ON) 2305 with news. Also 11700 at 0210. (Maxant, WV) 11500 in SS at 2315. (MacKenzie, CA) 15700 in PP at 1345. (Brossell, WI)

Radio Varna, 9300 at 0225 with pop pgm and talks in BB. Off at 0300. (D'Angelo, PA) (*Sun/Mon only—gld*)

CANADA—Radio Canada Int., 5850 via Sweden at 2020. (Gay, KY) 11990 in SS at 0032. (DeGennaro, NY) 13655 at 1550. (Charlton, ON) 15150 via Austria in AA at 1938. (Clapshaw, WA) 15325 at 2025 and 17765 in FF heard at 1650. (Maxant, WV)

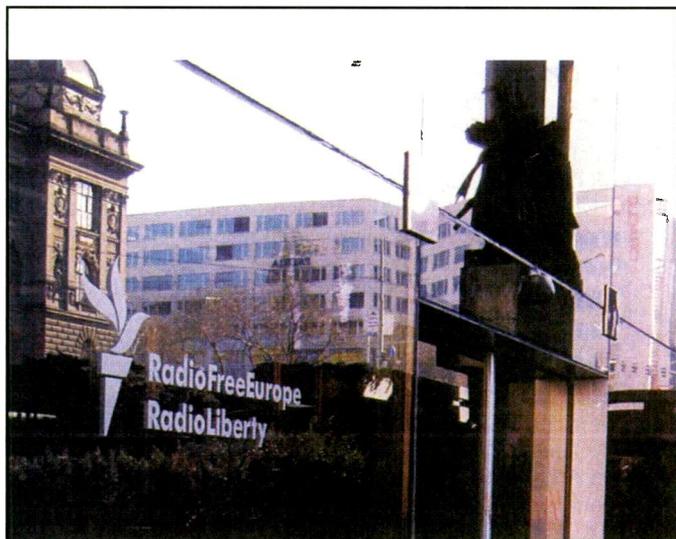
CFRX, Toronto, 6070 relay CFRB at 2245. (Maxant, WV)

CKZN, St. John's, 6160 with local mediumwave relay heard at 0837. (DeGennaro, NY)

CHU, Ottawa, time station, 7335 heard at 1655 with FF anmts. (Maxant, WV)

CHILE—Voz Cristiana, 5960 in SS at 1016. (Jeffery, NY) 5960 in SS at 0843 and 6110 in PP at 0834. (DeGennaro, NY) 15340 at 2242 in SS with some EE. Also 17680 in SS at 1258. (Wood, TN) 15585 in SS at 0230 and 17680 in SS at 1640. (Maxant, WV) 17675 in SS at 1540. (Charlton, ON)

CHINA—China Radio Int., 5960 via Albania at 2030 and 7190 with news at 2105. (Gay, KY) 6020 via Albania in CC at 0237, 9590-Kashi in SS at 2349 and 13650 via Cuba in PP at 2323. (DeGennaro, NY) 9570 via Albania at 0100. (Clapshaw, WA) 9870 at 1522. (Burrow, WA) 11895 in CC at 1807, 13610 at 1810 and 13700 via Canada in SS at 2234. (MacKenzie, CA) 13610 in CC at 1210. (Northrup, MO) 13675 in CC at 1645. (Maxant, WV) 13740 via Cuba with "Life in China" heard at 1547. (Charlton, ON)



A current QSL from Radio Free Europe/Radio Liberty via Kavala, Greece. Note the new logo in the lower left. (Thanks Rich D'Angelo)

CPBS, 6030 in CC at 1325. (Brossell, WI) 9570 in CC at 0220. (MacKenzie, CA) 9645-Beijing in CC at 1116. (DeGennaro, NY) 13690 in CC at 0320. (MacKenzie, CA)

Voice of Jinling, 5860 in CC at 1322. (Brossell, WI)

Voice of the Strait, 5050 in CC at 1320. (Brossell, WI)

China Huayi Broadcasting Co. (p) 6185 with talk show in CC at 1245. (Barton, AZ)

China Music Jammer, 9455 monitored at 1737, //9905 and 13625. (MacKenzie, CA)

COLOMBIA—La Voz del Guaviare, San Jose, 6035 at 0240 with SS anmts, IDs, music. Off with national anthem heard at 0304. (Alexander, PA)

La Voz de su Concencia, Puerto Lleras, 5910 with music and talk in SS at 0840. (DeGennaro, NY) (aka *Marfil Estereo—gld*)

Radio Lider, Bogota, 6139.8 monitored at 0045 with romantic SS ballads and some US pop. Also noted at 0530. (Alexander, PA) 0543. (DeGennaro, NY)

COSTA RICA—Faro del Caribe, 5054.6 with SS programming at 0836. (DeGennaro, NY) 1154. (Brossell, WI)

CROATIA—Voice of Croatia, 6165 in Croatian at 2222. Also 7285 via Germany in SS with Croatian songs at 0343. (Brossell, WI) 0014 in Croatian. (DeGennaro, NY) 9925 in Croatian at 2310. (MacKenzie, CA)

CUBA—Radio Havana Cuba, 6000 in SS at 1310. (Northrup, MO) 6060 in SS at 0244 and 11875 in SS at 0007. (DeGennaro, NY) 9550 in EE at 2312. (Charlton, ON) 9600 in SS at 0227. (MacKenzie, CA) 11805 in SS at 1350. (Wood, TN) 12000 in SS at 1330. (Maxant, WV)

Radio Rebelde, 5025 in SS at 0833. (DeGennaro, NY) 1040. (Maxant, WV) 2307. (Wood, TN)

CYPRUS—Cyprus Broadcasting Corp., 7210 in Greek at 2247. (Charlton, ON) (*weekends only—gld*)

CZECH REPUBLIC—Radio Prague, 6200 in SS at 0325. (Brossell, WI) 7345 in EE at 0022 and 9440 in Czech at 2334. (DeGennaro, NY) 11600 in EE at 2155. Also 17485 in Czech at 1744. (Charlton, ON) 11600 at 1325, 13580 at 1305 and 17540 at 1325. Also 17485 at 1610 (Maxant, WV) 17485 at 1657, and into news at 1700. (Burrow, WA)

DJIBOUTI—Radio Djibouti, 4780 at 0300 sign on with local HoA music, talk and Koran at 0302. (Alexander, PA) 0302. (Yohnicki, ON) Koran recitations at 0305. (Brossell, WI)

ECUADOR—HCJB 9745 at 0400 and 12005 at 1310. (Maxant, WV) 11690 in SS at 1315, 11920 in PP at 2201 and 12020 in PP at 2311. (DeGennaro, NY) 11700 in SS at 2317 and 12040 in GG at 2254. (MacKenzie, CA) 11920 in PP at 0042. (Charlton, ON)

La Voz del Napo, Tena, 3280 in SS at 0810. (DeGennaro, NY)

Radio Chaskis, 4909.3 in SS or QQ at 0403. (D'Angelo, PA)
Esculas Radiofonicas, Riobamba, 5010, talks by woman in SS and SS music at 0315. Haven't heard this one in many a moon! (Brossell, WI)

EGYPT—Radio Cairo/Egyptian Radio, 7270 with news at 0317. (Burrow, WA) 9990 at 2149 with poor audio. (Charlton, ON) 2140. Also 15375 at 2015. (Maxant, WV) 11755 in AA at 2349. (DeGennaro, NY) 11950 at 2302 with North American service. (Wood, TN) 12050 in AA at 1345. (Brossell, WI) 2220 in AA. (MacKenzie, CA)

ENGLAND—BBC 9605 via Japan in CC at 1332. (Brossell, WI) 12095 at 1655, 15390 at 2130 with "Business Daily," 17640 at 1455 and 21470 at 1745. (Maxant, WV) 12035 at 0327. (MacKenzie, CA) 15180 in FF at 1809. (Jeffery, NY) 15190 with news at 1300. (Northrup, MO) 15390 at 2112 and 17640 at 1539. (Charlton, ON)

ETHIOPIA—Radio Ethiopia, 9704.2 heard at 0300 sign on with IS, ID by man, Amharic anmts, brief music and into news. (D'Angelo, PA) 0315 with talks in unid lang. and stringed instrument. (Paszkiwicz, WI)

EQUALTORIAL GUINEA—Radio Africa, (p) 15190 at 0945 with US-produced evangelical programming. (Alexander, PA) 1710 heard in GG. (Maxant, WV)

Radio Nacional, Bata, 5005 at 2244 in SS. (Brossell, WI) 0458 sign on with national anthem, high-life and SS talk. (Alexander, PA)

FINLAND—YLE/Radio Finland Int., 11920 in Finnish at 1646 and 17850 at 1656. (Charlton, ON) 13715 in Finnish heard at 1345. (Brossell, WI)

FRANCE—Radio France Int., 12005 via Vladivostok in CC at 2205. (MacKenzie, CA) 17850 in FF at 1615. (Maxant, WV)

GABON—Africa No. One, 9580 in FF at 0513. (DeGennaro, NY) 15475 in FF at 1627. (Burrow, WA) 17630 in FF monitors at 1539. (Charlton, ON)

