A DXer's Challenge, p. 97

Amateur Radio

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COMMUNICATIONS & TECHNOLOGY

OCTOBER 2011

CQ

Emergency Communications Special!

On the Cover:
Dick Fess, K4FUY, and Bob Mahon, KG4HBO, at the Altamonte Springs, Florida, Alternate Emergency Operating Center.
Details on page 22.

Escape with the New TM-281A

On or off the road, Kenwood's TM-281A is a mobile radio you can always count on.

As tough as nails, this MIL-STD-compliant transceiver delivers powerful performance, excellent audio clarity, and a host of advanced features. It offers superb operating ease day or night thanks to the large backlit LCD and illuminated keys. So the next time you take off, take the TM-281A.

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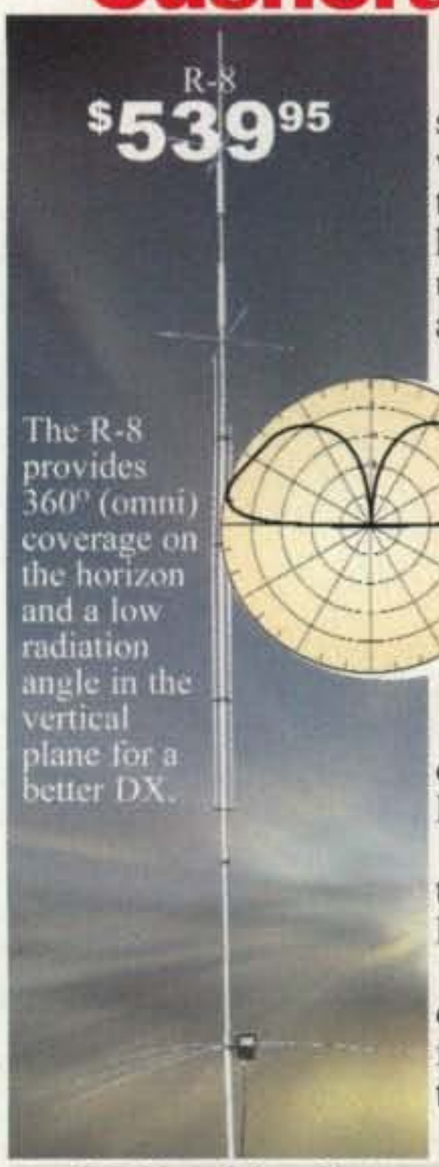
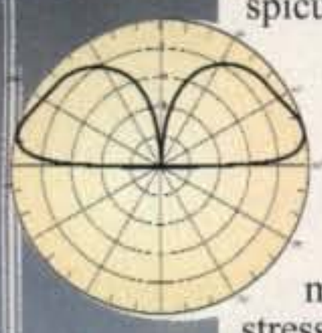
Cushcraft R8 *8-Band Vertical*

Covers 6, 10, 12, 15, 17, 20, 30, and 40 Meters!



The R-8 provides 360° (omni) coverage on the horizon and a low radiation angle in the vertical plane for a better DX.



The Cushcraft R8 is recognized as the industry gold standard for multi-band verticals, with thousands in use worldwide. Efficient, rugged, and built to withstand the test of time, the R8's unique ground-independent design has a well-earned reputation for delivering top DX results under tough conditions. Best of all, the R8 is easy to assemble, installs just about anywhere, and blends inconspicuously with urban and country settings alike.

Automatic Band Switching: The R8's famous "black box" matching network combines with traps and parallel resonators to cover 8 bands. You QSY instantly, without a tuner!

Rugged Construction: Thick fiberglass insulators, all-stainless hardware, and 6063 aircraft-aluminum tubing that is double or triple walled at key stress points handle anything Mother Nature can dish out.

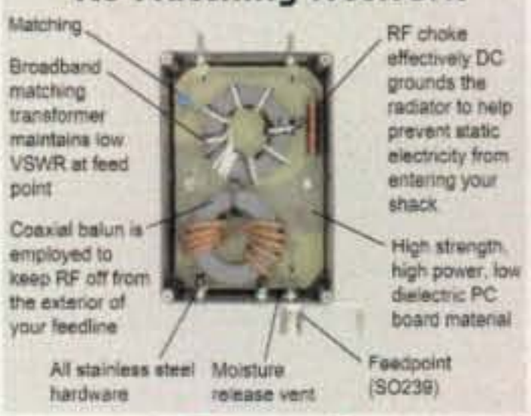
Compact Footprint: Installs in an area about the size of a child's sandbox -- no ground radials to bury and all RF-energized surfaces safely out of reach.

Legal-Limit Power: Heavy-duty components are contest-proven to handle all the power your amplifier can legally deliver and radiating it as RF rather than heat.

The sunspot count is climbing and long-awaited band openings are finally becoming a reality. Now is the perfect time to discover why Cushcraft's R8 multi-band vertical is the premier choice of DX-wise hams everywhere!

R-8GK, $56.95. R-8 three-point guy kit for high winds.

R8 Matching Network



R8's Rugged Design

MA-5B *5-Band* Beam

Small Footprint -- Big Signal

The MA-5B is one of Cushcraft's most popular HF antennas, delivering solid *signal-boosting directivity* in a bantam-weight package. Mounts on roof using standard TV hardware. Perfect for exploring exciting DX without the high cost and heavy lifting of installing a large tower and full-sized array. Its 7 foot 3-inch boom has less than 9 feet of turning radius. Contest tough -- handles 1500 Watts.

The unique MA-5B gives you 5-bands, automatic band switching and easy installation in a compact 26-pound package. On 10, 15 and 20 Meters the end elements become a two-element Yagi that delivers solid power-multiplying gain over a dipole on all three bands. On 12 and 17 Meters, the middle element is a highly efficient trap dipole. When working DX, what really matters are the interfering signals and noise you *don't hear*. That's where the MA-5B's impressive side rejection and front-to-back ratio really shines. *See* ***cushcraftamateur.com*** *for gain figures.*

Cushcraft 10, 15 & 20 Meter Tribander Beams

Only the best tri-band antennas become DX classics, which is why the Cushcraft World-Ranger A4S, A3S, and A3WS go to the head of the class. For more than 30 years, these pace-setting performers have taken on the world's most demanding operating conditions and proven themselves every time. The key to success comes from attention to basics. For example, element length and spacing has been carefully refined over time, and high-power traps are still hand-made and individually tuned using laboratory-grade instruments. All this attention to detail means low SWR, wide bandwidth, optimum directivity, and high efficiency -- important performance characteristics you rely on to maintain regular schedules, rack up impressive contest scores, and grow your collection of rare QSLs!

It goes without saying that the World-Ranger lineup is also famous for its rugged construction. In fact, the majority of these antennas sold years ago are still in service today! Conservative mechanical design, rugged over-sized components, stainless-steel hardware, and aircraft-grade 6063 make all the difference.

The 3-element A3S/A3WS and 4-element A4S are world-famous for powerhouse gain and super performance. **A-3WS, $499.95,** 12/17 M. **30/40 Meter** *add-on kits* available.

Cushcraft Dual Band Yagis

One Yagi for Dual-Band FM Radios

Dual-bander VHF rigs are the norm these days, so why not compliment your FM base station with a dual-band Yagi? Not only will you eliminate a costly feed line, you'll realize extra gain for digital modes like high-speed packet and D-Star! Cushcraft's A270-6S provides three elements per band and the A270-10S provides five for solid point-to-point performance. They're both pre-tuned and assembly is a snap using the fully illustrated manual.

Cushcraft Famous *Ringos* Compact FM Verticals

W1BX's famous *Ringo* antenna has been around for a long time and remains unbeaten for solid reliability. The Ringo is broad-banded, lighting protected, extremely rugged, economical, electrically bullet-proof, low-angle, and more -- but mainly, it just plain works! To discover why hams and commercial two-way installers around the world still love this antenna, order yours now!

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Hathaway: Sunspot Cycle Will Be Smallest in 100 Years

NASA solar physicist David Hathaway told hams at the Huntsville Hamfest in August that solar Cycle 24 will likely be the smallest in at least 100 years, in terms of maximum sunspot numbers. But he says it is too early to know if this cycle is a precursor to what some scientists are predicting to be "the death of sunspots" or a "little ice age."

NASA's Dr. David Hathaway told hams at the Huntsville Hamfest he expects solar Cycle 24 to peak in mid-2013 at around 75, the smallest solar maximum in a century.

In a talk titled "The Sky is NOT Falling," Hathaway explained why predictions of "killer flares" capable of causing massive disruptions are *not* likely to occur—mostly because of too few sunspots. At the same time, he said, predictions of future cycles with *no* sunspots—based on observations to date— are premature because the "missing" activity is associated with the peak of the sunspot cycle, which is not yet here.

Hathaway's current prediction is that Cycle 24 will peak at a maximum of around 75 in mid-2013, the lowest peak in the past century. And while he says it is too early to write off Cycle 25 completely, he feels it could be even weaker than the current cycle. He admits, though, that "every time you come up with a model, you find a problem and you have to go back to the drawing board."

Heathkit Returning to Kit Business

Good news for Heathkit fans— the company says it is bringing back kits! Heathkit was a major player in the U.S. ham radio marketplace from the 1950s into the 1980s, and was the dominant kit manufacturer of the time. It left the kit market in 1992 amid sagging sales.

An announcement on the company webpage says its return to kit-making will start out with "common around-the-house items," including an ultrasonic "Garage Parking Assistant" and a wireless swimming pool monitor kit. No word yet on whether radio kits are in the plans; however, Heathkit is asking kit-builders to submit suggestions via its website at <www.heathkit.com>.

Building a "Weather-Ready Nation"

In a news release and media teleconference long on buzzwords and short on specifics, the National Weather Service announced that it is "launching a comprehensive initiative to build a 'Weather-Ready' nation to make America safer...as communities across the country become increasingly vulnerable to severe weather events." The plan calls for improved forecast precision and better communication of risk to local authorities; improved "weather decision support services," including mobile-ready emergency response teams; improved radar and satellite imagery; stronger partnerships to enhance community preparedness; and working more closely with emergency managers and "weather enterprise partners" such as TV stations to "enhance safety and economic output and effectively manage environmental resources." Pilot projects are slated for New Orleans, Fort Worth and the Washington, DC area.

There was no specific mention of SKYWARN or the role of trained volunteer severe weather spotters in a "weather-ready nation."

AMSAT Moves Toward Quick Launch of New Satellite

In an effort to get a new satellite built and launched quickly in order to replace the troubled AO-51, AMSAT has decided to split its "Fox" cubesat project into two satellites, Fox-1 and Fox-2. The AMSAT News Service reports that Fox-1, the intended replacement for AMSAT-OSCAR-51, will contain only an FM transponder and a simple computer system for telemetry and control, built into a standard cubesat spaceframe. A target launch date for Fox-1 will be the second half of 2013.

Fox-2 will contain the advanced technology currently under development for the project, including a software-defined linear transponder, an advanced power system, and a spaceframe with deployable solar panels. The target date for launching Fox-2 will be 2015.

ARISSat-1 Certificates Available

Anyone who has received downlink signals from the ARISSat-1 satellite that was hand-launched from the International Space Station in early August may submit reception reports and receive a PDF certificate by return e-mail. Reports from students and school groups are particularly welcome, according to the AMSAT News Service. There are different e-mail addresses to which reports should be sent, depending on what information was received. For details visit the ARISSat website at <http://arissat1.org>.

At press time, the satellite was still operational, although its batteries were draining more quickly than expected and it was only able to operate while in the sun. Additional details on the ARISSat-1 launch may be found in this issue's "VHF-Plus" column on page 102.

ARRL Approves STØR Expedition; Changes DXCC E-Mail Address

The ARRL has announced that the STØR DXpedition to the new country of South Sudan has been approved for DXCC credit. (QSLs from the expedition are also valid for the CQ DX Award.) In addition, DXCC Manager Bill Moore, NC1L, announced that the general <dxcc@arrl.org> e-mail address is no longer in use. Instead, anyone with questions related to the ARRL's DX award is requested to go to <http://www.arrl.org/awards-branch-contacts> and follow the prompts to direct their e-mail to the proper person.

Also on the DXCC front, the RTTY DXCC award has been renamed the Digital DXCC award in recognition of the growing number of digital modes beyond traditional radioteletype.

QRM Detectives at Work

Three separate reports are in the news this month of hams helping to track down and resolve interference on

(Continued on page 114)

brick wall /brĭk - wôl/ - *noun*

anything or anyone that is impenetrable, unrelenting, or unyielding

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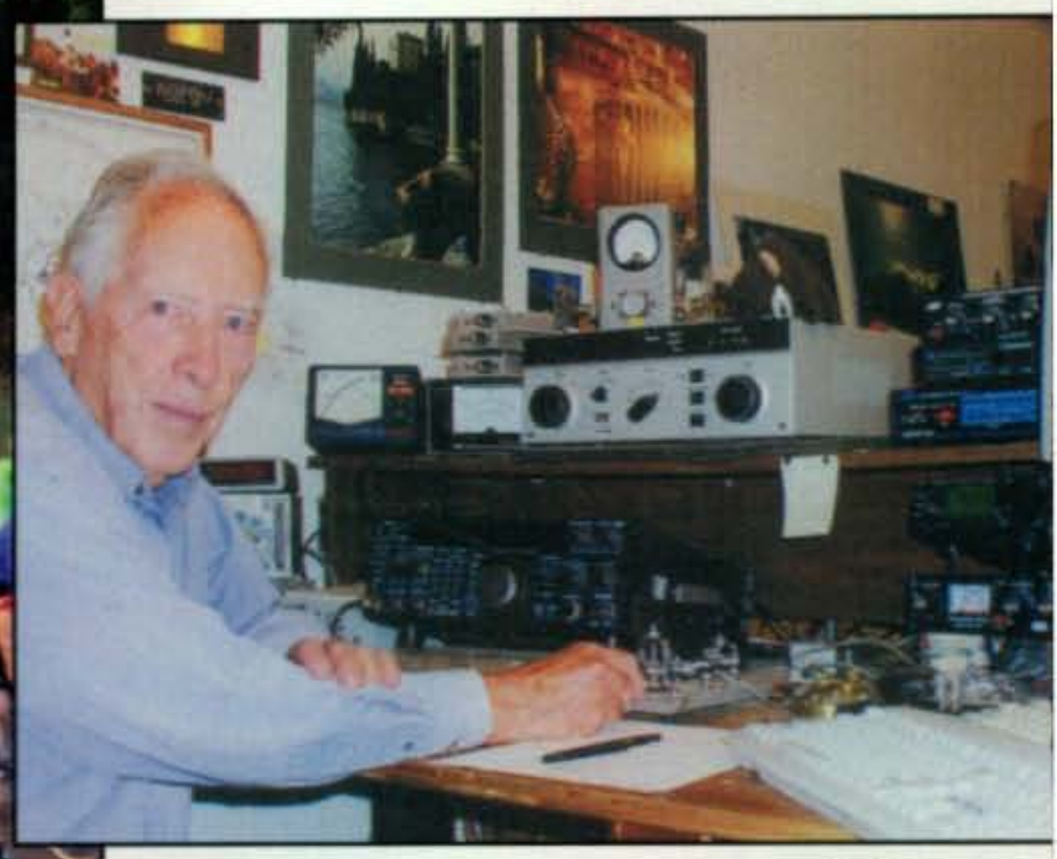

p. 44

p. 16

Emergency Communications Special Issue

features

Vol. 67 No. 10

p. 62

p. 49

departments

DXing Solutions from Array Solutions

OptiBeam Antennas

OptiBeam antennas are the best antennas you can buy. Whether it is an array of mono-banders or a multi-monobander antenna, you will more likely be first through a pileup with an OptiBeam. An OptiBeam is...