GERMANY—Deutsche Welle, 6225 in CC at 1345. (Brossell, WI) 9545-Wertachtal in GG at 2344, 9620 in GG at 0505, 9630 via Portugal in EE at 0458, 9855 in GG at 0853, 9900 via Irkutsk in GG at 1053 and 11865 via Portugal in GG at 2254. (DeGennaro, NY) 11865 via Portugal in GG at 2324 and 15640 in GG at 2318. (MacKenzie, CA) 13780 on soccer at 1539. (Charlton, ON) 15205 at 2130 and 15315 in GG at 2230. (Maxant, WV)

Deutschland Radio, Berlin, 6005 in GG at 0346 with pops and woman annr. (D'Angelo, PA)

GREECE—Voice of Greece, 7475 in Greek at 0337 and 9420 in Greek at 0208. (MacKenzie, CA) 7475 in Greek at 0030 and 9420 in Greek at 2330. (DeGennaro, NY) 9420 in Greek heard at 2320. (Charlton, ON)

GUAM—Adventist World Radio, 11980 in CC at 2305. (MacKenzie, CA) 12035 in CC at 0031. (Brossell, WI) 15320 at 2210. (Clapshaw, WA)

Trans World Radio, 9975 with "Discipleship Hour" at 1452 with ID, schedule, frequencies and sign on at 1459. (Burrow, WA)

GUATEMALA—Radio Cultural Coatan, San Sebastian, 4780 in SS monitored at 0006. (Brossell, WI) 1011. (DeGennaro, NY) 1030. (Maxant, WV)

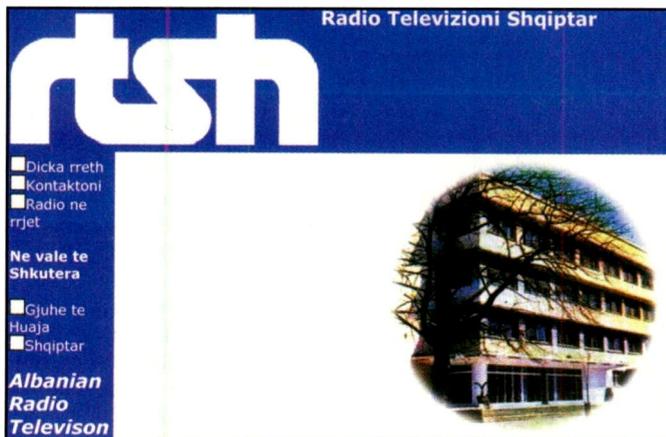
GUINEA—RTV Guineenne, 7125 in FF at 2237. (Wood, TN)

GUYANA—Voice of Guyana, 3291 with pop/rock at 0313. (Brossell, WI)

In Times Past...

And now for some nostalgia. We give you a blast from the past each month—perhaps a logging or a station tidbit from the *Pop'Comm* shortwave history book. Do you remember Radio Gambia, Bathurst, Gambia?

GAMBIA—Heard on 4820 at 2321 February 17, 1965, using just 3.1 kW and running later than usual to carry Gambia's independence ceremonies. Weak, with 60m just coming open. (Dexter-WI)



This QSL for Rich D'Angelo's reception of Radio Tirana, Albania, shows its headquarters studio building.

HONDURAS—La Voz Evangelica, 4819 with hymns and SS at 0757. (DeGennaro, NY) 1035. (Maxant, WV) 1142. (Brossell, WI) Radio Luz y Vida, San Luis, 3250 in SS at 0318. (Brossell, WI) Radio Misiones Int., 3340 in SS at 0325. (Brossell, WI)

HUNGARY—Radio Budapest, 3975 in GG at 1943. (Gay, KY)

ICELAND—(The U.S. military facilities in Iceland are now closed and the AFN/AFRTS outlet there is off the air.—gld)

INDIA—All India Radio, 10330 in Hindi at 0115 and 11620 in EE at 2045. (Maxant, WV) 11620 in EE at 2118 and 13605 in EE at 1932. (Charlton, ON) 13695 at 1205. (Northrup, MO) 15050 in Hindi at 1337. (Brossell, WI) 15075-Bangaluru at 0312. (MacKenzie, CA) 15605-Bangaluru in EE at 0030. (Clapshaw, WA)

INDONESIA—Voice of Indonesia, 9525 on overseas exports at 0115 and 11785 at 2050 on NZ troops in Timor. (Maxant, WV) 15150 with flute music at ToH. (Strawman, IA)

RRI Fak Fak, 4790 in II at 1140. (Brossell, WI)

IRAN—VOIRI, 13790 in AA at 0310, //9935. (MacKenzie, CA)

ISRAEL—Kol Israel, 9345 in HH at 2329 and 11585 in HH at 2239. (DeGennaro, NY) 9400 closing in EE at 1925. (Gay, KY) 11590 in HH at 1930. (Charlton, ON) 13675 in HH at 1720. (Maxant, WV) Galei Zahal, 6973u in HH at 0240. (Strawman, IA)

ITALY—RAI Int., 6010 in EE at 2043. (Gay, KY) 11800 in II at 2359. (DeGennaro, NY)

JAPAN—Radio Japan/NHK, 5960 at 0120, 5975 at 0540, 6120 via Canada at 1050, 11705 via Canada in JJ at 1315 and 17825 with Asian news at 2145. (Maxant, WV) 5975-Rampisham at 0555, 9530 via French Guiana in JJ at 0844, 9540 in JJ at 0848 and 11895 via French Guiana in JJ at 2257. (DeGennaro, NY) 6115 in JJ at 2218. (Brossell, WI) 6145 at 0005. (Charlton, ON) 9535 at 1739, 11785 in FF at 1802, 12045 in JJ at 1749, 13680 in JJ at 2220, 15220 in JJ at 2250, 17810 in Malay at 2258 and 17825 in JJ at 2259. (MacKenzie, CA) 15355 via Gabon at 1746. (Jeffery, NY)

Nikkei Radio, 3925 in JJ at 0934. //6055. (D'Angelo, PA)

JORDAN—Radio Jordan, 11690 at 1550 airing local 96.3 FM. (Burrow, WA)

KUWAIT—Radio Kuwait, 9855 in AA at 2248 and 11990 in AA at 1740. (Charlton, ON)

LIBERIA—Star Radio, 11965 (via Ascension—gld) in unid language at 2155 with ID at 2155. (Charlton, ON)

LIBYA—Radio Jamahiriya/Voice of Africa, 7320 via France, with two minutes of EE at 2225 news and an ID; into FF at 2227. (Alexander, PA) 2310 in AA. (Charlton, ON)

LITHUANIA—Radio Vilnius, 9875 with listener letters in EE at 2350. (Paszkievicz, WI)

MALAYSIA—Radio Malaysia, 7295 with Traxx FM relay in EE at 1555. (Burrow, WA)

MALI—RTV Malienne, 4834.9 at 0555 sign on with IS, march-
 style NA at 0558, FF sign on anmts at 0559 and local music at 0601.

//5995 both at fair level. Both also heard at 2330 to 0002 sign off. (Alexander, PA)

MARUITANIA—Radio Mauritanie, 4845 with Koran at 2232. (Brossell, WI)

MEXICO—Radio Educacion, 6185 in SS at 0324. (Brossell, WI) 0842 with literature readings. (DeGennaro, NY)

Radio Mil, 6010 in SS at 0730 with mention of "Chihuahua," "Mexico," "viva Mexico," "onda corta," ID and commls. (Paszkievicz, WI) 1308. (Brossell, WI)

MOLDOVA—Russian Int. Radio, 7125 via Moldova in RR at 0008. (DeGennaro, NY)

Voice of Russia, 9665 via Moldova in EE to ECNA at 0450. (DeGennaro, NY)

MOROCCO—RTV Marocaine, 7135 in AA at 2240. (Wood, TN) Radio Medi Un, 9575 in AA at 2347. (DeGennaro, NY) 0047 with AA songs. (Brossell, WI)

NETHERLANDS—Radio Nederland, 6015 in DD at 0551 and 9795 via Singapore in II at 1110. (DeGennaro, NY) 12065 via Uzbekistan in unid Asian language at 1350. (Brossell, WI) 17810 at 2015. (Charlton, ON)

NETHERLANDS ANTILLES—Radio Nederland Bonaire Relay, 9590 in SS at 0225, 9845 at 0000 and 11970 in DD at 2330. (MacKenzie, CA) 15315 in DD at 2245 and 17735 at 1910 in EE. (Maxant, WV)

NEW ZEALAND—Radio New Zealand Int., 7145 at 1502 with Pacific news f/by Dateline Pacific. (Burrow, WA) 9870 at 1055 and 15720 with talk features at 2035. (Maxant, WV) 9870 to Western Pacific at 1102 and 9885 to the Pacific at 1058. (DeGennaro, NY) 15720 at 2224. (Jeffery, NY) 2324. (MacKenzie, CA) 0005 with sports news. (Charlton, ON) 15720 with Pacific news items at 0305. (Blanco, NY)

NIGERIA—Voice of Nigeria, 15120 heard at 1630 with opening theme, AA talk and Koran. EE begins at 1659 and closes at 2058. Good strength but audio quality varies from very good to very poor. (Alexander, PA) 1756 with ID by woman heard at 1759. (Yohnicki, ON) 1732 with Nigerian news. (Burrow, WA) 1802 with news in EE. (Jeffery, NY) 1905 with news in EE. (Maxant, WV) 2012. (Charlton, ON)

Radio Nigeria, 4770 Kaduna (p) at 0443 with vernacular Afro pops. (Strawman, IA)

NORTH KOREA—Voice of Korea, 9335//11710 at 1518 with Korean news, ID, revolutionary history. (Burrow, WA) 11710 at 1505 "from the heart of the Korean peninsula," and into news. (Maxant, WV) 13650 in CC at 0324 and 13760 in FF at 0300. (MacKenzie, CA) 15180 in SS at 0040. (Paszkievicz, WI)

NORTHERN MARIANAS—VOA Relay 13640 in JJ at 2224 and 13725 in FF at 2100. (MacKenzie, CA)

OMAN—Radio Sultanate of Oman, 9515 in AA at 0525. (DeGennaro, NY) 15140 at 1400 with Big Ben-type chimes f/by ID, and news. Into US pops at 1412. More chimes at 1500, news headlines and into AA at 1501. (Alexander, PA) 1402 with EE news, jingle ID at 1410 and music program with woman anncr. (D'Angelo, PA) 15355 with AA drama at 2250, ID, chimes and news. (Paszkievicz, WI)

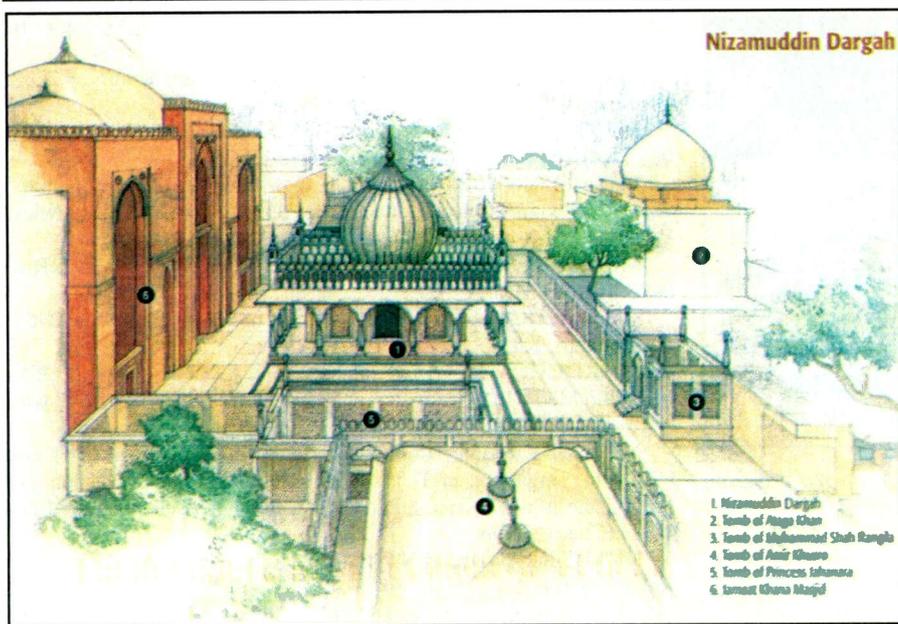
OPPOSITION—Sudan Radio Service, 9735 heard in EE at 0305 with news about Sudan, then a bit of music and off at 0315. (Paszkievicz, WI)

Radio Nile, 9905 via Madagascar heard at 0403 with local African folk music, ID, EE talk about international aid. //12060 with abrupt sign off at 0457. Active Saturdays-Tuesday only. (Alexander, PA) 0416 talking about naming children, ID and into Sudanese pgm. (D'Angelo, PA)

Radio Free Southern Cameroon, 15695 via Russia at 1800 sign on with ID, choral anthem and prayer, news at 1804, local music. Runs to 1859 but on Sundays only. (Alexander, PA)

Radio Solh, 17700 via UK at 1640 but very weak. (Clapshaw, WA) Radio Marti, 6030 in SS at 2312. (Wood, TN) 17670 in SS at 1630 with talk about Cuba. (Maxant, WV)

Radio Waaberi, 17660 via Germany at 1350 with vocal group accompanied by horns and drums. (Brossell, WI)



All India Radio sent this card to Rich D'Angelo for reception of its regional station at Jammu on 4830.

Voice of the Tigray Revolution, 5500-Ethiopia at 0359 and talk in presumed Tigrinya. (Brossell, WI)

Radio Farda, 9775 via Greece, 0243 in Farsi with man/woman talk, many IDs and some music. Possible antenna pattern change at 0300 because the carrier level dropped from fair to poor. (D'Angelo, PA)

Radio Free Asia, 9670 in TT at 0125. (Paszkievicz, WI) 13670-No. Marianas, in CC at 0322 and 13775-No. Marianas in CC at 2237. (MacKenzie, CA)

PAKISTAN—Radio Pakistan, 11570 at 1558 with IS, time pips and opening at 1600 with presumed news. (Burrow, WA)

PAPUA NEW GUINEA—Wantok Radio Light, 7120 with vocals, hymns, talk at 1032. (Paszkievicz, WI) 1509 with inspirational music, ID. (Burrow, WA)

NBC, 4890-Port Moresby, with soft rock at 1312. (Brossell, WI)

PERU—Radio Melodia, Arequipa, 5939.3 heard at 0705 with OA folk music,

pops and ballads. Short, canned "Melodia" mentions between each song. (Alexander, PA)

La Voz del Campesino (t) 6895.4 at 0125 with SS anmts but mostly continuous SS ballads. (Alexander, PA)

Radio Cusco, 6193.4 at 0205 with OA music, SS anmts, ID at 0213 and abrupt sign off at 0214. (Alexander, PA)

Radio Tarma, 4775 at 0220 with SS talks, futbol coverage, ID and s/off anmts at 0257 and soft instl music to carrier off at 0259. (D'Angelo, PA)

Radio Altura, Cerro de Pasco, 5014 with local notices, music heard at 1018. (DeGennaro, NY)

PHILIPPINES—PBS-Radio Pilipinas, 11720//15190 at 1730 in Tagalog with ID, frequencies and schedule and into "Radio Periodico." (Burrow, WA) 15190 at 1934 in Tagalog with music and woman host. (MacKenzie, CA)

FEBC Radio Int., 9405 in CC at 1325. (Brossell, WI) 9435 in possible AA at 2309.

(MacKenzie, CA) 2323 with religious vocals, anmts, IS and sign off. (Paszkievicz, WI) 12065 in CC at 1150. (Northrup, MO)

VOA Relay, 6160 in CC at 1317. (Brossell, WI) 15145 at 2244, 15290 at 2244 and 17740 heard at 2245. (MacKenzie, CA)

PIRATES (*Prepare to be boarded!*)—MAC Shortwave, 6950 heard at 0010 with various songs but too muffled to make out anncr's name. Also heard at 0020 to 0200 with '60s oldies. Said QSL via macshortwave@yahoo.com. (Hassig, IL) At 0015 and 0048 old selections and TV themes. (Balint, OH) 0027 with '60s pop. Thanks to John Fisher for tip. (Strawman, IA) 0042 with oldies rock and genuine old radio jingles mixed in. (Zeller, OH) 0055 with old hits. Anncr only about 20% readable. (Wood, TN) 0135 with "Paul Starr Show" with talk, jingles, oldies and e-mail address. Off at 0203. (D'Angelo, PA)

North Woods Radio, 6925u at 0020 not in true AM but USB plus carrier, tinny, distorted audio and country-rock. Also 6950u at 0020 with C&W, country-rock, "broadcasting freedom from the Great Lakes." QSL via northwoodsradio@yahoo.com. (Hassig, IL) 2359 "This is Northwoods Radio broadcasting from the great north woods" f/by what sounded like the call of a loon. Off around 0041. (Wood, TN) 2335 sign on with mainly rock, novelty song. (Zeller, OH)

Radio First Termer, 6925u at 0035 saying it was "program for first termers and non-reenlistees in Iraq" and said "69 megacycles on FM dial." Hard, acid rock, *Monty Python* theme. Hosts Dave Rabbit and Charlie Cooper. (Hassig, IL) 2306 with long program of acid rock originally broadcast to US troops during Vietnam War. Last five minutes appeared to be a new version designed for US troops in Iraq. Closed at 0043. Also at 2343 with classic rock from old Vietnam War stations. No address noted. (Zeller, OH)

The Crystal Ship, 6854.2 at 0055 with rock, IDs "official voice of the Blue States Republic." (Alexander, PA) 6875 at 0014 with anti-Bush selections, rock selections and criticism of Bush and Iraq War. (Zeller, OH)

WBNY-6925u at 0046 sign on with Texas yodeling, some cowboy music, drama sketch and phone call audio. Several IDs as both WBNY and "Radio Bunny." Also at 2351, which may have been a repeat of the earlier 0046, show. (Zeller, OH)

Voice of Mike Gawkin (?) 6925u at 0057 with doo-wop spoof, spoof of Willie Nelson's gay cowboy tune, fake news items. Said relayed by WBNY and had the same high pitch voice as Commander Bunny. Same show heard at 2054. Also on 6950 at 0125 with a raunchy gay-theme program and giving an Ohio address. (Hassig, IL)

Take It Easy Radio, 6925u at 2338 with bells tolling, sign on, classic rock plus Johnny Cash, plugs for *Pop Comm*, *MT* and *FRN*. Merlin address announced. After 0043 close had a QSO with Scruffy Swab of Iron Man Radio. (Zeller, OH)

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** of Gladstone, Missouri, who receives a copy of the *Shortwave Listening Guidebook* by Harry Helms from Universal Radio. If you still aren't on their list to receive Universal's great catalog of neat radio things each time it's released, then it's high time to take action. Call Universal at 614-866-4267, e-mail them at dx@universal-radio.com, or drop them a note at 6830 Americana Parkway, Reynoldsburg, OH 43068.