- Antenna Technology
- Technical Qualities
- Electrical Properties
- Mechanical Quality Throughout
- Physical Properties
- Avoiding Disadvantages of Other Antenna Systems

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We are proud to be the Official North American Dealer of OptiBeam Antenna Technologies

PowerMaster II

- New Larger, Sharp & Fast LCD Display
- Reduced Energy consumption
- USB and RS-232 interface built-in
- New - Both 3kW and 10kW couplers on one display - switched
- Hi / Lo Power Level Monitoring
- Supports 2 like couplers simultaneously (3kW & 3kW, 3kW & V/UHF, 10kW & 10kW)
- SWR Threshold Protection (with amp PTT bypass)

ACOM – Outstanding HF Power Products

ACOM 2000A

The ACOM 2000A Automatic HF Linear Amplifier is the world's most advanced legal-limit HF amplifier designed for amateur use. (160 thru 10m) (2x 4CX800A Tubes)

ACOM 1000
160-6m Amplifier

The world's best value in an amateur HF & 6m amplifier. Delivers 1000 watts output on all bands

(Single 4CX800A tube)

ACOM 1010
160-10m Amplifier

Economical 800 watt output 160-10m

(Single 4CX800A Tube)

ACOM 1011
160-10m Amplifier

Fast 30 second warm-up, 700 w output, 160-10m.

(2x 4CX250B Tubes)

Coming from ACOM...

800S Solid State Amplifier

160 through 6 M, 800 W from 1.8 to 54 MHz, no time limit

This Device has NOT been approved by the F.C.C. and my not be offered for sale or lease until approval of the F.C.C. has been obtained.

The information shown is preliminary and may be subject to change without notice or obligation.

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Field Gear That Goes The Distance!

FT-450D
HF/50 MHz 100 W Easy to Operate All Mode Transceiver

- Illuminated Key Buttons
- 300Hz / 500Hz / 2.4 kHz CW IF Filter
- Foot Stand
- Classically Designed Main Dial and Knobs
- Dynamic Microphone MH-31 A8J Included

FT-857D
The World's Smallest HF/VHF/UHF Mobile Transceiver

- Ultra-Compact Package
- Ideal for Mobile or External Battery Portable Work
- Wide Frequency Coverage
- Optional Remote-Head
- High-Performance Mobile Operation

FT-897D
HF/VHF/UHF Portable Operation Powerful Transceiver

- The Ultimate Emergency Communications Radio
- Rugged, Innovative Multi-Band
- Operates on the SSB, CW, AM, FM, and Digital Modes
- Wide Frequency Coverage
- 20-Watt Portable Operation Using Internal Batteries
- 100 Watts When Using an External 13.8-Volt DC Power Source

FT-817ND
The Ultimate Backpack, Multi-Mode Portable Transceiver

- Self-Contained
- Battery-Powered
- Covering the HF, VHF, and UHF Bands
- Provides up to Five Watts of Power Output
- SSB, CW, AM, FM, Packet, or SSB-based Digital Modes like PSK31

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NEW COMPACT HF TRANSCEIVER WITH IF DSP

A superb, compact HF/50 MHz radio with state-of-the-art IF DSP technology, configured to provide YAESU World-Class Performance in an easy to operate package.
New licensees, casual operators, DX chasers, contesters, portable/field enthusiasts, and emergency service providers- YAESU FT-450D...This Radio is for YOU!

Compact size: 9" X 3.3" X 8.8" and Light weight: 7.9 lb

HF/50 MHz 100 W All Mode Transceiver

FT-450D

With Built-in Automatic Antenna Tuner

NEW **Illuminated Key buttons**

NEW **300 Hz/500 Hz/2.4 kHz CW IF Filters**

NEW **Foot stand**

NEW **Classically Designed Main Dial and Knobs**

NEW **Dynamic Microphone MH-31A8J Included**

■ **Large informative Front Panel Display, convenient Control knobs and Switches**
■ **The IF DSP guarantees quiet and enjoyable high performance HF/50 MHz operation**

Handy Front Panel Control of Important Features including:

- **CONTOUR Control Operation**
  The Contour filtering system provides a gentle shaping of the filter passband.
- **Manual NOTCH**
  Highly-effective system that can remove an interfering beat tone/signal.
- **Digital Noise Reduction (DNR)**
  Dramatically reduces random noise found on the HF and 50 MHz bands.
- **IF WIDTH**
  The DSP IF WIDTH tuning system provides selectable IF passband width to fight QRM.
  SSB - 1.8/2.4/3.0 kHz, CW - 300 Hz/500 Hz/2.4 kHz
- **Digital Microphone Equalizer**
  Custom set your rig to match your voice characteristics for maximum power and punch on the band.
- **Fast IF SHIFT Control**
  Vary the IF SHIFT higher or lower for effective interference reduction / elimination.

■ **The rugged FT-450D aluminum die-cast chassis, with its quiet, thermostatically controlled cooling fan provides a solid foundation for the power amplifier during long hours of field or home contesting use.**

MOS FET RD100HHF1

More features to support your HF operation

●10 kHz Roofing filter ●20 dB ATT/IPO ●Built-in TCXO for incredible ±1 ppm/hour (@+77°F, after warm-up) stability ●CAT System (D-sub9 pin): Computer programming and Cloning capability ●Large, Easy-to-See digital S-meter with peak hold function ●Speech Processor ●QUICK SPLIT to automatically Offset transmit frequency (+5 kHz default) ●TXW to monitor the transmit frequency when split frequency operation is engaged ●Clarifier ●Built-In Electronic Keyer ●CW Beacon (Up to 118 characters using the CW message keyer's 3 memory banks) ●CW Pitch Adjustment (from 400 to 800 Hz, in 100 Hz steps) ●CW Spotting (Zero-Beating) ●CW Training Feature ●CW Keying using the Up/Down keys on the microphone ●Two Voice Memories (SSB/AM/FM), store up to 10 seconds each ●20 second Digital Voice Recorder ●Dedicated Data Jack for FSK- RTTY operation ●Versatile Memory System, up to 500 memory channels that may be separated into as many as 13 Memory Groups ●CTCSS Operation (FM) ●My Band / My Mode functions, to recall your favorite operating set-ups ● Lock Function ●C.S. Switch to recall a favorite Menu Selection directly ●Dynamic Microphone included ●IMPORTANT FEATURES FOR THE VISUALLY IMPAIRED OPERATOR – Digital Voice Announcement of the Frequency, Mode or S-meter reading

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zero bias – a CQ editorial

BY RICH MOSESON,* W2VU

The Benefits of "Geekdom"

Standing with my family, watching the sunset on top of Cadillac Mountain in Maine's Acadia National Park, my Blackberry buzzed to tell me I had a new e-mail. It was an alert from spaceweather.com about an impending geomagnetic storm, including a notice that the aurora was likely to be visible later that night in upper latitudes. Viewing, it said, would be best starting around local midnight.

We didn't know if our location at around 44 degrees north latitude was "upper" enough, but we figured that a dark mountaintop with a 360-degree sky view might give us an edge. We returned around 11:30–the only people up there - and saw what looked like a thin white cloud to the north in an otherwise cloudless sky. And it was lit up, as though reflecting lights from a city or a stadium beneath it. Only thing was, the ground beneath the "cloud" was dark. We figured out the best settings on our cameras to photograph this cloud in the middle of the night and were amazed to see that what looked white to us looked green to the cameras!

I quickly shot a picture with my phone of the image on the camera's monitor and sent it to Chip, K7JA, whom I knew had seen auroras in Alaska and asked him if that was what we were seeing. By the time he texted back a "Yes!", the answer had become obvious to us as parts of the cloud began to brighten and shoot out rays of light above and below the main area. Then the cloud began to expand vertically and the whole thing started drifting to the west. Directly overhead, the "carpet" of the Milky Way was clearly visible, and–this being a week before the peak of the Perseids–every few minutes, a meteor flashed by. It was truly a magical evening … that the four of us enjoyed in total solitude. No one else, it seemed, knew about the celestial show going on over their heads.

"The benefits of geekdom," I joked to my daughter. "If I wasn't on spaceweather.com's e-mail alert list, we wouldn't have known about it either." She responded, "Not too many people even know there's such a thing as 'space weather.' "

So… is there a ham radio connection here? Did I turn on my 2-meter FM rig and work Alberta off the aurora? No. First of all, Au doesn't "work" effectively on FM, and secondly, I was too entranced by the visual aurora to even think about radio.

But this aurora resulted from a coronal mass ejection from the sun, an event which affected radio communications here on Earth as well as touching off visible aurora overhead. Such solar events are common in a rising sunspot cycle and have touched off speculation in the popular press about "killer flares" that could fry electronics here on Earth and cause billions–maybe trillions–of dollars of damage to our telecommunications infrastructure.

These "killer flares," along with speculation at the other end of the solar spectrum that we are heading toward a period of decades with no sunspots, were the subjects of Dr. David Hathaway's talk, "The Sky is NOT Falling," at the Huntsville Hamfest a few weeks later. Hathaway is a solar physicist at NASA's Marshall Space Flight Center in Huntsville and one of the nation's leading authorities on the sun, sunspots and solar-earth interactions. The crux of what he talked about–in terms of "killer flares," the "death of sunspots" and his newest predictions about Cycle 24–are reported on this issue's news page, so I won't repeat them here. But the audience was another demonstration of the benefits of geekdom.

"I like coming here to talk," said Hathaway. "Hams actually understand and appreciate what I'm talking about." Fortunately for those of us who are not solar physicists ourselves, Hathaway is a lively and engaging speaker, and able to explain exceedingly complex matters of solar dynamics in terms that a well-educated ham can understand. The flip-side, of course, is that we hams like to hear what Dr. Hathaway has to say. And it is a testament to our collective interest in the science behind the art of radio communication that arguably the nation's leading expert on the sun and sunspots is willing to give up part of his weekend once a year to come talk, unpaid, to an audience of hams. The appreciation and respect are mutual.

Young Hams…

The Huntsville Hamfest was home once again to the annual presentation of the Newsline Young Ham of the Year award, of which *CQ* is a co-sponsor. This year's winner is 11-year old Kaitlyn Cole, KS3P, of Harvest, Alabama (see profile on page 69). In addition to coming to the hamfest to receive her award, Kaitlyn was also there to work, running the youth lounge for other young hams and children of hams. Activities included a scavenger hunt, a foxhunt and a learn-to-build table, where kids (with adult supervision) learned to solder by building code oscillators. We were visited by one family (see photo) with two children who successfully completed this project. Activities like these are incubators of the next generation of young hams, especially when run by other young hams themselves. Speaking of which, we saw a very healthy number of younger adult hams at Huntsville, many of whom were accompanied by their own young children. It is clear that such efforts as the Young Ham of the Year award and hamfest youth lounges are having an impact and are helping to attract more young people into our hobby. I continue to be confident that ham radio's future is in good hands. (PS to young hams: it's OK if people think you're a geek. Geekdom is cool. It opens doors to meeting top scientists and being the only one to know when to go look for an aurora!) 73, W2VU

*e-mail: <w2vu@cq-amateur-radio.com>

The Aurora Borealis as seen from Maine in early August. Rachel Moseson photo)

The Clark family at the Huntsville Hamfest, including dad Mark, W4CK; mom Laura, KJ4HCU; son Will, WB4CSK; and daughter Sara. Will and Sara built working code oscillators at the hamfest's youth lounge.