Try as you might, you can't hear this one anymore. This reception of Panama's long-gone La Voz de la Victor occurred in 1940!

Iron Radio, 6925u at 0044 with ID by female, Bob Dylan spoof, heavy metal. (Hassig, OL)

WEAB, 6925u at 2110 sign on with trumpet or bugle, short program of rock and a couple of IDs but no address. (Zeller, OH)

Ground Zero Radio, 6925.6 at 0115 with rock and "Happy Trails" song. Sudden off at 0128. 0157 sign on on 6925.5 with a similar program and said to stay tuned for another rebroadcast later. (Zeller, OH)

James Bond Radio, 6950u at 2330 with several themes from James Bond movies, IDs. (Wood, TN)

WMPR, 6925 at 0020 with usual industrial dance stuff, though less severe audio compression than usual. SSTV at end. (Wood, TN)

WMBR, 6925 at 0338 with mostly country-western alternative, parodies, mention of a Sturgis rally. ID at 0404. Address as WMBRradio@hotmail.com. (Wood, TN)

Channel Z Radio, 6925 at 0253 with '70s and '80s things. QSL via Blue Ridge Summit. Unsure of e-mail, maybe channelzradio@gmail.com? (Hassig, IL)

Radio Six, 6930.5 with Elvis and Motown at 0054. Off suddenly at 0058. (Hassig, IL)

Undercover Radio, 6925, 2347 with many IDs, website and Merlin, ON, address. ID, howling SFX and Northwest Radio IDs. (Strawman, IA) 1430 with 20th Anniversary Show. (Gay, KY) 0033 announced as 20th anniversary bcst and many air checks from the old Progressive Music Radio, which Dr. Benway says, he used to operate. Long stories of operating in the old days. Offers a special QSL and CD of the program for reports. Also logged at 2143 and 2159 as well as in USB at 2236 and 0005. (Zeller, OH)

CBZO, 6925u at 0015 with new age rock, heavy metal, Canadian Army spoof. (Hassig, IL)

Laser Hot Hits (Euro) (p) 6275 at 0236 but barely audible. (Strawman, IA) 7414.8 monitored at 0525 with recordings of old pirate radio stations, IDs, Merlin mail drop. Asking for donations. (Alexander, PA)

Mystery Radio (Euro) 6220 at 0030 slowly building strength to peak around 0400. Could pick pop selections from studio audio but not able to get many words. (Strawman, IA) 0125 with pops, IDs, acknowledging listener reports. (Alexander, PA) 0207 with mainly oldies rock and some disco, 3-4 clear IDs. (Zeller, OH)

PORTUGAL—RDP Int., 13700 in PP at 2330. (DeGennaro, NY) 17745 at 1645 in EE on Portugal and the EU. (Maxant, WV) (*using EE again???*—gld)

ROMANIA—Radio Romania Int., 6135 in FF at 0253, 11935 in SS at 0012, 11870 in SS at 0028 and 11940 at 2306. (DeGennaro, NY) 9690 with ID at 0130, 11940 with "Science Today" at 2145, 17860 in RR at 1620. (Maxant, WV) 11940 at 2152 with schedule and ID. (Charlton, ON) 11970 in SS heard at 0334. (MacKenzie, CA) 0045 in SS. (Clapshaw, WA)

RUSSIA—Voice of Russia, 6115-Armavir in RR at 0250, 7330-



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Moscow in SS at 0018 and 12010-Samara in SS at 0035. (DeGennaro, NY; Clapshaw, WA) 15425-Vladivostok in EE at 0308. (Strawman, IA) 15455 heard at 2000. (Blanco, NY)

Murmansk Radio, 5930 at 0345 with clear mention of "Murmanskaya Oblast" and RR talks. (Brossell, WI)

Radio Tikhyy Okean, 9765 at 0851 in RR. ID and end of program at 0859. Carrier off at 0902. (D'Angelo, PA)

RWANDA—Deutsche Welle Relay, Kigali, 11690 in GG at 0033. (Brossell, WI) 12040 in GG at 0040. (DeGennaro, NY) 15275 in GG at 1947. (Charlton, ON) 17860 in AA heard at 1815. (MacKenzie, CA)

SAO TOME—VOA Relay, Pinheira, 6080 at 0330. (Brossell, WI)

SAUDI ARABIA—BSKSA, 11740 in AA at 2243 and 11820 Holy Koran Service in AA at 2248. (DeGennaro, NY) 11915 in AA at 2225. (Charlton, ON) 15170 in AA at 0345, also 15275 in possible Turkish at 0400. (Barton, AZ) 15315 in AA at 1740. (Jeffery, NY) 15380 in AA at 1344. (Brossell, WI)

SEYCHELLES—BBC Relay, 9605 with a church service heard at 2237. (Brossell, WI)

SINGAPORE—Radio Singapore, 6150 with "9-3-8" relay at 1500 with IDs, local commls and news. (Burrow, WA)

SLOVAKIA—*Logs for Radio Slovakia International have not been included since the station has left shortwave.*—(gld)

SOUTH AFRICA—Channel Africa, 7390 at 0348. (Brossell, WI) 11825 at 1050. (Maxant, WV) 17770 at 1535. (Charlton, ON)

Trans World Radio relay, 7215 in African language at 0340. (Brossell, WI)

BBC relay, 7355 with African news at 0323. (Brossell, WI)

SOUTH KOREA—KBS World Radio, 5975 at 1602 with news and commentary. (Burrow, WA) 9560 via Canada at 0215. (MacKenzie, CA) 9570 via Canada heard at 1345 under Cuba. (Maxant, WV)

SPAIN—Radio Exterior de Espana, 6055 in SS at 0241, 9535 in SS at 0051 and 9765 via Costa Rica in SS at 1113. (DeGennaro, NY) 9535 in SS at 2345. (Barton, AZ) 0211 in SS. Also 15110 in SS at 2242

and 15385 in FF at 2308. (MacKenzie, CA) 2323 in SS and 17595 with sports at 1537. (Charlton, ON) 15170 in SS at 1310. (Northrup, MO) 17715 with sports at 1740 and 17850 via Costa Rica in SS at 1650. (Maxant, WV)

SRI LANKA—VOA Relay, 11710 at 0110 with various news and features. (D'Angelo, PA)

SUDAN—Republic of Sudan Radio, 7200 at 0305 with news in AA. (Paszkievicz, WI)

SURINAM—Radio Apinte, 4990 in DD at 0809. (DeGennaro, NY)

SWAZILAND—Trans World Radio, 3240 in an African language at 0340. (Brossell, WI)

SWEDEN—Radio Sweden, 6010 via Canada with EE to ECNA at 0234. (DeGennaro, NY) 15240 at 1242 direct. (Wood, TN) 1340 via Canada. (Maxant, WV) 1355. (Yohnicki, ON) *(15240 usage is tricky; at some hours it's direct from Horby, others via Sackville.*—(gld)

IBRA Radio, 15450 via Germany in unidentified language at 1730. (Clapshaw, WA)

SWITZERLAND—Radio Reveil, 15675 via Germany in EE at 1839. (Charlton, ON)

SYRIA—Radio Damascus, 12085 in EE at 2030. (Maxant, WV) 2315 in SS. (DeGennaro, NY)

TAIWAN—Radio Taiwan Int., 9355 in EE at 2240 *(via Florida—gld)* 13640 in JJ at 2210. (MacKenzie, CA) 15265 heard at 1457 with schedule and sign on. (Burrow, WA)

Family Radio, 9280 via Taiwan in CC at 2243. (Brossell, WI)

THAILAND—Radio Thailand, 5890 via USA with news in TT at 0330. (Blanco, NY) 9695 in TT at 1830. (Clapshaw, WA)

TUNISIA—RT Tunisienne, 7190 in AA at 2250. (Brossell, WI) 9720 in AA at 0243, news in AA at 0300. (D'Angelo, PA) 12005 in AA heard at 0332. (MacKenzie, CA)

TURKEY—Voice of Turkey, 7170 with listener mail at 2100. (Gay, KY) 9460 in TT to Europe at 0532. (DeGennaro, NY) 9785 with EE ID at 1854. (Charlton, ON) 17770 in TT at 1257. (Wood, TN)

UKRAINE—Radio Ukraine Int., 7440 in EE to NA heard at 0026. (DeGennaro, NY)

UNITED ARAB EMIRATES—Adventist World Radio, 15225 via UAE with religious pgms at 1555. Off at 1556. (Burrow, WA)

UNITED STATES—AFN/AFRTS, Key West, 7811u at 0040 and 12133.5u at 2319. (DeGennaro, NY)

VATICAN—Vatican Radio, 7305 in PP at 0050 and 9660 in FF at 0454. (DeGennaro, NY) 11625 at 2020. (Maxant, WV) 13765 in EE with ID at 1530. (Charlton, ON)

VENEZUELA—Observatorio Naval Cagical, 5000 with SS time signals under WWV/WWVH heard at 0813. (DeGennaro, NY)

Radio Nacional, 11760 via Cuba in SS at 2344. (DeGennaro, NY) 2345. (Barton, AZ) 11875 via RHC in SS at 1735. (Maxant, WV) 13750 via RHC in SS at 1536. (Charlton, ON)

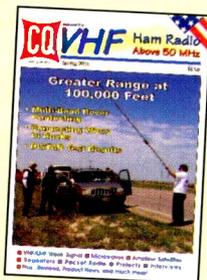
VIETNAM—Voice of Vietnam, 6175 via Canada in SS at 0255. (Blanco, NY) 9730 at 1612. (Burrow, WA) 9839.9 with Cantonese service at 1140. (Strawman, IA) 12020 in VV heard at 2255. (MacKenzie, CA)

And once again—order is restored! An Everest of thanks go out to the following stalwarts who made it happen this time: George Zeller, Cleveland, OH; Charles Maxant, Hinton/Barboursville, WV; William Hassig, Mt. Pleasant, IL; Stewart MacKenzie, Huntington Beach, CA; Chris Gay, Lexington, KY; Dave Balint, Wooster, OH; Joe Wood, Greenback, TN; Jerry Strawman, Des Moines, IA; Arnold Zeck, Bayberry, NY; Bruce Burrow, WA; Robert Brossell, Pewaukee, WI; Robert Chandler, Windsor, ON; Rich D'Angelo, Wyomissing, PA; Michael Yohnicki, London, ON; Mark Northrup, Gladstone, MO; Brian Alexander, Mechanicsburg, PA; Michael Clapshaw, Port Angeles, WA; Mike Blanco, Islip, NY; Ciro DeGennaro, Feura Bush, NY; Sheryl Paszkiewicz, Manitowoc, WI; and Dave Jeffery, Niagara Falls, NY.

Thanks to each one of you—and, until next month—good listening! ■



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Getting A Gig In Radio— “Send Tape & Resume To _____.”



It can probably go down in radio history as the *least* impressive DX catch. On a 1980 business trip to the Midwest, my father snagged the 250-watt AM signal of KOKO Warrensburg, Missouri, while tuned to 1450 kHz in a rented car—in the KOKO parking lot.

Due to the “so what?” nature of such an electronic accomplishment, Dad asked me (as I was off from school for a few days and accompanying him) to scribble a basic reception report, which he then instructed me to hand to a KOKO manager. Father correctly anticipated that the guy would find it much more difficult to refuse a QSL card request from a cute red-headed kid than from the lanky, 6’3” broadcast enthusiast who actually wanted that souvenir.

His assumption was correct, as the operations manager/program director from KOKO seemed to get a genuine kick out of seeing the simple report and filled out a verification card pulled from his top desk drawer. “There you are, young lady,” he smiled while handing me the QSL.

“Would you like to work in radio someday?,” the guy wondered aloud. Enthusiastically, my Dad answered, “She’s already been on the air! I built her a Lafayette 100-miliwatt AM transmitter kit that really covers our Connecticut neighborhood. Hooked it up to a mic and some old kiddie phonograph turntables. Shannon’s a great little DJ!”

I can remember feeling rather foolish hearing Dad’s overblown praise in the presence of a sandy-haired teenaged boy who was sitting ramrod straight in a folding chair next to the OM/PDs desk.

“Well, maybe I should hire your daughter,” the station official politely mused. “We’re looking to fill an announcer position. In fact,” he said while pointing to the young man seated nearby, “I was just interviewing an applicant for that job when you walked in.”

Anybody else would have taken the hint and hit the road, but my father used the cue to suggest that we sit in on the session and help KOKO decide whether or not the teen was “professional radio material.” Much to my surprise, the OM/DPD appeared delighted with the offer, scared

Would you believe I still have that KOKO QSL? Note that it says, “Heard on a mobile.” This is a euphemism for “listened on a car radio about 10 feet from the tower.” Normally boasting 1 kW, KOKO had throttled back to 250 watts while test running the transmitter on the station’s basement-based propane-powered generator.

up two more folding chairs, and didn’t seem the least bit annoyed by Dad asking the kid to hand over his audition tape and resume.

Nervously, the boy fished out a five-inch reel of tape from a bulging, brown leather, Perry Mason-style briefcase. From the same puffy valise, he subsequently produced a sheet of paper on which his resume was neatly typed. Father looked at the document, furrowed his brow, nodded, said “hummm” several times, and then handed it to the OM/DPD for further perusal. He summarized it aloud, noting that the applicant was a soon-to-be high school graduate seeking his first assignment in an anticipated life-long radio career. Dad stayed busy threading the audition tape under the heads of a Revox deck resting on a table piled with various albums and 45-rpm records.

“Sid, you sure know your way around a radio station!” the KOKO man laughed while father acted as if he were an engineering veteran of ABC Radio’s New York master control room. “There’s a toggle switch on a mini box somewhere under that jumble of LPs,” the KOKO guy pointed. “It’ll click the reel-to-reel’s output to that amp and speaker over there on the shelf.”

Mostly, I was focused—without trying to be too obvious—on the boy. As soon as Dad pushed the Revox’s *play* button, the teenager cleared his throat and nervously admitted that he’d produced the tape on a home recorder. “It isn’t an actual air-check, per se,” he said. “I haven’t had any actual airtime on a *real* station, just the closed circuit one that my high school radio club piped through to the cafeteria at lunchtime. Even so, I always strove to treat the experience as professionally as possible. You’ll hear some news, sports, public service announcements, and my DJ work.”

Though it sounded perfect to me then, now knowing a bit more about broadcast performance, I can recall the contents as being a bit stiff and canned. “Good afternoon Tecumseh High students in the scholastic dining listening audience,” it began. “This is your local school news report. Robert W. Michaels reporting live from the Tecumseh Nebraska High School action central *news* desk! I’ve got exciting *news* about our Tecumseh Indians sports teams!”

Miss Shannon Huniwell of CT
THIS CONFIRMS YOUR RECEPTION OF:
(Heard on a mobile)

QSL **KOKO** QSL

1450 KHZ. IN WARRENSBURG, MO.

AT 3:00 PM / CDST
..... May 11 1980

We Were Operating At ²⁵⁰ Watts
73 AND GOOD DXING

Signed: *Marion Woods*
Operations Manager/Engineer



KEX 1190

Golden West Broadcast Center
4949 S.W. Macadam Avenue
Portland, Oregon 97201
(503) 225-1190

ERIC G. NORBERG
Program Director

March 27, 1979

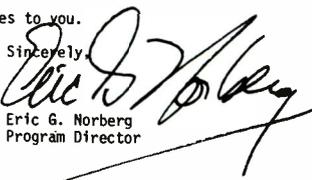
Dear

Thank you very much for the opportunity of hearing your tape and reviewing your resume. The volume of applications for our opening was the heaviest I've seen in the seven years I've been with Golden West Broadcasting...very gratifying, but it made the selection process extremely difficult. After reviewing your application and all the others, we eventually decided the person whose skills and approach best matched what we sought for our opening was Vern Robinson of WSIX in Nashville, Tennessee, and he will join our staff shortly.

We have no file for tapes, and so I return yours enclosed, but I will be keeping your resume on file--together with my impressions of your tape--for later reference here at KEX if necessary, and for reference in instances when program directors of other stations call me for good air personality recommendations.

Thank you again, and our best wishes to you.

Sincerely,


Eric G. Norberg
Program Director

EN: kam
Enclosure

GOLDEN WEST BROADCASTERS, INC.: KPNC Los Angeles • KSFO San Francisco
KVI AM-FM Seattle • KEX (AM) KQFM (FM) Portland • WCAR (AM) WTVR (FM) Detroit • KTLA (TV) Los Angeles

Here's a late 1970s' example of a radio "Dear John" letter. Respected KEX in Portland, Oregon, had just concluded a nationwide talent search and was politely letting unsuccessful suitors know they were appreciated but not selected for the coveted on-air position. Such a major market station's hunt might pull 500 tapes and resumes. KEX management was unique in that, rather than recycle the tapes in the KEX production room, it returned them—with a valued critique—to the applicants.

His delivery and pronunciation was over-the-top in that the fellow obviously tried pushing down his voice at least an octave. The word "news" came through with three syllables, "knee-you-za," and that "W" middle initial got treated to a very exaggerated "double-U." Dad and the OM/PD were encouraging, though, and agreed that the ability to say "double-U" represented promise over applicants who might sloppily utter "dubba-ya." They also complimented the kid on his friendly DJ announcing and choice of music on the tape for being "mass appeal pop/easy-country/middle-of-the-road" with a little something for everyone.

He cautiously boasted of having done "lots of programming research for his radio show" because not only high school kids were listening, but the "elderly lunch ladies" who had access to the public address system volume control would turn it down if he didn't say and play something they liked, too.

Dad and the OM/PD said they were very glad that the boy had "scoped," or telescoped, down the audition tape to just a

few seconds of music at the beginning and end of each record. "You'd be surprised," said the KOKO official. "just how many tapes so-called radio pros looking for an on air gig send me that contain the entire songs. I already know what Frank Sinatra or the Beatles sound like, it's the announcer's work I need to hear, and hear quickly, so I can get on to the next tape and make a decision. I appreciate a nicely scoped tape with the bulk of the music and other extraneous content edited out."

With that, the audio died. "Oh no!" the boy moaned. "A splice broke. I'm sorry that this master recording is all I've got, and the splicing tape I used to piece it together was kind of dried out and doesn't always stick so great."