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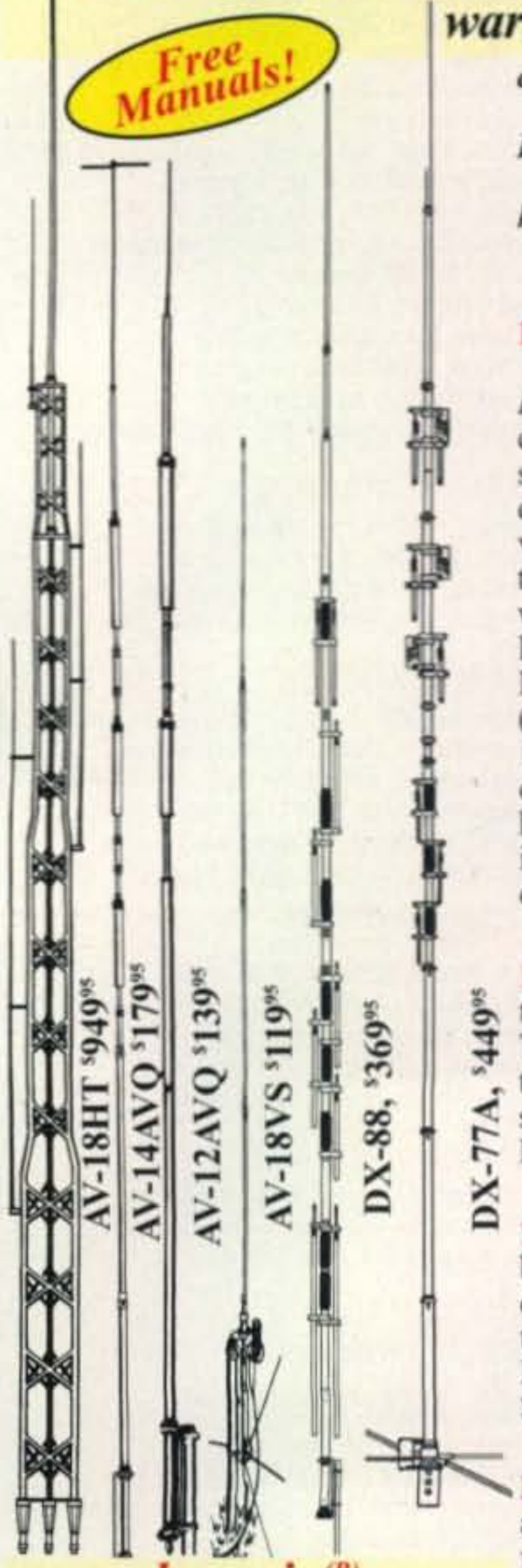
Self-supporting -- no guys required . . . Remarkable DX performance -- low angle radiation, omnidirectional . . . Handles 1500 Watts . . . Low SWR . . . Automatic band switching . . . Aircraft quality aluminum tubing . . . Stainless steel hardware . . . Recessed SO-239 connector . . . Two year limited Warranty . . .



hy-gain® Classics

All hy-gain multi-band vertical antennas are entirely self supporting -- no guys required.

They offer remarkable DX performance with their extremely low angle of radiation and omnidirectional pattern.

All handle 1500 Watts PEP SSB, have low SWR, automatic bandswitching (except AV-18VS) and include a 12-inch heavy duty mast support bracket (except AV-18HT).

Heavy duty, slotted, tapered swaged, aircraft quality aluminum tubing with full circumference compression clamps is used for radiators. Includes all stainless steel hardware. Recessed SO-239 prevents moisture damage. Hy-gain verticals go up easily with just hand tools and their cost is surprisingly low. Two year limited warranty.

AV-18HT, $949.95. (10,12,15,20,40,80 M, 160, 17 Meters optional). 53 ft., 114 lbs.

Standing 53 feet tall, the famous *Hy-Gain HyTower* is the world's best performing vertical! The AV-18HT features automatic band selection achieved through a unique stub-decoupling system which effectively isolates various sections of the antenna so that an electrical 1/4 wavelength (or odd multiple of a 1/4 wavelength) exists on all bands. Approximately 250 kHz bandwidth at 2:1 VSWR on 80 Meters. The addition of a base loading coil (**LC-160Q, $109.95**), provides exceptional 160 Meter performance. **MK-17, $89.95**. Add-on 17 Meter kit. 24 foot tower is all rugged, hot-dip galvanized steel and all hardware is iridited for corrosion resistance. Special tilt-over hinged base for easy raising & lowering.

AV-14AVQ, $179.95. (10,15,20,40 Meters). 18 ft., 9 lbs. **The** Hy-Gain AV-14AVQ uses the same trap design as the famous Hy-Gain Thunderbird beams. Three separate air dielectric Hy-Q traps with oversize coils give superb stability and 1/4 wave resonance on all bands. Roof mount with Hy-Gain AV-14RMQ kit, $89.95.

AV-12AVQ, $139.95. (10, 15, 20 Meters). 13 ft., 9 lbs. **AV-12AVQ** also uses Thunderbird beam design air dielectric traps for extremely Hy-Q performance. This is the way to go for inexpensive tri-band performance in limited space. Roof mount with AV-14RMQ kit, $89.95.

AV-18VS, $119.95 (10,12,15,17,20,30,40,80 Meters). 18 ft., 4 lbs. **High** quality construction and low cost make the AV-18VS an exceptional value. Easily tuned to any band by adjusting feed point at the base loading coil. Roof mount with Hy-Gain AV-14RMQ kit, $89.95.

DX-88, $369.95. (10, 12, 15,17,20,30,40,80 Meters, 160 Meters optional). 25 ft., 18 lbs.

All bands are *easily* tuned with the DX-88's *exclusive* adjustable capacitors. 80 and 40 Meters can even be tuned from the ground without having to lower the antenna. Super heavy-duty construction. DX-88 OPTIONS: 160 Meter add-on kit, KIT-160-88, $199.95. Ground Radial System, GRK-88, $99.95. Roof Radial System, RRK-88, $99.95.

DX-77A, $449.95. (10, 12, 15, 17, 20, 30, 40 Meters). 29 ft., 25 lbs.

No ground radials required! Off-center-fed Windom has 55% greater bandwidth than competitive verticals. Heavy-duty tiltable base. Each band independently tunable.

Model #	Price	Bands	Max Power	Height	Weight	Wind Surv.	Rec. Mast
AV-18HT	$949.95	10,15,20,40,80	1500 W PEP	53 feet	114 pounds	75 MPH	------
AV-14AVQ	**$179.95**	**10,15,20,40**	**1500 W PEP**	**18 feet**	**9 pounds**	**80 MPH**	**1.5-1.625"**
AV-12AVQ	$139.95	10/15/20 M	1500 W PEP	13 feet	9 pounds	80 MPH	1.5-1.625"
AV-18VS	**$119.95**	**10 - 80 M**	**1500 W PEP**	**18 feet**	**4 pounds**	**80 MPH**	**1.5-1.625"**
DX-88	$369.95	10 - 80 M	1500 W PEP	25 feet	18 pounds	75 mph w guy	1.5-1.625"
DX-77A	**$449.95**	**10 - 40 M**	**1500 W PEP**	**29 feet**	**25 pounds**	**60 mph w guy**	**1.5-1.625"**

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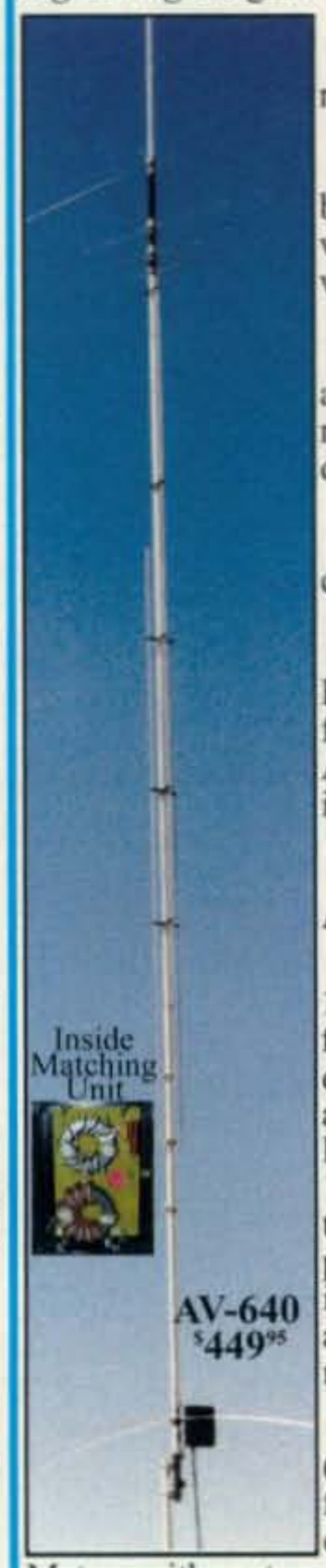
Hy-Gain's new PATRIOT HF verticals are the best built, best performing and best priced multiband verticals available today. For exciting DX make full use of your sunspot cycle with the PATRIOT's *low 17 degree angle* signal.



No ground or radials needed

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Sleek and low-profile

Low 2.5 sq. ft. wind surface area. Small area required for mounting. Mounts easily on decks, roofs and patios.

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Handles 1500 Watts key down continuous for two minutes.

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hy-gain® warranty

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AV-640, $449.95. (6,10,12, 15,17,20,30,40 Meters). 25.5 ft., 17.5 lbs. The AV-640 uses quarter wave stubs on 6, 10, 12 and 17 meters and efficient end loading coil and capacity hats on 15, 20, 30 and 40 meters -- no traps. Resonators are placed in parallel not in series. End loading of the lower HF bands allows efficient operation with a manageable antenna height.

AV-620, $349.95. (6,10,12,15,17,20 Meters). 22.5 ft., 10.5 lbs. The AV-620 covers all bands 6 through 20 Meters with no traps, no coils, no radials yielding an uncompromised signal across all bands.

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announcements

The following special event stations are scheduled for October:

W5HUM, celebrating the 80th anniversary year of Lum and Abner on the radio, Mena, Arkansas; October 1, 9 AM to 5 PM local; sponsored by the Ouachita Amateur Radio Association, W5HUM. Operating in the General class portion of 20, 40, and 80 meters. The first 25 contacts will receive a CD of Lum and Abner radio programs. Anyone wanting a special events certificate, send an SASE to Don Thomas, 117 Dallas Lane, Mena, AR, 71953.

N4V, to commemorate the manufacture of the Vibroplex bug in Norcross, Georgia; October 8 from 10 AM EST to 4 PM EST. The station will also be on air all week near traditional HF QRP frequencies. QSL to N4TRB with SASE.

W5I, in celebration of the 121st birthday of Dwight Eisenhower, 34th President of the United States, Denison, Texas; October 15 from 1500 UTC to 2300 UTC on 14.250 MHz. For QSL card, send QSL and SASE to David Booth, 409 Umstead, Colbert, OK 74733.

NB9QV, from WW II submarine "USS Cobia" AGSS-245 to commemorate the 52 submarines lost in WW II along with their 3617 grew members; October 22–23 on 7.240 and 14.240 MHz (±25 kHz) SSB. For QSL send QSL and #10 SASE to Fred Neuefeldt, WB6BSF, 4932 So. 10th St., Manitowac, WI 54220. For color certificate send $1.00 and QSL to Tom McNulty, KØEFV, 4015 Independence Ave., Waterloo, IA 50703-9317. See <www.qrz.com/NB9QV> for more information.

The following hamfests, etc., are slated for October and early November:

Oct. 2, **The Hall of Science Amateur Radio Club Hamfest,** New York Hall of Science parking lot, Flushing Meadow Corona Park, Queens, New York. For further information: <http://www.hosarc.org> or call at night only: Stephen Greenbaum, WB2KDG, 718-898-5599; via e-mail: <WB2KDG@arrl.net>. (Talk-in on 444.200 [PL 136.5], 145.270 [–600 kHz, PL 136.5]; exams 10 AM).

Oct. 9, **The Nutmeg Hamfest & ARRL Connecticut State Convention**, Mountain Ridge Resort, Wallingford, Conecticut. Information contact: John Bee, N1GNV, 203-440 4973. (Talk-in 147.360 [no PL]).

Oct. 13–16, **Microwave Update/37th Eastern VHF/UHF Conference**, Holiday Inn, Enfield, Connecticut. For details go to: <http://www.microwaveupdate.org>.

Oct. 14–15, **NEAR-FEST-X**, Deerfield, New Hampshire, Fairgrounds. For details go to: <www.near-fest.com>. (Talk-in K1JEK/RPT 146.700 MHz [–600 PL 88.5])

Oct. 16, **RF Hill ARC Hamfest**, Sellersville Fire House, Sellersville, Pennsylvania. Contact: Jim Soete, WA3YLQ, 215-723-7294; e-mail <wa3ylq@arrl.net>; printable details at: <http://www.rfhill.ampr.org>.

Oct. 22, **Lufkin Hamfest 2011**, Lufkin First Church of the Nazarene, Lufkin, Texas. Visit: <http://www.lufkinhamfest.com> for full details or contact: Jerry Wilson, K5JLW, via e-mail: <ac5zj@cs.com>.

Oct. 30, **Massillon ARC Hamfest & Auction**, Massillon Boy's & Girl's Club, Massillon, Ohio. For details go to: <http://www.w8np.org/>. (Exams)

Nov. 4–6, **Fenarcom, the Brazilian Amateur Radio Fair**, Information at: www.fenarcom.com.br>

*Please submit hamfest and special event announcements **at least three months in advance** by e-mail to <hamfest@cq-amateur-radio.com> or <specialevent@cq-amateur-radio.com>, or by postal mail to: CQ Magazine, Attn: Hamfests (or Special Events), 25 Newbridge Rd., Hicksville, NY 11801.*

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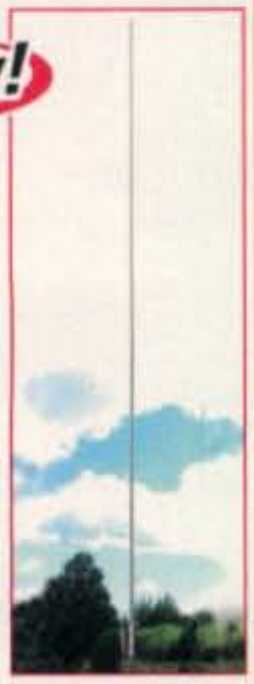

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DXE-7580FS-VA-3	Vertical Antenna, Ultra Duty	**$1,675.50**

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Emergency Communications Special
Amateur Radio's Raison D'être

BY JEFF REINHARDT,* AA6JR

With the transitional season of autumn upon us, the shorter days and cooler temperatures send a number of messages to all people, including the experienced amateur radio operator.

Just like the wise squirrel gathering nuts, it's time to make the needed preparations for the winter ahead, such as checking antennas, those dipole supports, maybe replacing that old coax (you know, the coax you promised yourself you'd replace two years ago), rechecking the ground connections for your shack, and getting ready for the long-haul DX enjoyment to be found on 40 and 80 meters through those cold winter nights, perhaps in a room warmed by the glow of amplifier tubes.