"That's okay," said the KOKO interviewer. "I've heard enough. Enough, enough, indeed." He paused for effect. The young man's head fell. Then the OM/PD whispered, "Sid, would you and your daughter like to accompany me and my new announcer on a nickel tour of the station?"

The kid's facial expression changed from disappointment to surprise. "Me? You mean you'll hire me for the part-time weekend DJ position?" he smiled with genuine relief.

"Well, you need to start somewhere, and Warrensburg, Missouri, is as good of a city of license as any to begin your broadcast career resume." Dad heartily congratulated the young man and practically shook the relieved kid's hand off of his arm. I smiled at the boy who nodded back in a way that told me he was pretty proud of officially "being in radio."

Where Did All The Good Times Go?

While there are many more stations on the dial today than there were 20-plus years ago, radio jobs were much more plentiful back then. Prior to FCC public service deregulation, before satellite distribution of programming to stations, and in a pre-computer hard drive era when voice tracking had to be done in real time on tape and usually sounded pretty staged, even modest broadcast outlets employed at least two or three fulltime announcers, several part-timers, and a couple of folks in the news department.

Lots of operations also sported a sports director, farm programming person, special features (usually covering women's, religion, health, and education issues) reporter, commercial production director, and salespeople who'd help with remotes. Arguably, elimination of the Commission's trusty old Rule of Sevens (the dictate preventing any one individual or company from owning more than 7 AM, 7 FM, and 7 TV stations, with no more than one of each service in the same market) has been most responsible for sharply reducing the number of competing broadcast employers in any given area. This consolidation typically resulted in four or five co-owned stations being operated out of a single facility, with sometimes as few as one programming employee.

Find A Good Farm Team "Feeder" Station

In a world predating the Internet, radio industry hopefuls networked for on air jobs via word of mouth and by "checking the trades," or insider publications, like *Broadcasting*, *Billboard*, and *Radio & Records*. If we use, say, 1970 as a snapshot year, *Broadcasting* magazine (though categorized as a "newspaper" in order to qualify for cheaper mailing) contained the most complete range of radio openings. Big, prestigious stations would take out large block ads (usually with instantly recognizable



8121 Sunset Boulevard,
Los Angeles, California 90028
(213) 469-1212/CBS Owned

Dear Peter:

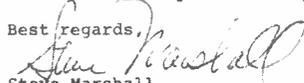
February 28, 1979

Thanks for sending along the tape and resume. A very smooth, polished and professional job. I wish I had some encouraging words for you, but we just don't have openings all that often at KNX/FM.

In any case, I'll put your material into the active file so that I may have a point of reference when something happens.

Best of luck to you in Philly.

Best regards,


Steve Marshall
Program Director

Peter Davis received a short but thoughtful reply to his unsolicited tape and resume foray towards Los Angeles' KNX-FM. Though doing fine at the leading soft rock station in Philadelphia, Davis had hoped to join the similarly programmed KNX-FM and then try breaking into TV script writing. Sitcom WKRP In Cincinnati was in production a few miles away from the CBS owned and operated FM, and Knight dreamed of also becoming a part of that classic show's creative team.

corporate logos and call letters) to "invite top notch applicants to apply" for a specific three-hour timeslot, while rural daytimers bought 20 words that sought dependable newcomers willing to wear a variety of on-air hats.

Savvy wannabees equipped themselves with a recent copy of the *Broadcasting Yearbook*. Though with an occasional typo or stray bit of information, this annual tome could be a tremendous help to an applicant trying—often from afar—to size up a particular station or market area. For those who took the time to read between the lines, the *Yearbook* offered valuable insight on a station's real nature.

Veteran air-personality Peter Knight recalls getting a morning show offer from the general manager of a medium market AM/FM who stressed "a friendly atmosphere and lots of chance for advancement." As the GM was making his pitch on the phone, Knight flipped through a *Yearbook* and noticed the same last name was listed for every position in the managerial lineup, from president to program director. When queried on this point, the GM indicated his father had started the station in the 1930s, and admitted that almost the whole family was on the payroll. For Knight, this signaled a working environment where blood would always be thicker than water, and where relatives would win out over talent, logic, and hard work. He politely declined the job and took a position at a Long Island station where no two members of any one family held sway.

Knight remembers a radio colleague who benefited greatly, though, from a Mom & Pop operation. It was WYCL, a small AM in York, South Carolina, that possessed a reputation as a good "feeder" station. That is to say its owner and his wife liked teaching new on-air talent the ropes and then helping them move up to big market operations once they'd been there a while and developed a good style. Knight's pal heard that many a major-market southern station had stars that began shining at a "peanut whistle" in York, so he looked up the AM in the *Broadcasting Yearbook* and sent an audition tape to WYCL's management. He got a position, did a good job, was mentored by the owner and

his wife (who often invited him to Sunday dinner), and, with their blessing and great reference, left about 18 months later to continue his career at a famous station in Charlotte, North Carolina.

Make A Call, Avoid A "Toilet"

The *Broadcasting Yearbook* always included station phone numbers. Smart applicants would spend the money to phone the facility that was advertising for a DJ. A call after business hours, as well as a call to their competitors was also in the wise on-air job seeker's playbook.

The radio business has always been a rather fraternal universe comprised of people who like to talk, and there tends to be lots of local insider gossip. It's amazing how much one could learn about the inner workings of a particular station in the space of a 10-minute informal phone call to the night announcer. He or she was often surprisingly loose-lipped when chatting with a fellow radio person instead of some 12-year-old requesting a stupid record that'd already been aired twice that evening.

It was a good bet that a phone call to the DJ on duty at a rival station would also result in some useful background intelligence. When chatting with such personnel, one would need to be able to discern the nuances delineating hard truth from plain old sour grapes. In that mode, there'd be an opportunity to decipher which broadcast licensees operated "toilets," to use the 1970's radio vernacular for stations where neither the facilities were well maintained (except for the new carpeting and furniture in the general manager's office!) nor the air staff treated with much kindness.

Knight cites a Connecticut AM that paid its salespeople a full day's wage (though giving them the day off) on holidays, while requiring announcers to do their regular shifts at the usual hourly rate. A similar "toilet" frequently sought (in radio's free classifieds) "tapes and resumes for future openings." Nine times out of 10, as soon as the "T & R" onslaught began, the mailing envelopes in the best condition were taken to the secretary, the resumes quickly discarded, and tapes bulk erased and then tossed in a big carton in the production room where they'd be used to record commercials, etc.

Knight was assigned to this cannibalism and endeavored to listening to each tape before zapping it into the land of white noise. Sometimes, he'd take pity on the sender and give them a complimentary thank-you call and courteous warning to look elsewhere. Plus, it wasn't uncommon for the tapes to contain a clever bit that he could use on the air. "In a strangely refreshing way," he mused, "tape duty connected me with other struggling broadcast professionals and taught me about new things that were happening in the business. I certainly wasn't otherwise learning much at that station."

That same station was terminally slow in upgrading outdated or broken equipment, and for several months didn't replace disgustingly scratchy records in its quickly deteriorating music library. During one spring, the station's Top-40 rotation consisted of only about eight then-current 45-rpm singles. The usable oldies section had dwindled, too. Fixing to make an audition tape, Knight spent a good chunk of a week's pay at a Boston record shop where he bought enough music to fill in the gaps on his radio show.

Needless to say, when he left—with his tunes—for a gig in Philadelphia, the Connecticut outlet went back to its old "flush." In fact, Knight wasn't even replaced for quite some time. Management simply mandated that the DJs on either side of his



What a mish-mash! An air-check tape emblazoned with poorly penned marker and on a hard-to-handle three-inch reel (with a crack in one of its spokes). At least the tape is headed with a foot of white leader. The box is plastered with several stickers, none of which identify the air-check's sender.

show extend their time slots two hours apiece to take up the slack. One of these guys later called Knight (who by that time was using a different air name) in Philly to laugh that, out of sheer necessity, the poor fellow had just played the same song for the fifth time in a six-hour stint "I sure hope you'll let me know if you hear of any openings up your way!" he begged Knight.

Make A Call, Avoid A Nut

There's a sad tale about a northern Michigan announcer who responded to a classified in a radio publication that accepted free "help wanted" ads. One such ad read:

Dynamic new broadcast company seeks serious radio professional with good voice and personality to handle mornings on our corporate flagship station. Successful applicant will focus on AM and FM and have the additional opportunity to do anchor work on our sister TV outlet. Send tape, resume, and recent photo to...

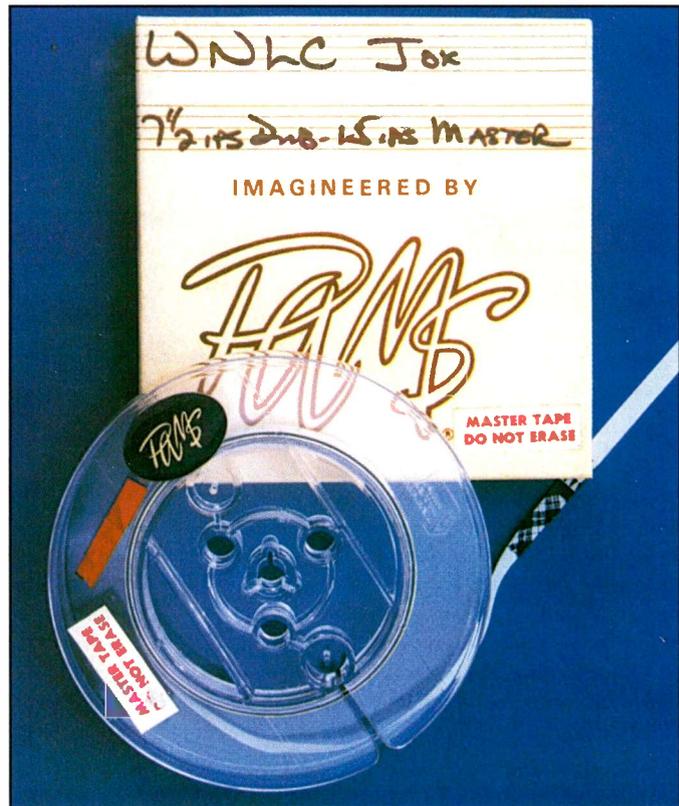
About a week after sending the requested materials, he got an enthusiastic call from the "president" of this broadcasting firm. Following a lively hour on the phone with the man, who, in retrospect, asked a handful of rather odd, personal questions besides the usual radio banter, the announcer happily agreed to irresistibly attractive salary terms ("Tell me what you make now and I'll triple it!" the smooth talking caller offered.) Our hero then gave two weeks notice to his employer, bragged to his friends and family, and started packing.



BROADCAST PRO-FILE

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The generous center hub on this 5-incher reads "torque reel" and makes the tape much more likely to retain proper shape on the playback heads of an aggressively powered professional tape machine. Had this master jingle package tape instead been a nicely produced air-check, it would feature pleasing visual aspects, such as typed labeling on reel and box, clean, non-creased Scotch-brand white leader tape (fore and aft of the magnetic tape) with incremental plaid markings, and a fresh strip of red hold-down tape to keep the end of the leader adhered to the reel's top side during transport. The whole package was designed to shout to the PD who opens the tape & resume envelope, "I am neat and professional and ready to go to work for you!"

Unfortunately, the only research this radio guy had done was to consult a Texaco road map for the best route to Denver. He did jot down the calls and frequency of the big AM where he'd soon reign, but even after his two-day drive in a yellow Ford Pinto brought him to the outskirts of the Mile High City, no trace of such a signal was evident. The quickest check of the legitimate Denver radio station listings in *Broadcasting Yearbook* could have shown him that the person who submitted the classified advertising was either incredibly mean, perverted, or off his rocker.

As a footnote, it should be mentioned that more than one announcer got fooled by a friend, spoofing from some phone in a tiny station's production studio and claiming to be the program director of, say, WABC *MusicRadio* 77 in New York or Boss 93 KHJ out of Los Angeles.

"My wife and I were recently vacationing in your area," the prankster might say in a cool, professional voice, "and we were highly impressed by your suave on-air style. How about coming out this way for an interview? Just set it up with my secretary and we'll do a power lunch."

Typically, the lights on the phone would give away the fact that, coincidentally, someone was simultaneously using the production room line. Every so often, however, this telltale

factor occurred because the production room phone was being legitimately used at the same time that a big city PD actually was trying to offer the suspicious DJ a brighter future.

"Mistaking him for our goofy afternoon jock who did lots of voices at the small town Class "A" FM where I started," a now major marker air-personality chuckles, "I hung up twice on one of renowned radio consultant Bill Drake's associates. My afternoon colleague knew I'd sent off a tape to Drake's organization and so I figured he was razzing me. Luckily, the real bigwig decided to dial a third time, and it so happened that the afternoon guy had just walked in the studio to borrow a buck for some McDonald's food or something. Man, did I start apologizing to the Drake exec! The guy said it was okay and that the same thing had once happened to him."

Air-Check Ingredients

Newcomers to the radio DJ game often ignored—either out of ignorance, considering it to be counterintuitive, or by design—the main air-check rule: *two minutes is max!* Veteran programmers can tell within seconds whether or not the person on the tape is a "keeper." While it might seem that a PD needs to hear a lot of you in order to decide whom to hire, they appreciate a couple of minutes of the following:

- A "scoped" portion of your show revealing how you sound between music elements. Be sure that the songs are upbeat. Do only G-rated comedy.
- A :30 second "live" commercial that you've delivered on your show.
- A brief interaction with a caller in a contest or public service mode.

Nowadays radio folk might simply e-mail their air-check as a sound file to prospective employers. Prior to this convenience, however, the physical air-check package could make or break an applicant's chances of success. Using a neat label and mailing envelope was understandably vital. What many radio people (hoping to go to a larger station) didn't realize, though, was the taboo of affixing one of your present station's address labels or writing a cover letter on station letterhead. In the short term, doing so might have looked good, but it advertised the obvious: that the applicant had no compunction about appropriating someone else's property for personal use.

To make a great impression (even though the stuff was likely obtained from the station supply closet), the audio tape used to record the audition reel contained about a yard of leader tape at the beginning and end of the magnetic tape. Finally, everything was wound on a torque reel, a plastic thing with a big hub designed to keep tape tight on the heads without stretching it. The presence of a torque reel instantly told the PD, who was about to scrutinize the air-check, that the sender was professionally savvy enough to "send the very best." Of course, most of these reels were taken from stations' boxes of various audition and commercial tapes. Because so many stations recycled tapes/reels sent to them by others, such pilfering wasn't considered to be bad form.

A Classified Snapshot

Just for fun, let's check out several "Help Wanted Announcers" ads from the randomly selected January 3, 1983, edition of *Broadcasting* magazine:

Immediate opening. Must have commercial experience. Salary commensurate. Bright voice. Adult-contemporary. WVOS Liberty, NY.

Country jock with pipes and delivery [booming deep voice] for up-tempo country music show. Must be stable with experience. Contact the #1 superkicker, 94 KCKR, Crockett, TX.

Mature morning personality for Midwest adult MOR [middle of the road music] to continue long tradition of community involvement both on and off the air. Must be able to entertain with more than music.

Small market Rocky Mountain resort area adult contemporary station looking for experienced announcers strong on production. No smokers. [That could be taken literally or could mean that no screamin' rock jocks need apply.] Like the mountains? Tape & resume to KMTN-FM Jackson Hole, WY.

Morning drive personality announcer/production. 6-10:30 a.m. 100,000 watt 24 hours contemporary MOR personality format. Contact WJJY-FM Brainerd, MN.

By the early 1980s, a frequent '60s-'70s radio classifieds phrase, "Must run tight board," had all but disappeared. It referred to an employer's desire that his or her new hire could almost instinctively orchestrate all of the main audio console's or control board's buttons and potentiometers ("pots") in unison with turntable, reel-to-reel, and tape cartridge switches so that no dead air would occur. By the '80s, however, it was assumed that

all applicants were familiar with tight "modern" music, news, and weather formats. The ability to keep the programming flowing was, and is, the first benchmark of a truly impressive radio pro.

For good listening from the best vintage radio air check sites, visit www.northeastairchecks.com where Webmaster Rick Kelly has a fantastic variety of "checks" from several decades of music radio's rich past. Some of the most interesting are from obscure air-personalities on small stations. Arguably, each of these DJs was hoping to get good enough to go someplace bigger!

What's Your Radio Story?

That's it for this month. Remember, if you have any radio broadcast experiences and photos to share, I'd like to hear from you. Send them to me at *Popular Communications*, Shannon's Broadcast Classics, 25 Newbridge Road, Hicksville, NY 11801.

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

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Number 142 November 2002

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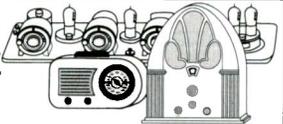
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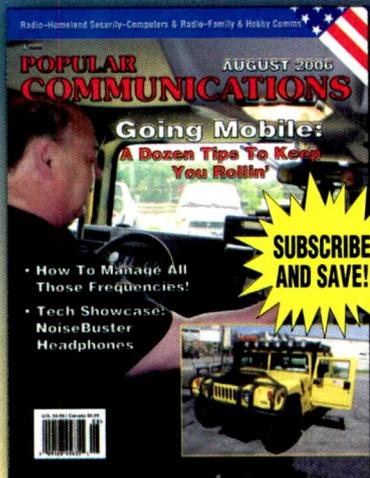
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6-Month Trial - \$19.95. Foreign - Write.

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INFOCENTRAL (from page 5)

their information as well as messages from their families and relatives in Japan.

North Korea admitted in 2002 that its agents abducted or lured 13 Japanese nationals in the late 1970s and early 1980s to the country, reportedly for using their identities and for teaching language and culture to spies. The Japanese government has officially recognized 16 Japanese, including the 13, as having been abducted by North Korea. But the group believes that as many as 100 to 200 others have also been taken by the North.

RadioScape Introduces New Multi-band Single-chip RF Front End

Heralded as the first software-controlled single-chip RF front end that can handle six frequency bands, a new RF IC has been introduced by RadioScape. The device handles Band III and L-Band for Digital Audio Broadcasting (DAB), mediumwave, longwave, and shortwave for AM and Digital Radio Mondiale (DRM), and Band II for FM. The RF chip combines with a standard DSP chip that runs RadioScape's baseband digital radio software and also controls the RF IC to form a two-chip solution, which dramatically reduces the power consumption and size of modules compared with current generation solutions.

Until now, the only way to create a comparable multi-band digital radio was to create independent RF front ends for each of the different frequency bands, each consuming power and adding to the bulk of the product.