In a world of uncertainty where today's headlines seem to proclaim the opposite of yesterday's headlines, sitting down in front of a ham station that is able to operate at its peak is both reassuring and comforting. The mystery of who might respond to your CQ call will be answered in but a few moments, or perhaps the familiar voices of a nightly or weekly roundtable will make their way from the speaker to your welcoming ears. Such a scene makes me wish Norman Rockwell had been ham radio operator in his spare time.

But Wait, There's More

The tranquility of the scene above is certainly worth working toward, but as this issue of *CQ* demonstrates, emergency communications are at the core of amateur radio's *raison d'être.*

It's not a stretch to say it's the reason many of us became motivated to study for a license. From the Cold War days of the 1950s through today's emergency responses to disasters, ham radio is a key element in the emergency response tool kit. To be succinct, if we didn't have ham radio for emergencies, someone would feel compelled to invent it.

Here we are, a ready, trained cadre of operators with their own equipment, willing to bring their talents and resources to bear in response to a larger emergency. The second item, *our own equipment*, is a key element. In my humble opinion, too many of today's professional emergency response communications systems rely upon repeaters and centralized assets. The cell-phone system is similar. In spite of hundreds of millions being spent by

"Every organized response to an emergency begins with establishing reliable communications."

state and local agencies on communication systems, the vulnerability of these fixed assets resurfaces with almost every new emergency.

Enter the hams who have their own gear dispersed over a wide area. Most of it will survive even a major event. Somebody, somewhere, has a transceiver that works; all that's needed is one more, and presto, the communications begin.

A few years back I was overlooking a beach while operating a mobile HF rig from a rented car

Amateur radio is a key element of many emergency response plans. Here, Chris Krengel, KB0YRZ, helps provide communication around a Colorado forest fire. (FEMA news photo by Michael Rieger)

*5904 Lake Lindero Drive, Agoura Hills, CA 91301
e-mail: <aa6jr@cq-amateur-radio.com>

on Kauai. A local made his way over to me. At first I thought I was going to get tossed from my wonderful parking space. He asked, "Are you a ham?" I said yes and he went on, "I just want to thank you guys. After Hurricane Iniki, you're all we had."

That scenario has played out again and again. Following Katrina, New Orleans was stripped of almost everything, including the ability to communicate. This summer's outbreak of tornadoes left damaged and dazed communities in their aftermath. Bent but not broken, local hams helped in the recovery. From Joplin to Tuscaloosa and in many more locations, we were there when needed.

Not a Time for Smugness

Experienced disaster workers will tell you, though, that having a ham license and some gear is not enough. Your basic gear, usually a hand-held transceiver, needs to be in "ready to operate" condition, meaning there are fresh, charged batteries, a backup power source such as a cigarette-lighter charger, a mag-mount antenna, and more. Plus, you need to be familiar with how your equipment works and have at least basic training in emergency communications.

I've been in disasters as a responder and have spoken to EmComm coordinators from other large disasters and here are some shared experiences you can draw from:

Some hams will show up and not have a clue as to how to program their transceivers to the frequencies being used. Many in this group will also have dead or short-cycle batteries (see "Trusting the Battery in Critical Situations" elsewhere in this issue). They will not have taken the time to join an emergency response group, so they don't have training in the techniques and protocols being used. Many show up poorly dressed for the response at hand, in one case wearing a T-shirt, shorts, and flip flops, but wanting to go afield in the aftermath of a major storm.

Emergency responders know they will have to deal with a group known as "spontaneous volunteers." These are well-meaning folks who show up at City Hall or a similar location wanting to help, but they have no training, and while some may have good skills, they are a total unknown to whoever is in charge. Put yourself in their place. Can you use that volunteer with confidence? At best you could maybe post him or her with another, experienced, volunteer.

Most response managers know that it takes a long time to turn around a spontaneous volunteer from being a liability into an asset.

There's a cardinal rule among first responders: "Don't bring additional victims to the scene in the form of rescuers." In other words, diving willy-nilly into a partially collapsed building can result in the rescuer himself becoming a victim, either through injury caused by broken glass, exposed nails, live wires, leaking gas, and the like, up through an additional collapse that traps the "rescuer." Better to stay within your skills, know your limitations, and demonstrate the knowledge of acquiring qualified help that is trained to respond to specific needs.

In the immediate aftermath, there are many elements to disaster response, such as damage assessment, urban search and rescue, first aid, hazardous-material identification and control, fire suppression, infrastructure evaluation, victim recovery, psychological support, and more.

While all of this is happening, it must be remembered that many of the responders may also be victims of the event. That's where the drills, planning, and preparation kick in, because every organized response to an emergency begins with establishing reliable communications. Without communications, the rest is chaos.

Plan B

You always need to have a "Plan B." That's the plan that must consider what happens when certain assumed resources are not available. Similar to a battlefield, the "enemy" (in this case Mother Nature) doesn't always cooperate by doing what you expect it to do. You need backup strategies both personally and in the response mode. Draw up a list of "what ifs" such as "What if my house is unfit for occupancy?" "What if the water supply is cut off?" "What if outside help can't get here within three days?" Murphy is the constant companion that's present at every disaster.

The key element is planning ahead. While it's not possible to foresee every circumstance, it's a worthwhile exercise in problem-solving, which is really the point. You will have to deal with the unknown. A key response component is knowing the resources that are available, and the way you can know that is through reliable communications.

Location, Location, Location

Where's your emergency response gear *right now?* Can you be in the response mode in a matter of minutes? Do you have a "Go Kit"? (see "Gordo's Short Circuits" elsewhere in this issue.) How about your personal gear? Work shoes or boots, appropriate clothing, hard hat, safety vest, work gloves, goggles, some water and energy bars, first-aid kit, emergency blanket, medicines, spare glasses, watch, flashlight with fresh batteries? How much fuel is in your car or truck *right now*? If it's less than a half tank, you're at risk.

Hopefully, you will be spared a disaster at your home. That places you in a good position to render assistance to others who may have been directly affected by a nearby event. Remember, they're victims first, responders second. Help from the outside brings aid and personnel with a clear mind that's not worried about immediate family or neighbors.

Few areas of the country are immune to natural disasters. From blizzards in the north to wildfires and earthquakes in the west, to hurricanes and tornadoes in the south and the midwest, to spring floods or wind storms, the only certainty to emergencies is that we know they will happen.

Therefore, regard your ham license not as the end of your emergency preparedness, but in fact, the beginning. There are many different ways to hone your response skills: Join your local RACES or ARES group and take advantage of the training that's offered; volunteer with the Red Cross, Salvation Army, or a Community Emergency Response Team (CERT) sponsored in many areas by local fire or police agencies. Many communities are served by volunteer fire departments that offer similar programs. One of the more valuable functions you can perform is training more communications responders and helping them become licensed.

Summary

The focus here has been natural disasters. Sadly, we cannot dismiss man-made disasters rising from industrial accidents, terrorism, and infrastructure failures such as widespread power outages and the like.

Thanks to all those who have taken the time to become emergency communicators. While Mother Nature and other incidents are an ever-present threat to consider, we also have an amazingly powerful response at our disposal, the "Magic in the Sky."

73, Jeff, AA6JR

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Photo A– More than 2500 cyclists compete in the annual Six Gap bike race in northern Georgia, starting and finishing the race at the high school in Dahlonega. Hams are stationed at rest areas along the 100+-mile route as well as the start/finish line and with S.A.G. wagons. (Photo courtesy Dahlonega-Lumpkin County Chamber of Commerce)

Emergency Communications Special

Take a 100-mile-plus bike ride, mix it with mountainous terrain and marginal cell-phone coverage, and what do you have? A perfect recipe for ham radio to provide communications.

Amateur Radio at "Six Gap"

BY SHAWN BURKE,* KJ4MLS

Each year for the past quarter century, the city of Dahlonega, Georgia, has been the start and end point of one of America's largest bike rides. It is called Six Gap. The small college town, the site of America's first gold rush, is located in the mountains of northeastern Georgia. Some 2500 riders cover the 100+-mile route that covers an area of about 200 square miles, including mountains that have 15% grades and areas—mostly within the Chattahoochee National Forest—where cell phones simply don't work. What does work, with some challenges, including deep valleys and mountains that block signal paths, is amateur radio.

Ham radio operators from the North Georgia Amateur Radio Club of Dahlonega and the North Georgia Tri-State Radio Club of Blairsville provide communications along the route. The hams are on duty at rest stops, ride with S.A.G. (Support and Gear) vehicles, and staff the start/finish line at the local high school, with a team on Brasstown Bald providing a hilltop crossband repeater.

The rest stops are located in the six mountain gaps along the route (the gaps for which the ride is named) at road rest stops, in business parking lots, and in parks along the way.

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Photo B– Much of the course is in mountainous country, covering steep mountains and deep valleys, from which it is often difficult to send and receive radio signals. (Photo by Jack Anthony, courtesy Dahlonega-Lumpkin County Chamber of Commerce)

The choices for location of the rest stops are dictated by the design of the roads. Rest stops provide food, drinks, and bicycle repairs for the riders, who may well burn over 7000 calories on the ride. The rest stops also serve as pickup locations for the S.A.G. vehicles to pick up bikes and riders and return riders who can't or don't want to finish the ride, carrying them back to the start/finish line.

Crossband Repeaters and NVIS

Hams also run the repeaters that connect the northern and southern parts of the route. Because the ride covers nearly 200 square miles of very mountainous country, a crossband repeater connects the different hams who help with the ride. Most ham communication on the ride takes place on 2 meters, but 70 centimeters and some HF are also used when necessary. A few years ago, after a cyclist died in an accident, 80 meters started being used in a couple of deep mountain valleys where 2-meter and 440-MHz repeaters realistically were unable to be accessed. The two 80-meter stations used NVIS (see below) to relay 2-meter and 440-MHz communications to the valleys. The 80-meter stations used NVIS to communicate with each other. The 80-meter services were provided by the Tri-State Amateur Radio Club.

Near Vertical Incidence Sky-Wave, or NVIS, uses the ionosphere to *reflect* (rather than *refract*) radio waves back to

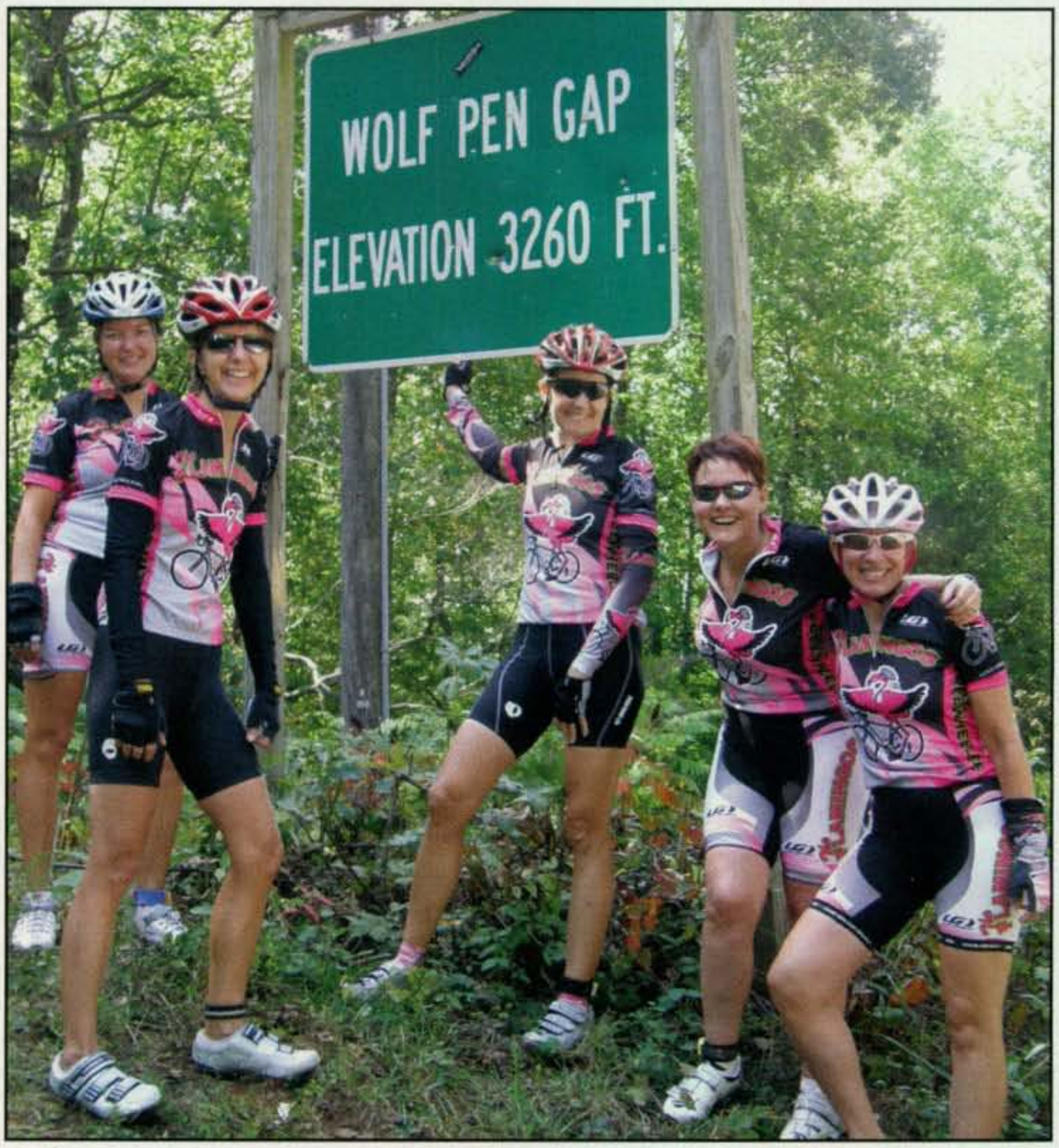

Photo C– Several riders pause at Wolf Pen Gap, one of the six mountain gaps along the course which are the source of the race's name. (Photo courtesy Dahlonega-Lumpkin County Chamber of Commerce)

Earth. The radio waves have to be below the *critical frequency*, which is the frequency at or below which radio waves aimed straight up are reflected by the ionosphere, and above which they penetrate the ionosphere. The critical frequency is usually above 5 MHz and often goes above 7 MHz (40 meters).

The signal is transmitted using an NVIS antenna to concentrate the signal and send it up to the *F1* layer of the atmosphere, where the signal is reflected back to Earth. It is much like taking a water hose and spraying water up onto a ceiling. People will get wet just in a small area near where the water is hitting the ceiling from the hose under the ceiling but not a lot farther out. Stations near a NVIS installation can get an HF signal in a similar manner. The NVIS signal will cover an area of about two- to three-hundred square miles and has the advantage of being able to be used night or day. NVIS can be accomplished using a simple horizontally polarized dipole about twelve feet above the ground.

Over the years there have been several incidents along the route. Thankfully, there has been only one fatality (the one that opened the use of NVIS), but every year there are injuries. The network itself has had problems, having just one net control operator covering the bands for several hours. Several years ago a VHF band opening caused rest stops to pick up signals from over four-hundred miles away in central Florida and parts of Mississippi. Often this would be exciting, but it was difficult explaining to distant stations that we were assisting with a ride with thousands of cyclists.

Looking to the Future

Discussions on future plans have focused on 80-meter systems and expanded crossband repeater usage, as well as recruiting additional operators to help with the event. There have been some discussions about alternate ways to handle net control, since a single net operator is pushed to the limit handling three nets. Tom Crowell, KD4DK, president of the North Georgia Amateur Radio Club and logistics manager for the Six Gap bike ride, said: "A lack of interest in ham radios and a lack of new operators have made getting enough hams to man the event difficult. Any operators reading this article are encouraged to join us in the mountains of north Georgia." For those of you who are interested in volunteering, the ride is held the last Sunday in September of each year.

Emergency Communications Special

ARES, RACES, SATERN, MARS … The "alphabet soup" of emergency communications organizations can be confusing to the uninitiated. Here, courtesy of WorldRadio Online *MARS columnist Bill Sexton, is a basic guide to the major "EmComm" groups with which hams are involved.*

Who's Who in Emergency Communications

BY BILL SEXTON,* N1IN/AAR1FP

Dozens of opportunities exist for amateur radio operators to take a direct role in emergency response. MARS (the Military Auxiliary Radio System) is the oldest governmental support unit, dating to 1925. The ARRL-sponsored NGO (Non-Governmental Organization), the Amateur Radio Emergency Service® (ARES®), celebrating its 75th anniversary this year, is probably the largest such organization.

MARS

MARS is divided into three subgroups—Army, Air Force, and Navy-Marine Corps—and functions as part of those military organizations. During the wars in Korea and Vietnam, it was best known for sending messages (MARSgrams) from troops overseas to family members at home, as well as arranging free phone patches to family members for deployed service members. Today, its primary mission is to provide contingency communications support for military units and civilian authorities in times of need. For more information on MARS membership, visit <http://www.netcom.army.mil/mars/> (Army MARS), <http://navymars.org/national/mission.htm> (Navy-Marine Corp MARS), or <http://www.afmars.org/mars1.shtml> (Air Force MARS).

ARES®

ARES® is the emergency communications arm of the ARRL (American Radio Relay League). It is organized on a section-by-section basis within the ARRL's field organization and responds on a local or regional level. The majority of amateurs who are involved with emergency communications are affiliated with ARES, perhaps along with one or more addi-

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**Adapted from the October 2011 issue of* WorldRadio Online *magazine.*

Bill Sexton, N1IN/AAR1FP, 7 Walden Lane, Pittsfield, MA 01201
e-mail: <sextonw@juno.com>

tional EmComm groups. For more information, contact your ARRL Section Manager or visit <http://www.arrl.org/ares>.

RACES®

RACES®, the Radio Amateur Civil Emergency Service, is the civilian entity established by the federal government after, and as a result of, World War II. In the government reorganization following the terrorist attacks on September 11, 2001, it became an arm of FEMA, the Federal Emergency Management Agency within the Department of Homeland Security. For more information, contact your local or state Office of Emergency Management.

More Communications Assistance

Above are the organizations perhaps most familiar to radio amateurs. Following, though, is a sample of six more of the many organizations that look to amateurs for communications assistance. For the most part, they already work with each other despite the divergent missions of the parent institutions.

SATERN. The Salvation Army Team Emergency Radio Network (SATERN) can be found on the job anywhere an emergency erupts in the U.S. and Canada, coordinating relief supplies, shelters, and feeding programs, while also handling health-and-welfare traffic. It started in June 1988 with four hams, two Americans and two Canadians. Major Patrick McPherson, WW9E, a Salvation Army officer and pastor, perceived amateur radio's relevance to his post as divisional disaster services coordinator in Dubuque, Iowa. Arthur Evans, KA9KLZ, a local Salvation Army volunteer, helped get SATERN on the air and eventually became national net director. SATERN somewhat resembles MARS with members organized into local and area units, hierarchical leadership, structured formal training programs, and HF nets operating daily. There are two differences, though: SATERN covers both the U.S. and Canada and has parallel organizations in a number of countries overseas. It also has "memoranda of understanding" for operational coordination and mutual aid with the ARRL, American Red Cross, SBDR (see below), and REACT. Membership and net information is available at: <http://www.satern.org>.

This year, after 23 years of service, the widely known and highly respected McPherson retired, handing his special ministry to Canadian Disaster Services officer Major Rick Shirran, VE3NUZ, of Toronto. The new director put in 12 years as a communicator in the Royal Canadian Navy before becoming an officer and pastor for the Salvation Army, a family connection in his native Newfoundland. Shirran was ministering on Bermuda when Hurricane Fabian, the island's worst storm in 50 years, struck in 2004. With that experience under his belt he went on to become Territorial Disaster Services Director for Canada.

Southern Baptist Disaster Relief. Well more than 40,000 Southern Baptist congregations are distributed throughout the U.S., notwithstanding the "Southern" in their name. That coverage and the denomination's biblical emphasis on giving aid in adversity make SBDR a potent relief and recovery force in disasters of every dimension. Its training program tells the story, embracing subjects such as "Cleanup and Recovery," "Chainsaw Operations," and "Feeding Units." There isn't a special department for hams, but they have Sunday HF nets when not mobilized for emergency operations. *(For details, visit: <http://www.southbears.org >—ed.)*

On the Cover

Altamonte Springs (Florida) Police Department "Radio Volunteers" Dick Fess, K4FUY (left), and Bob Mahon, KG4HBO (right), examine a map in the radio room at the city's Alternate Emergency Operating Center, or AEOC. In Florida, explained Altamonte Springs ARES/RACES Coordinator Peter Meijers, AI4KM, there is only one designated EOC per county, and municipal facilities such as the one in his city are designated as AEOCs. This center is used for local emergencies and is in contact with the Seminole County EOC in Sanford during countywide callups, and when necessary, with the state EOC in Tallahassee, Florida.

The radio room is equipped for HF, VHF, and UHF analog voice communications as well as D-STAR, a WinLink packet station that is active all the time, a CB rig, and a Peet Brothers weather station connected to a 2-meter rig (public-safety officials also have access to the weather station data).

The police department's Radio Volunteers program has been in place for more than ten years, limited to six active members but supported by the city's larger ARES/RACES group. According to Meijers, the group's largest event every year is the city-sponsored "Red Hot Boom" each July 3, with fireworks and other activities. Some 25 to 30 ham volunteers act as extra eyes and ears for police and report any problems they may encounter.

The group is also prepared for weather emergencies. Fortunately, the area hasn't had a direct hit from a hurricane since 2004. In 2007, however, amateurs helped put up a temporary antenna tower for the county after a tornado took down its main 400-foot tower. Other examples of amateur radio emergency and public-service communications may be found throughout this "Emergency Communications Special" issue. *(Cover photo by Larry Mulvehill, WB2ZPI)*

Volunteers apply for membership through a local congregation. Each state organizes its own radio teams. Membership details vary from state to state, but a typical program calls for a one-time $30 fee to cover meals and materials at the training sessions, as well as FEMA-required background investigation and ID badge effective for three years and accepted by FEMA.

"Most all of the state EOCs know who the SBDR is," said Fred Kinsey, KC8RQK, a 40-year emergency responder who is National Coordinator. Kinsey, a retired Ford Motor Co. technician from Monroe, Michigan, received his callsign 10 years ago, just before 9/11. During three previous decades of service, he had to be "shadowed" by licensed hams. A call from the Red Cross to borrow his four-wheel-drive truck during a severe blizzard was the beginning of his career in disaster relief. That led to joining the American Red Cross. During Hurricane Andrew in 2004 he put on his second hat with the SBDR. The two organizations work together closely.

"We provide manpower and the kitchens, and the Red Cross provides supplies and logistics," Kinsey said. It's reported Southern Baptist churches and field kitchens prepared more than 8-million meals delivered by Red Cross units after Hurricane Katrina. SBDR also works closely with the ARRL, SATERN, and FEMA. ARRL issues the alert on its behalf when ham reinforcements are needed.

American Red Cross. On the basis of statistics alone, there should be plenty of opportunity to assist the American Red Cross in communications. The organization responds to approximately 70,000 emergencies every year. It relies on radio amateurs on two levels: "Pre-accredited Disaster Relief personnel" are enrolled at individual chapters and may be dispatched anywhere for longer relief and recovery assignments. "Spontaneous volunteers" are recruited when major emergencies occur, subject to on-the-spot background and physical health checks. National headquarters works with the ARRL when ham reinforcements are needed. Many local chapters also have arrangements with radio clubs in the vicinity.

Contact the local chapter for Disaster Relief membership information. Addresses are at: <http://www.redcross.org/en/volunteer>.

U.S. Coast Guard Auxiliary. Established by Congress in 1939, the Coast Guard Auxiliary served throughout World War II with a peak of some 50,000 members providing homeland security. Today's Auxiliary includes about 30,000 members, who, along with the 32,000 active-duty Coast Guard members, now report to the Department of Homeland Security. The Maritime Radio Service is central to Coast Guard operations, so there's no separate branch for licensed amateurs. However, interested radio amateurs are encouraged to check with the Auxiliary Flotilla in their area.

Membership requires a background check. Liability coverage is provided while on a mission as well as entry to the USCG equivalent of post exchanges, except for tobacco and alcoholic beverages. There is also access to the Coast Guard's Mutual Assistance program, which provides low-interest loans for emergencies and student loans.

Immediately after 9/11, the Auxiliary made maritime security its primary task. Its Strategic Plan for 2011–2012 "reflects a change (back) to emphasis on recreational boating safety while continuing to contribute to the security of the United States." For more info, visit: <http://cgaux.org/mission.php>.

REACT® (Radio Emergency Associated Communication Teams). From its initial mission 48 years ago, monitoring the emergency Channel 9 on Citizens Band REACT® has cut loose from industry funding, earned non-profit status, and achieved working arrangements with the National Weather Service, the Red Cross, the ARRL, and the Salvation Army, along with numerous local governments. REACT "frequently provides communications and other support at public service events (and) during emergencies, acts as severe weather spotters, and provides other types of assistance," according to the REACT International, Inc. website. REACT is "not just 'CBers.' Many teams also use GMRS (General Mobile Radio Service), Amateur (Ham) Radio, and other types of communications. Yes, many of us even use cell phones!" Visit: <http://www.reactintl.org>.

SKYWARN. SKYWARN is the civilian auxiliary of The National Weather Service, thousands of additional sets of trained eyes and ears to report on ground conditions during storms and other weather extremes. The weather service relies on these reports to supplement its radar and satellite imagery in issuing watches and warnings as severe weather approaches. You do not have to be a ham to be a certified SKYWARN member, but many members are hams and there are SKYWARN nets held throughout the country. For more information, go to <http://www.weather.gov/skywarn/>.

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. . . makes barely understandable speech highly understandable!

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Here's what *QST* for April, 2001 said . . . *"I expected a subtle effect at best, but I was astonished . . . The result was remarkably clean, understandable speech without hissing, ringing or other strange effects . . . made a dramatic improvement . . ."*

Immuned to RFI. Has phone jack, on/off speaker switch, 2 inputs, bypass switch. 10Wx2½Hx6D". Needs 12 VDC.

MFJ-1316, $21.95. For 110 VAC operation. Provides 12 VDC/1.5 Amps.

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New! **It's** easy to use -- just plug in your 8 pin round or modular mic plug, set the internal jumpers for your transceiver and plug in the appropriate (included) cable for your rig.

Built-in speaker-amplifier. Speaker/phone jack. Use 9 Volt battery, 9-15 VDC or 110 VAC with optional MFJ-1312D, $15.95. 6½Wx2½Hx6½D in.

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60 dB Null *wipes out* noise and interference

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Wipe out noise and interference *before* it gets into your receiver with a 60 dB null!

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It's *more effective* than a noise blanker! Interference much stronger than your desired signal can be completely removed without affecting your signal.

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Emergency Communications Special

When emergencies strike, we are often dependent on our radios' batteries to keep us on the air. But how long will a given battery pack last? Being fully charged, says the author, doesn't necessarily mean a battery will deliver full capacity.

Trusting the Battery in Critical Situations

BY ISIDOR BUCHMANN*

A battery is a corrosive device that begins to fade the moment it comes off the assembly line. The stubborn and unpredictable behavior of a battery has left many users in awkward situations. Battery failure is common; some are simply a nuisance but others can have serious consequences. Even with the best of care, a battery only lives for a defined number of years. There is no distinct life span, and the health of a battery rests on its genetic makeup, environmental conditions, and user pattern.

Most batteries deliver 300 to 500 full discharge/charge cycles, more on a partial discharge. Batteries in a fleet environment (open system with common charger) work well in the first and second year, but the confidence begins to fall after the third and fourth year. As batteries begin to lose capacity, new packs are added, and in time the battery fleet becomes a jumble of good and fading batteries. This is when the headache begins. Unless date stamps or other quality controls are put in place, the user has no way of knowing the history of the battery, much less its performance.