Voice of Vietnam Starts Broadcast In Dao Ethnic Language

Radio the Voice of Vietnam recently launched its broadcast in the Dao ethnic language at a ceremony held in north-western Son La province. The Dao-language broadcast, the tenth program of the VOV for ethnic minority groups, will be aired three times a day at 7 a.m., 11 a.m., and 8:30 p.m. (0000, 0400, and 1330 UTC) on 6165 kHz shortwave. VOV has set up broadcasting stations in the mountains of Quan Ba (Ha Giang

province), Sin Ho (Lai Chau province), Mau Son (Lang Son province), and Pha Din (Son La province). The broadcast, covering 80,000 square kilometers, will disseminate the policies of the Party and State to the Dao community and other ethnic minority groups. The Dao group, with a population of 500,000, lives along the Vietnam-China and Vietnam-Laos border and in midland and coastal provinces of northern Vietnam.

Radio New Zealand International's New DRM Schedule

Radio New Zealand International has published the following schedule for its DRM transmissions:

- 0459-0658 UTC on 9440 kHz
- 0659-1259 UTC on 7145 kHz
- 1300-1650 UTC on 6095 kHz
- 1651-1850 UTC on 7145 kHz
- 1851-2235 UTC on 13730 kHz
- 2236-0458 UTC on 15720 kHz

Iraqi Public Radio Available On The Web

The main radio service of the Iraqi Media Network (IMN), Republic of Iraq Radio, is now available on a live audio stream from the organization's website at www.iraqimedianet.net. The website is available in Arabic, English, and Kurdish. The audio stream is accessed via a large pink button on the Arabic and English home pages. These pages as well as the Kurdish home page also have "Online Streaming" links to two IMN radio and three IMN television audio/video streams, but these links are currently inactive.

The Iraqi Media Network is a public broadcaster set up by the Coalition authorities in the wake of the 2003 Iraq war. Operating nationwide, it runs two radio networks (Republic of Iraq Radio, Holy Koran Radio), three national TV channels (Al-Iraqiyah 1, Al-Iraqiyah 2, Al-Iraqiyah Sports), and the "Al-Sabaah" newspaper.

XM Satellite Radio Suspending Some Radio Sales

XM Satellite Radio suspended the sale of two products and is reviewing others

after the FCC said the devices exceeded limits for wireless signal strength. The suspensions applied to Audiovox and Delphi radios that let consumers play XM's satellite radio service on regular radios. The FCC ruled that the signal strength of wireless transmissions from the Delphi and Audiovox products exceeded FCC limits, potentially interfering with nearby FM radios using similar frequencies.

WorldSpace Satellite Radio To Commission Uplink In Dubai

WorldSpace Satellite Radio announced that, through an agreement with Sama Communications Company Limited (Samacom), the company will commission a new satellite uplink facility in Dubai. The new facility will allow WorldSpace to enhance its satellite radio content delivery and enable live programming from Dubai.

Dubai was selected to house the facility based on its central geographic location within the WorldSpace service area and because it is emerging as a regional business and technology hub. The station will be positioned to uplink channels to both of WorldSpace's satellites, AsiaStar and AfriStar, simultaneously from a single point, resulting in streamlined operations and a substantial savings in backhaul and uplink infrastructure.

VT Communications Launches DRM 26-MHz Service In London

VT Communications has launched its dual-channel Digital Radio Mondiale (DRM) transmission service from Crystal Palace in Southeast London into Greater London. Partnering with Deutsche Welle and UBC Classic Gold, VT Communications can now provide two discrete broadcast services over a single 20-kHz transmission band centered at 25.7 MHz. This is the first time the double channel mode of DRM has been used for extensive field trials. The 26-MHz band is designated as an international broadcast band, but is underused and VT Communications believes it could also be used to provide local FM-type coverage.

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A Performer?

The radio in my truck has never been what you'd call a "performer." I've known since I got it that the antenna needed trimming. Trimming means adjusting the electrical length. The procedure is simple; I learned it when I was young and much smaller. In fact, I learned about trimming antennas in the '50s, when I was a wee lad. Wee is the operative term here. I was born in 1947, so in the fifties, I fit under the dashboard of most cars pretty well. Kiester on the seat, feet up over the back of the seat, head down under the dash, flashlight and screwdriver in hand (and they were little hands at that), I could reach up there and do anything that needed doing under the dash.

My dad would tune the radio to a weak station around 1200 on the AM dial (as if there were some *other* kind of dial), and I would turn the trimmer screw till the signal got nice and loud, and the radio was then capable of receiving just about anything on our side of the Mississippi.

Every so often, when I see a 1953 Ford I'm tempted to stop and ask its owner if I might sit in it. I really want to see if I can still fit under the dashboard, or if indeed my girth is such that only a Kenworth or Peterbilt will accommodate me now.

"The problems that I've always had with installing or removing car radios are with the wires."

The problems that I've always had with installing or removing car radios are with the wires. I have no problems with wires *per se*, but when wires are about an inch long, and back behind the opening where a radio is to be installed...well, I do have my problems.

And the radio in this truck would be one of them.

When I eventually got the radio pulled free of the dash, I found that I had pulled the wires off the back of the radio. They had been twisted on. Not twisted with wire nuts, or twisted and soldered and taped, or twisted and soldered and covered with heat shrink tubing. No, they were just twisted together and left there. And they were so short that I swear the person who twisted them had to be three inches tall and climbed up behind the radio to do the twisting.

Often I can use butt-splice crimps and make the wires longer, but there is no crimping tool that will fit into the available space to make the crimp, and short of a child under the age of 18 months, I've never seen anyone with hands that would fit in there to do the job, either. How I wished Norm was there with me to help. Good old, extremely thin, wiry, fit-anywhere Norm. Instead, though, there was only me. Old "hoof-hands."

As it turned out, I surprised myself by moving and reclining the passenger seat in such a way that I could get my feet up over it and get my head under the dash, and get my hands up there to actually reach and work with the wires. And slow-

"Then I tried to pull myself around to open the door and slide out onto the ground like a manatee trying to get back into the water—but I made one of those mistakes that make you wish that life had a rewind button. I pulled on the seat-adjustment lever."

ly, forcing myself to exercise patience, I was able to crimp on some additional wires that I could stuff through the mounting box so I could sit up again and make some decent connections to the radio.

Then I tried to pull myself around to open the door and slide out onto the ground like a manatee trying to get back into the water—but I made one of those mistakes that make you wish that life had a rewind button. I pulled on the seat-adjustment lever.

The passenger seat came forward and wedged me as I've never been wedged before, and I couldn't move enough to push it back where it had been. I remembered a horror story I had read about a person being trapped in a similar manner and dying within a few feet of help, unable to get anyone's attention.

I couldn't open the door. I couldn't reach the door handle. I couldn't move my arm enough to crank down the window, and I couldn't move the seat. I began to wonder when someone might pull into the driveway for whatever reason and discover me there. And I wondered, would they find me alive? Or...not?

For a while, I blew the horn. No one paid any attention to me. I fell asleep. I woke up with more aches and pains than I've had since boot camp. I was hungry and thirsty. For the first time, I thought I might die in this stupid position and there'd be some cute story in the news and I'd be famous for three minutes, but dead forever. Then that annoying cell phone rang. I had forgotten that the cell phone, which belongs to my company and I only use for work, was on the seat.

It wasn't easy to reach it. I developed, and worked through, several charley horses in the process of getting to it, and I went through my list of people to call—people who would be nearby and wouldn't abuse me for my stupidity. I finally called my friend Charles, who was a half-hour away. He would come right away. He would laugh, then we would both laugh, and then we'd go have supper and laugh a little more. Now Norm will read this and know that he's not the only one who gets into jams and needs to be rescued.

Yes, Charles has told most of the people who come by his garage. It's only fair; I've told all of you about so many of Norm's escapades. Stay safe out there, and don't do what I do. Remember, I'm a professional. ■

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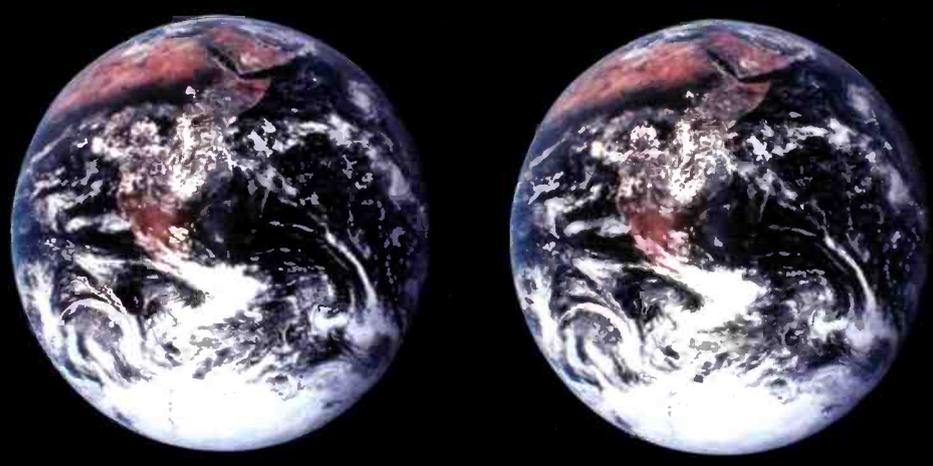


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