*c/o Cadex Electronics Inc., <www.cadex.com>
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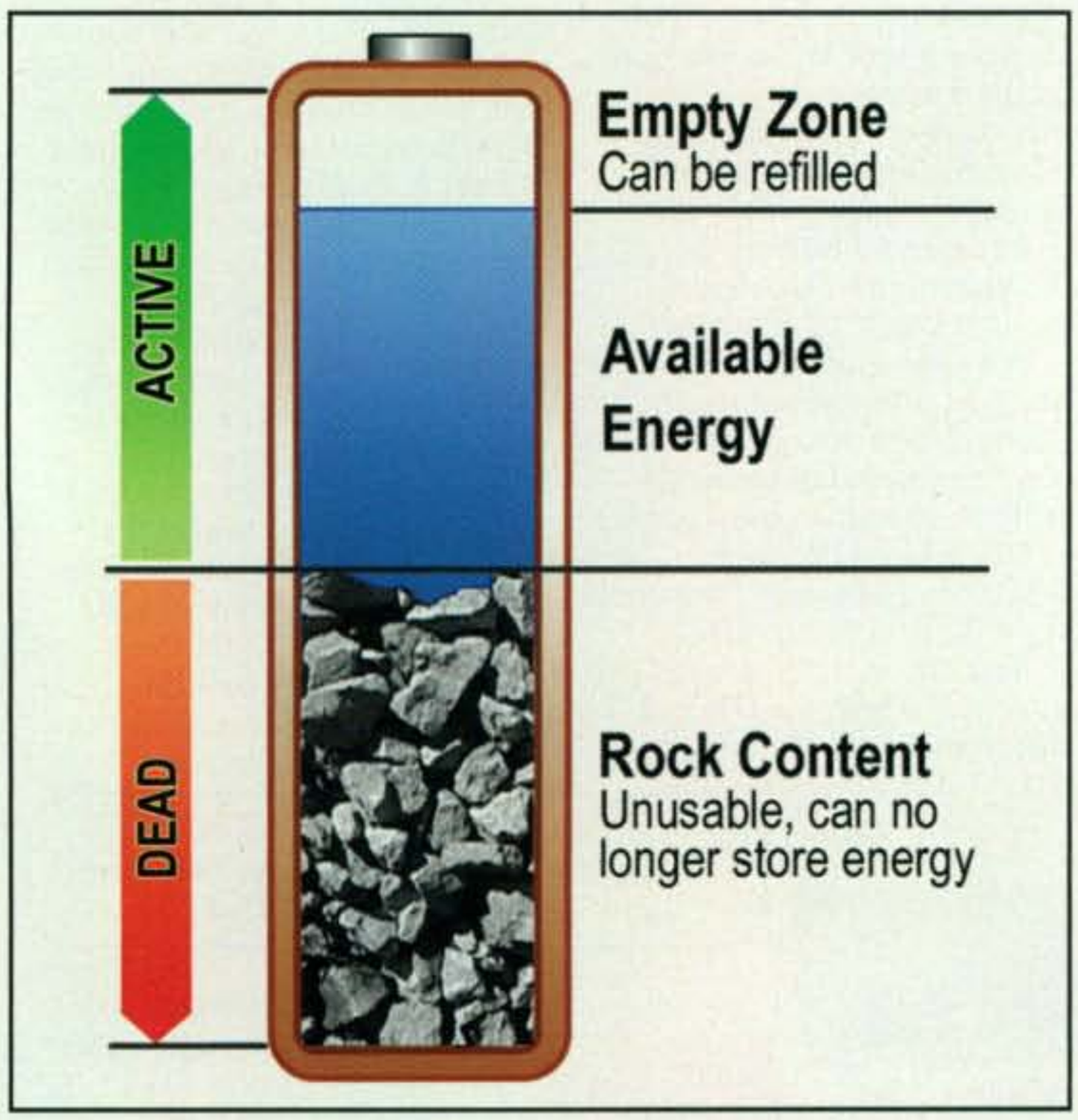

Fig. 1– Fading battery. A new battery should deliver 100-percent capacity when new.

Energy and Rocks

The energy in a battery can be divided into three segments: available energy, an empty zone that can be refilled with charge, and an unusable part (rock content). Fig. 1 illustrates these three sections graphically.

The "ready" light on a charger does not verify the "health" of a battery. Ready only reveals that the battery is fully charged. As the active space of a battery decreases with age, charge and discharge times are also shortened. This can be compared to filling a jug with water. An empty jug takes longer to fill than one half full of rocks.

Many battery users are unaware that weak batteries charge more quickly than good ones. Low performers gravitate to the top and become a disguise to the unsuspecting

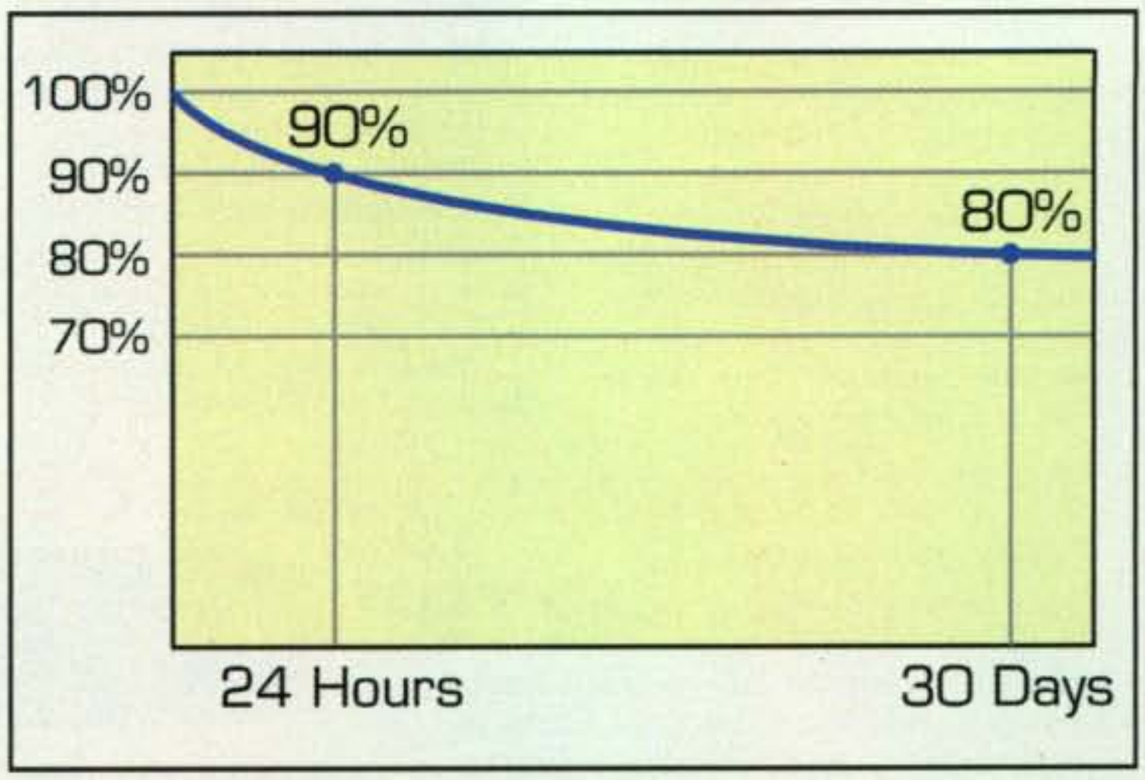

Fig. 2– Self-discharge in nickel-based batteries. The self-discharge is highest after charge and then tapers off.

user who assumes that the "green light" guarantees full battery service.

Constant Care and Feeding

A battery needs constant care and feeding. Even if fully charged, self-discharge consumes valuable energy. This is not a manufacturing defect per se, although poor manufacturing practices and improper handling can aggravate the problem.

The amount of electrical leakage varies with the type of battery, and primary cells retain energy better than rechargeable systems. The energy loss is asymptotical, meaning that the self-discharge is highest right after charge and then tapers off. Fig. 2 illustrates the typical loss of a nickel-based battery in storage. NiCd and NiMH batteries lose 15 to 20 percent of their charge per month; lead acid and Li-ion cells about 5 percent per month.

Lithium-ion has one of the lowest levels of self-discharge. It loses less than five percent in the first 24 hours, and one to two percent thereafter. The mandatory circuit protection increases the discharge by another three percent

Photo A– The Cadex C7400ER is one example of a battery analyzer that can help you measure the condition of your battery.

per month. The self-discharge of all battery chemistries increases with rising temperatures, cycle count, and advancing age.

The care and feeding of a battery begins with the arrival from the supplier and continues to its rightful retirement. The service includes the following:

Incoming inspection: All batteries should be checked before field deployment. Packs that fail to meet performance criteria should be returned. The open-circuit voltage of a lead-acid battery should be at least 2.10V/cell; the capacity of nickel- and lithium-based batteries should be close to 100 percent. Batteries below these requirements may need extra service or could deliver shorter than expected service lives. Many organizations performing incoming inspection will return non-compliant batteries to the vendor.

Field preparation: Lead-acid batteries do not perform at peak levels when new and only reach full capacity after 20 to 50 cycles. Nickel-based batteries may need priming by cycling the battery a few times; lithium-ion should deliver full capacity when new. Spot checks provide quality assurance.

Periodic capacity check: Batteries should be treated like any other device. While date stamping offers an alternative to analyzing batteries, this method does not guarantee reliable performance. Some packs fail before the expiration date, but most last longer. Quality products properly maintained tend to outlive the date stamp. Capacity, and not the manufacturing date, is the leading health indicator of a battery.

Retirement: Battery capacity decreases with usage and time. Fleet users may be unaware of the capacity fade and will continue using a weak battery. A battery should be replaced when the capacity drops to 80%, in some cases 70%, and restoration is not possible. Do not retire batteries too soon. Discarding good batteries increases operational cost and adds to waste. Battery analyzers are helpful in predicting the correct replacement time.

Battery analyzers have gained steady inroads into public safety and other organizations relying on portable devices. One example is the Cadex C7400ER (photo A), which services four batteries independently. Configured battery adapters permit plug-and-play, and automated programs provide secure service. PC-BatteryShop™ software allows shifting the operation to the PC, and a simple mouse click on a battery of choice will configure the analyzer to the correct battery type. More information is available at <http://www.cadex.com/prod_analyzers/7000_overview.asp>.

A Wild Animal

A speaker at a battery conference once said, "The battery is a wild animal and artificial intelligence domesticates it." He hinted at making the battery intelligent. While adding a System Management Bus (SMBus) may assist in battery management, the embedded electronics comes with baggage. SMBus communicates with the battery and device by accepting control parameters and providing battery status, such as state-of-charge, manufacturer information, cycle count, and error messages. The fuel gauges of an SMBus are not standardized among manufacturers and most show only the remaining charge without reference to the actual capacity. In addition, a battery equipped with a fuel gauge needs periodic full discharges for calibration.

An expert servicing smart batteries for specialty applications comments on his personal experience. He says: "I have more problems dealing with the *smart part* of the battery than the actual cells. Many batteries have logic problems, memory errors, glitches, or low voltage recovery issues." Most smart batteries for laptops and other consumer products have solved these problems.

To eliminate system failures, regulatory authorities have implemented strict maintenance and calibration guidelines. This also applies to the battery, but here lies the difficulty. Regulators see the battery as a black box and correct size, weight, and color may satisfy the requirements. State-of-function, the key ingredient of a battery, is commonly ignored. Yes, the battery is difficult to evaluate, and to this day there are few reliable devices that can check a battery with certainty. Measuring capacity with discharge is time-consuming, and rapid-test methods are not always reliable.

Failing batteries enjoy some level of immunity, even if human lives are at stake. The battery escapes scrutiny and a breakdown is often seen as "uncontrollable." Less critical malfunctions have been heard in court and dealt with in a harsh way. Up to 50 percent of system failure can be attributed to a weak battery and much of this is avoidable.

Photo B– Printer generates battery labels with battery capacity and service date.

Summary

The user is always at the mercy of the battery. Charge-and-run without maintenance does not guarantee reliability. To avoid unnecessary risk, many responsible organizations are taking a proactive approach towards battery maintenance. There is also a strong interest in cutting costs by prolonging battery life and keeping each pack in service for the full duration of the useful life. Modern battery analyzers make this possible.

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Photo A– The trunk of my car is fully stocked with the always-there car kit, my "go kit" for emergency activations and winter preparedness gear.

Emergency Communications Special

Anyone involved in emergency communications should have a radio "go-kit" packed for quick deployment. But if you encounter a medical emergency on your way to the communications emergency, will you be prepared to help until trained responders arrive?

Medical "Go-Kit" for Hams

BY JON SEAVER,* N8SUA, RN, BSN, PA-C

Amateur radio is full of stories of ham operators deploying to events such as Hurricane Katrina, the September 11 attacks on New York and Washington, and recent wildfires in the west. These reports commonly contain several recurrent themes, among which is the need for ham responders to be prepared to be self-sufficient for occasionally prolonged periods. There have been several articles over the past several years detailing suggestions for what sort of radios are important, and how we might package them to make them most useful. In addition, any Boy Scout or other experienced camper can knowledgeably discuss the shelter, food, and sanitation aspects. I'd like to speak of some medical aspects of planning for yourself, your family, and other members of your team. This perspective is focused on what in my younger days was termed "first aid."

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e-mail: <n8sua@yahoo.com>

Other medical aspects of community service, such as your physical fitness, control of your chronic medical conditions, and preventive health care ought to be part of your contingency planning, but this one conversation of a few thousand words cannot do these other topics justice.

Your emergency response may be smaller scale than western state wildfire support. For example, a few months ago I came upon a rural rollover auto crash as my girlfriend and I were en route to attend a family function. There were half-a-dozen civilians clustered about, and things seemed well in hand. The first firefighter arrived shortly after me, and I deferred to him. Offering him wound-care supplies, I was surprised to discover I could not find any gloves in my kit! Returning home, I undertook an inventory. Here is the result of that tally, and some discussion of my view of why each item belongs in my kit . . . and in yours.

The supplies in my personal vehicle (photos A and B) are very much like those I carried in my street medic days, and

reflect a strong basic life-support/trauma bias. Basic life support includes those treatments that do not go past the skin and generally do not require physician direction to implement. Advanced life support (as a paramedic might perform), on the other hand, includes therapies that do go past the skin and include medications, intravenous fluids (IVs), electrical counter shock, and airway intubation. Advanced life support is way, way beyond the scope of this article.

I am an emergency room nurse of 30 some years experience, spent years as a fire department medic, and hold a license as a physician assistant (PA). I focus strictly on basic life support in my personal preparations, and I encourage you to do likewise. Among other reasons, I am not about to pretend that reading an article in a magazine will equip you to do roadside emergency care. Find an American Red Cross first-aid class and master it. Better yet, if you have the time and commitment, become an EMT.

Training Comes First

Many years ago, I was told a story of the early days of the Israeli state, when the emergency response planners had the budget required either to train their people to stabilize and transport spine-injured patients or to buy the splints (called backboards), but not both. The story relates that the planners elected to train their personnel and subsequently noted a person with a spine injury transported to the hospital by his comrades, secured effectively to an entire barn door.

I place a priority on training for several reasons: First, neither vermin nor adverse storage conditions have ever ruined training and rendered it unusable. Second, "they can have my training when they can pry it from my cold, dead mind" (some observers might assert that I am already there . . .). Third, I have never ever (in my disorganized life) failed to pack my training. Fourth, there is nothing that will be displaced from my supplies in order to make room for my training. Fifth, in contrast to supplies, ability improves with use and becomes more abundant when you share it with others.

Begin with CPR training. Three or four hours of your time will equip you with the skill that may save a life in the here-and-now. You will gain an introduction to patient assessment and learn some of the fundamentals of first aid. Whatever problem confronts you, your response only will be more effective with some training to guide you. Effectiveness saves lives.

Look into local outlets for first-aid training. The American Red Cross, the National Safety Council, your local community college, as well as perhaps others offer reliable training that may serve as an introduction to further studies. You can justify further investment of additional hours if you see the paragraph above. In addition, if you better understand what the medical conversation is about, your health-care decisions regarding yourself and your family will be less mysterious to you, and better informed decisions are better decisions. The better your health, the better your chances of coming out the other side of difficult times in tact, and therefore the better chance of bringing your family with you, likewise unscathed.

You might want to get more training beyond CPR and first aid. If you aren't going to become a nurse, you might look into EMT training. Until then, here (and in photos C and D) are some thoughts on supplies to keep handy.

Select Your Case

It really doesn't matter what sort of container you employ for

your emergency supplies, as long as it definitely meets your particular needs for security, identification, accessibility, protection, and convenience, as well.

I use a nylon multiple-compartment "range bag" such as target shooters use to organize their trips to the shooting range. It is not water resistant, is not neatly compartmentalized, and does not have an IR glint Star of Life embroidered upon it. On the other hand, I know how my stuff inside is organized, it is convenient to sling over my shoulder when the scene requires that I do so, and the local surplus store will sell me another for $20 to $40 when that becomes necessary. It will fit beneath a van seat, or in a tub in my trunk, and I can work out of it when I have it slung over my shoulder.

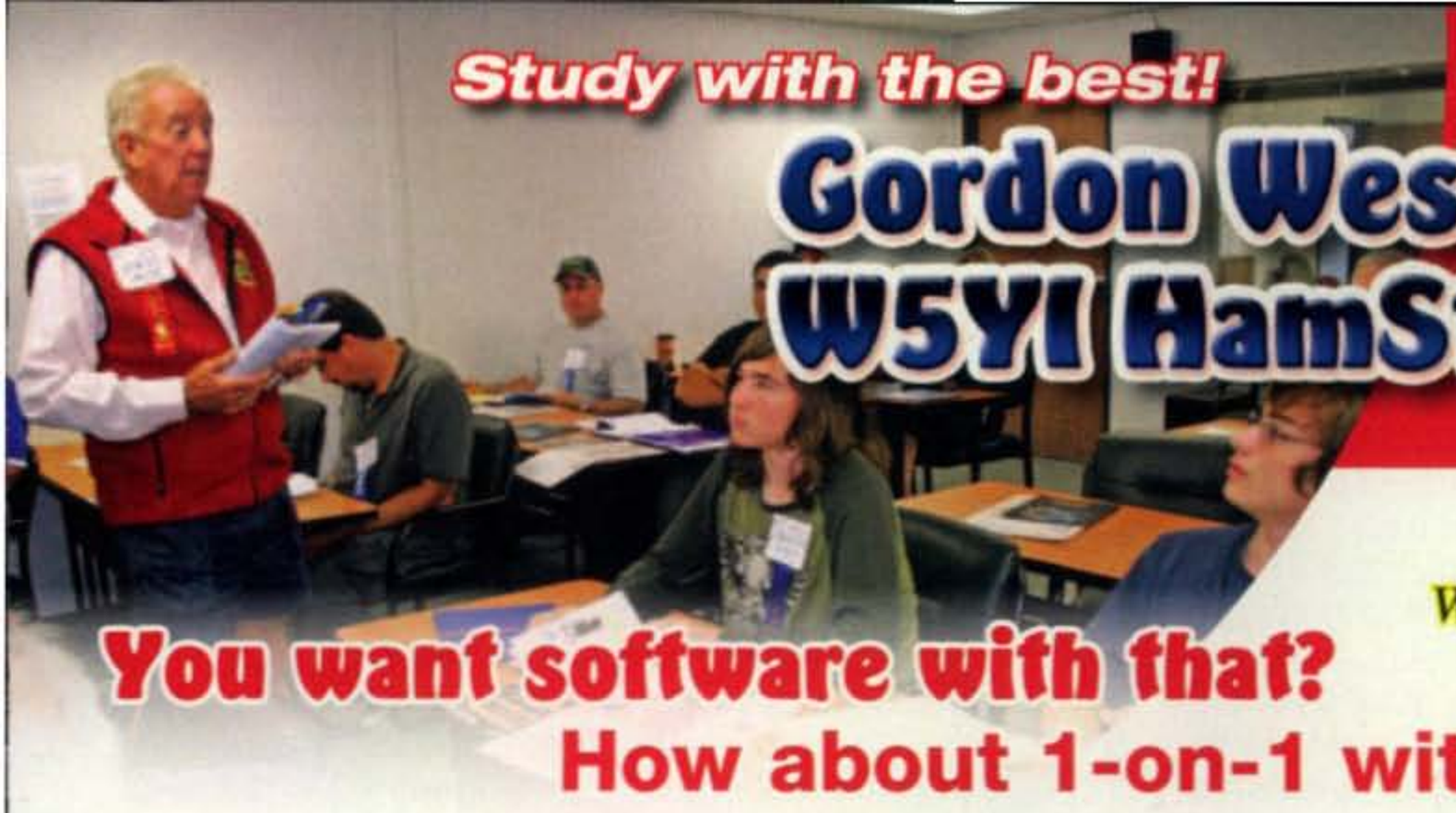
In the Top or in an Outside Pocket

Items that I am going to require promptly are either in an outside pocket or immediately inside the top zipper compartment of the bag. These are things that I do not want to be fumbling for as I approach a scene.

First up are several pairs of gloves (well, now anyhow!). I am allergic to latex, so I have nitrile gloves. Current medical practice is to wear gloves anytime you might reasonably expect exposure to blood or other body fluids: tears, urine, stool, saliva, gastric contents, or any other moist, body-origin material you might imagine (and perhaps a few you might not!). I have so thoroughly incorporated this into my life that I get reflexively gloved before caring for my own children (or at my advanced age, grandchildren!). Gloves are in a zip-lock bag, safety pinned (now!) just inside the top flap of my medic bag.

The upside to all of this is that scrupulous gloving and thorough hand-washing so far have proven highly effective at preventing the spread of the most common blood-borne

Photo B– Close-up view of the go kit and car kit in my trunk.



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infections. For myself, after 30-plus years of patient contact, the worst I have brought home is an occasional upper-respiratory infection, because I conscientiously apply the "wear gloves/wash my hands/keep my hands away from my face" regimen.

The next item I'll feel a burning need to have in my hands is something for ventilation (rescue breathing). I have a bag-valve-mask, but a CPR mask, of the sort handed out in CPR classes, is entirely adequate. Training in use of a pocket mask is part of the CPR class I mentioned earlier.

When I'm confronted by an actively bleeding patient, I reach for a battle dressing. Mine are the old-style Carlyle iteration including cloth ties to secure as with any other tied bandage. The 21st century version is called an Israeli Battle Dressing and is available from various sources.[1] It consists of a sterile dressing incorporating an elastic bandage to secure the dressing to the wound.

Next in Priority

The preceding items are to be found in the outside pocket or very top of my medic bag. I don't want to be searching for them when I feel the immediate need for them. Beneath the don't-wanna-wait-for-them items, I have supplies of somewhat lesser immediacy. These allow me to assess the situation in greater detail, or address issues that may come to light that aren't so immediate.

Triangular bandages are useful as slings for injured arms, or may be folded into narrow strips and then used as a means to secure splints or dressings (as "cravat bandages"). If we were to consider them as a backpacker might, they may also be used as expedient dust masks, bandannas, head coverings, or washcloths. I buy muslin by the yard at Wal-Mart and cut it from one corner to the other, forming (surprise!) two triangles approximately a yard on each short side. I keep six to eight in my kit.

Bandage shears are the most obvious of the pre-hospital medic's tools. You can go with Lister-style bandage scissors, often found as "nurse's scissors," or the plastic-and-steel "super shears." Prices start around $4.00. These shears frequently are employed to trim dressings to the proper size, to cut away clothing from wounds, and to cut bandages.

Adhesive tape (1 inch, 2 inch) secures dressings, holds loose ends of bandages, and provides a single-use notepad (tear off a length, tape it to your thigh, and jot notes; you will not place it down somewhere to be forgotten). Two rolls each are at hand when I open my green bag.

I keep 12 to 15 sterile 4" × 4" gauze pads in my kit. I employ them as eye pads, padding beneath splints, or as (oddly enough) dressing for wounds. Occasionally I encounter a wound bleeding so much that a couple of gauze pads will be overwhelmed. Fortunately, I haven't come across such a wound off duty, but in the hospital we use a "boat" of sterile gauze. This is a plastic tray of ten sponges in one pack. The tray also may be used as a clean basin for wound irrigation/cleansing solution. In the hospital we use sterile saline; you may elect to use the water from your retort pouch, or fresh from the bottle as you purchased it from the store. I would certainly give it some thought.

Sterile 5" × 9" triple padding/ABD pads are multiple-layer absorbent dressings that are designed for wounds producing a lot of drainage of either blood or other fluid. They are

Photo C– The contents of my "go kit," including a tub of bandages beneath the gloves, a flashlight, large and small bandages, triangular bandages and Carlyle dressings (see text for descriptions).

Photo D– House kit and camper kit behind Israeli battle dressing on top of triangular bandage.

my first choice for a bulky dressing or splint padding. I keep six in my kit.

Four-inch roller gauze typically is used to secure a dressing (see gauze pad above) to the wound. I pack six in my kit, and they have "found careers" as bandages to secure dressings, securing splints when I run out of triangular bandages, and on occasion as packing/dressings for vigorously bleeding wounds. In fact, when one is employed as the dressing, and another as the bandage, I cannot only dress the wound, but also (since the bulky roll provides a pressure point) apply direct pressure to the bleeding site. This provides an alternative to the Carlyle or Israeli Dressing cited above.

We all can think of uses for the common elastic Ace™ bandage, 4-inch and 2-inch. Two-inch is useful for sprains of a wrist or thumb, and the 4-inch is used for an ankle twist/sprain. In addition, I can use them to secure a splint, as the "swathe" part of a sling-and-swathe to immobilize an injured shoulder, or as part of a pressure bandage over a dressed wound that does not stop bleeding.

Mylar "space blankets" protect you or your patient from the hypothermia-inducing effects of the wind, slowing heat loss. Generally colored bright orange on one side and silver on the other, there are signaling opportunities as well. In a pinch, you can improvise shelter from one or two. Equip your jump kits, and each member of your family with one or two.

Any accident so severe as to convince suspicious old me (alumnus of Detroit's EMS) to stop and offer assistance will not be fixed with a couple of adhesive bandages (aka "Band Aids™"). Nonetheless, I have six in my jump kit and two entire boxes at home (and parceled out among my camper, car, and household kits).

I also keep a couple of ice packs around, as assorted adventures may bring on modest orthopedic injuries. Ice is helpful for strains, sprains, or overuse of an aged joint (. . . not that I would know anything firsthand about that . . .). Choices include "instant cold packs" or that old picnicker's standby, a Ziploc™ bag full of ice from the cooler.

Either option has drawbacks. I do not generally drive about with a cooler of ice at hand, although when camping I am likely to do so. Instant cold packs are kind of fragile, and you might find when you go to place one in service that you have a leaking mess on your hands. On the other hand, they are more likely to be there when you want one. I double-bag my instant cold packs in two layers of Ziploc bags in order to contain the mess should one leak.

Be Prepared

The foregoing lists the contents of my "medical go kit." I keep one kit in my vehicle and another at home. In addition, there are subordinate kits kept in camper, car and home (in background in photo D) for lesser sorts of occasions. Starting with The Big Box store $15 first-aid kits, I have customized each by adding more dressings, triangular bandages, roller gauze, and gloves. In addition, I added Ziplock bags of various household medications. I labeled each bag with the name of the med, the "oubt date" of that particular bottle, directions for use, and date of packing. I made my selections by inspecting my own medicine cabinet, and pondering which meds I had wished I kept handy the last time I was out camping, for example. Almost everything commonly needed is, therefore, in the camper kit, car kit, or house kit.

The jump kits are reserved for big-time sorts of events. They are not mere "boo-boo boxes." Reserved in this way, I will not find myself hunting (and swearing) in crisis, as I need this or that widget, which some child (or adult) has used and not restocked.

Note

1. Israeli battle dressings are available from Cheaper Than Dirt <http://www.cheaperthandirt.com/MHR330-1.html> or from Chinook Medical <http://www.chinookmed.com/cgibin/item/05130/s-bandages_dressings/-Israeli-Emergency-Bandage---4%22----------> for $6.00 or $10.00 each.

CQ World-Wide DX Contest All-Time Records BY FREDERICK CAPOSSELA, K6SSS

These records represent the pinnacle of achievement by the true champions of contesting. We congratulate them on their success. *Number groups* after calls are: year of operation, total score, contacts, zones and countries. All-Band and Multi-Operator records include a band-by-band breakdown of the world leader in each category. **NOTE: Complete records can be found at <www.cqww.com>.**

Phone Single Operator/Single Band
WORLD RECORD HOLDERS

1.8	IG9/IV3TAN('96)	441,252	1,203	24	102
3.5	CN2R('06) (Opr. W7EJ)	1,091,694	2,409	33	126
7.0	CN2R('05) (Opr. W7EJ)	1,590,675	3,287	35	132
14	PYØFM('94) (Opr. PY5CC)	3,202,242	5,109	38	175
21	HC8A('10) (Opr. N6KT)	3,565,674	6,571	38	151
28	HC8A('01) (Opr. N6KT)	3,916,600	6,957	39	161

Single Operator/All Band

AF	EA8BH('99) (Opr. N5TJ)	25,646,796	10,253	176	692
AS	A61AJ('04) (Opr. S53R)	15,272,745	7,204	173	622
EU	CR2X('10) (Opr. N5TJ)	15,256,808	9,411	172	619
NA	8P1A('04) (Opr. W2SC)	16,250,784	9,254	158	568
O	KH7R('00) (Opr. CT1BOH)	11,894,730	7,473	170	392
SA	HC8A('99) (Opr. N6KT)	18,607,050	8,638	175	595
QRP	P40W('00) (Opr. W2GD)	5,097,780	3,599	127	381
LowPwr.	D44TD('02) (Opr. IV3TAN)	11,199,793	6,097	141	508
Asst.	9Y4ZC('03) (Opr. DL6FBL)	14,979,055	8,114	137	500

WORLD RECORD

Station	Band	QSOs	Zones	Countries
	1.8	150	13	54
EA8BH	3.5	547	18	80
(Opr. N5TJ)	7.0	682	27	97
(1999)	14.0	2,655	39	158
25,646,796	21.0	2,071	39	148
	28.0	4,148	40	155
	Total	10,253	176	692

Multi-Operator/Single Xmtr.

AF	D44TC('01)	22,978,944	9,638	178	694
AS	P3A('03)	20,196,420	9,210	167	656
EU	IQ4A('90)	17,255,700	7,253	183	717
NA	VP2E('03)	25,299,296	11,617	182	720
O	KHØAA('02)	12,599,064	6,872	158	490
SA	PJ1B('93)	22,596,570	9,386	164	646

WORLD RECORD

Station	Band	QSOs	Zones	Countries
	1.8	128	13	47
VP2E	3.5	414	24	88
(2003)	7.0	1,162	32	130
25,299,296	14.0	2,763	39	147
	21.0	2,990	39	151
	28.0	4,160	35	157
	Total	11,617	182	720

Multi-Operator/Two Xmtr.

AF	CN3A('10)	33,320,736	12,754	185	726
AS	P3F ('07)	15,277,836	7,494	148	613
EU	IR4X('04)	18,385,620	8,626	185	754
NA	VP2E('04)	40,907,104	16,868	188	804
O	KHØAA('03)	14,109,480	7,589	172	488
SA	PJ2T('02)	28,415,835	12,916	161	628

WORLD RECORD

Station	Band	QSOs	Zones	Countries
	1.8	216	17	62
VP2E	3.5	945	23	102
(2004)	7.0	2,346	34	145
40,907,104	14.0	3,794	40	172
	21.0	4,771	39	163
	28.0	4,796	35	160
	Total	16,868	188	804

Multi-Operator/Multi-Xmtr.

AF	CN8WW('00)	78,170,508	25,711	199	854
AS	A61AJ('02)	33,377,700	13,376	186	784
EU	M6T('99)	29,338,624	14,655	188	836
NA	VP2E('01)	44,332,785	19,214	185	760
O	KHØAM('90)	35,730,600	16,309	179	565
SA	PJ4B('99)	59,127,810	20,618	188	834

WORLD RECORD

Station	Band	QSOs	Zones	Countries
	1.8	923	17	77
CN8WW	3.5	1,818	25	106
(2000)	7.0	3,545	37	138
78,170,508	14.0	6,737	40	177
	21.0	5,754	40	175
	28.0	6,934	40	181
	Total	25,711	199	854

CW Single Operator/Single Band
WORLD RECORD HOLDERS

1.8	CN2FF('07) (Opr. UA2FF)	618,849	1,599	26	107
3.5	CN2FB('07) (Opr. WA2FB)	1,590,288	3,244	35	133
7.0	CN3A('09) (Opr. IK2QEI)	2,156,652	4,285	36	135
14	CN2M('08) (Opr. OH2MM)	2,026,725	3,742	39	144
21	ZD8Z('97) (Opr. N6TJ)	2,357,967	4,589	39	140
28	ZX5J('99) (Opr. N6TJ)	2,131,942	3,962	39	152

Single Operator/All Band

AF	EA8BH('00) (Opr. N5TJ)	18,010,765	7,555	183	634
AS	P3N('10) (Opr. R2AA)	11,654,496	6,549	137	527
EU	CR2X('10) (Opr. OH2UA)	10,206,848	6,691	167	569
NA	V47NT('10) (Opr. N2NT)	11,864,348	7,293	149	519
O	KH7X('03) (Opr. KH6ND)	7,673,314	5,256	170	347
SA	P4ØE('03) (Opr. CT1BOH)	15,943,070	7,828	169	546
QRP	P4ØW('99) (Opr. W2GD)	5,024,800	3,277	137	413
Low Pwr.	P4ØW('01) (Opr. W2GD)	10,198,792	5,723	151	475
Asst.	9Y4ZC('04) (Opr. DL6FBL)	14,581,665	6,576	169	596

WORLD RECORD

Station	Band	QSOs	Zones	Countries
	1.8	197	17	60
EA8BH	3.5	541	20	82
(Opr. N5TJ)	7.0	1,091	33	95
(2000)	14.0	1,601	39	129
18,010,765	21.0	1,746	39	134
	28.0	2,375	35	133
	Total	7,555	183	634

Multi-Operator/Single Xmtr.

AF	D4C('10)	21,531,924	8,054	193	755
AS	P33W('10)	23,058,276	8,959	191	751
EU	TM6M('10)	12,965,378	6,613	192	707
NA	8P9Z('99)	18,711,252	8,245	192	669
O	AH2R('04)	10,283,200	5,279	188	512
SA	PJ4A('06)	19,776,302	8,369	174	643

WORLD RECORD

Station	Band	QSOs	Zones	Countries
	1.8	387	18	79
P33W	3.5	1,253	29	115
(2010)	7.0	2,267	37	151
23,058,276	14.0	2,254	40	150
	21.0	1,858	37	152
	28.0	640	30	124
	Total	8,959	191	751

Multi-Operator/Two Xmtr.

AF	D4C('08)	31,955,086	13,008	178	675
AS	A61AJ('02)	24,384,292	10,505	194	704
EU	RU1A('03)	16,533,164	8,314	209	749
NA	HI3A('07)	18,467,772	10,600	160	594
O	VK6AA('09)	12,331,144	6,524	162	502
SA	HC8N('04)	30,971,500	12,429	196	679

WORLD RECORD

Station	Band	QSOs	Zones	Countries
	1.8	205	22	80
D4C	3.5	1,957	30	117
(2008)	7.0	3,475	34	127
31,955,086	14.0	4,153	37	147
	21.0	2,973	35	142
	28.0	244	20	62
	Total	13,008	178	675

Multi-Operator/Multi-Xmtr.

AF	CN8WW('99)	70,713,270	23,068	219	843
AS	A61AJ('99)	38,789,751	15,812	213	788
EU	OH2U('99)	22,244,067	10,956	211	786
NA	6Y2A('98)	39,279,140	17,609	192	740
O	ZL8X('10)	26,240,941	11,744	193	594
SA	PJ4B('99)	47,516,600	17,889	208	757

WORLD RECORD

Station	Band	QSOs	Zones	Countries
	1.8	1,694	24	100
CN8WW	3.5	3,248	35	121
(1999)	7.0	4,358	40	141
70,713,270	14.0	4,837	40	159
	21.0	4,319	40	161
	28.0	4,612	40	161
	Total	23,068	219	843

CQ World-Wide DX Contest All-Time U.S.A. Records BY FREDERICK CAPOSSELA, K6SSS

Tabulated below are the record-high scores achieved by U.S. contesters in the CQ World-Wide DX Contest. Number groups following calls and bands are: year of operation, total score, contacts, zones, and countries. **NOTE: Complete records can be found at <www.cqww.com>.**

PHONE

Single Operator/Single Band

1.8	K1ZM('95)	55,420	251	15	70
3.5	K1ZM/2('96)	292,100	952	27	100
7.0	N4PN('08)	493,041	1,344	31	118
14	KQ2M/1('08)	1,242,150	2,504	38	144
21	KQ2M/1('99)	1,327,139	2,624	39	148
28	W4ZV('01)	1,464,255	2,654	40	155

Single Operator/All Band

Station	Band	QSOs	Zones	Countries
	1.8	21	8	15
K1AR	3.5	154	16	59
(1999)	7.0	231	29	84
7,898,499	14.0	1,145	38	142
	21.0	1,150	36	123
	28.0	1,393	33	128
	Total	4,094	160	551

QRP

KR2Q('00)	1,507,506	1,181	104	358

Low Power

K1ZM/2('00)	3,368,010	1,907	151	504

Assisted

KI1G('01)	8,053,315	3,768	168	617

Multi-Operator/Single Xmtr.

Station	Band	QSOs	Zones	Countries
	1.8	32	12	30
K1AR	3.5	197	18	76
(1990)	7.0	154	26	95
11,193,606	14.0	1,370	39	167
	21.0	1,167	38	165
	28.0	1,517	37	170
	Total	4,437	170	703

Multi-Operator/Two Xmtr.

Station	Band	QSOs	Zones	Countries
	1.8	56	14	40
K3LR	3.5	439	27	89
(2004)	7.0	830	33	122
18,382,950	14.0	2,024	40	169
	21.0	2,899	40	166
	28.0	1,390	33	145
	Total	7,638	187	731

Multi-Operator/Multi-Xmtr.

Station	Band	QSOs	Zones	Countries
	1.8	197	16	36
KC1XX	3.5	699	24	102
(1999)	7.0	746	31	119
25,963,386	14.0	2,711	40	185
	21.0	3,245	40	170
	28.0	2,596	36	170
	Total	10,194	187	782

CW

Single Operator/Single Band

1.8	K3BU/8('06)	151,970	527	26	104
3.5	W1MK('06)	530,264	1,390	32	104
7.0	N4PN('10)	900,502	1,934	38	140
14	K2WK('98)	1,007,781	1,955	39	144
21	K2SS/1('00)	974,440	2,035	36	134
28	W4ZV('00)	965,874	1,984	37	137

Single Operator/All Band

Station	Band	QSOs	Zones	Countries
	1.8	104	14	40
K5ZD/1	3.5	384	19	73
(2000)	7.0	971	29	103
8,756,568	14.0	988	33	105
	21.0	848	33	104
	28.0	1,189	33	106
	Total	4,484	161	531

QRP

K3OO('00)	1,731,450	1,299	114	371

Low Power

K1TO/4('02)	4,141,188	2,276	140	526

Assisted

K1AR('10)	9,314,394	4,148	171	636

Multi-Operator/Single Xmtr.

Station	Band	QSOs	Zones	Countries
	1.8	262	24	96
K1LZ	3.5	898	29	119
(2010)	7.0	1,956	39	152
15,509,224	14.0	1,437	39	155
	21.0	1,233	36	142
	28.0	112	24	82
	Total	5,898	191	746

Multi-Operator/Two Xmtr.

Station	Band	QSOs	Zones	Countries
	1.8	181	21	85
N3RS	3.5	1,194	31	125
(2010)	7.0	2,195	40	151
17,152,465	14.0	1,868	37	148
	21.0	1,205	36	142
	28.0	147	21	68
	Total	6,790	186	719

Multi-Operator/Multi-Xmtr.

Station	Band	QSOs	Zones	Countries
	1.8	584	27	98
KC1XX	3.5	2,003	34	132
(2010)	7.0	2,700	40	162
27,416,845	14.0	2,525	38	163
	21.0	1,797	36	151
	28.0	476	25	107
	Total	10,085	200	813

WORLD

Club Combined Record: Yankee Clipper Contest Club ('99) 702,296,971
Team Contesting: Phone – Neiger's Tigers Team #1 ('99) 66,546,582
CW – Pile-Up Survivors ('10) 57,471,354

math's notes

BY IRWIN MATH,* WA2NDM

Optical Communications Revisited

In the past we have presented various circuits to experiment with optical communications in the visible (terahertz) region. These have resulted in many letters and e-mails, and we thought we would deal with a couple of the more common inquiries this month. These primarily deal with entry-level systems to just allow you to "get your feet wet" with the basics. If you research previous columns, you will find more elaborate systems.

*c/o CQ magazine

A common question we get is how to simply modulate a helium-neon-gas laser. These were the mainstay of experimenter's lasers several years ago before the availability of solid-state lasers and were used in early point-of-sale checkout systems. When solid-state lasers became available, many of these were relegated to the surplus market and therefore were available at very low cost.

A helium-neon laser operates by ionizing a gas (a helium-neon mixture) in a glass bulb, sort of like a giant neon lamp. These operate at high voltages,

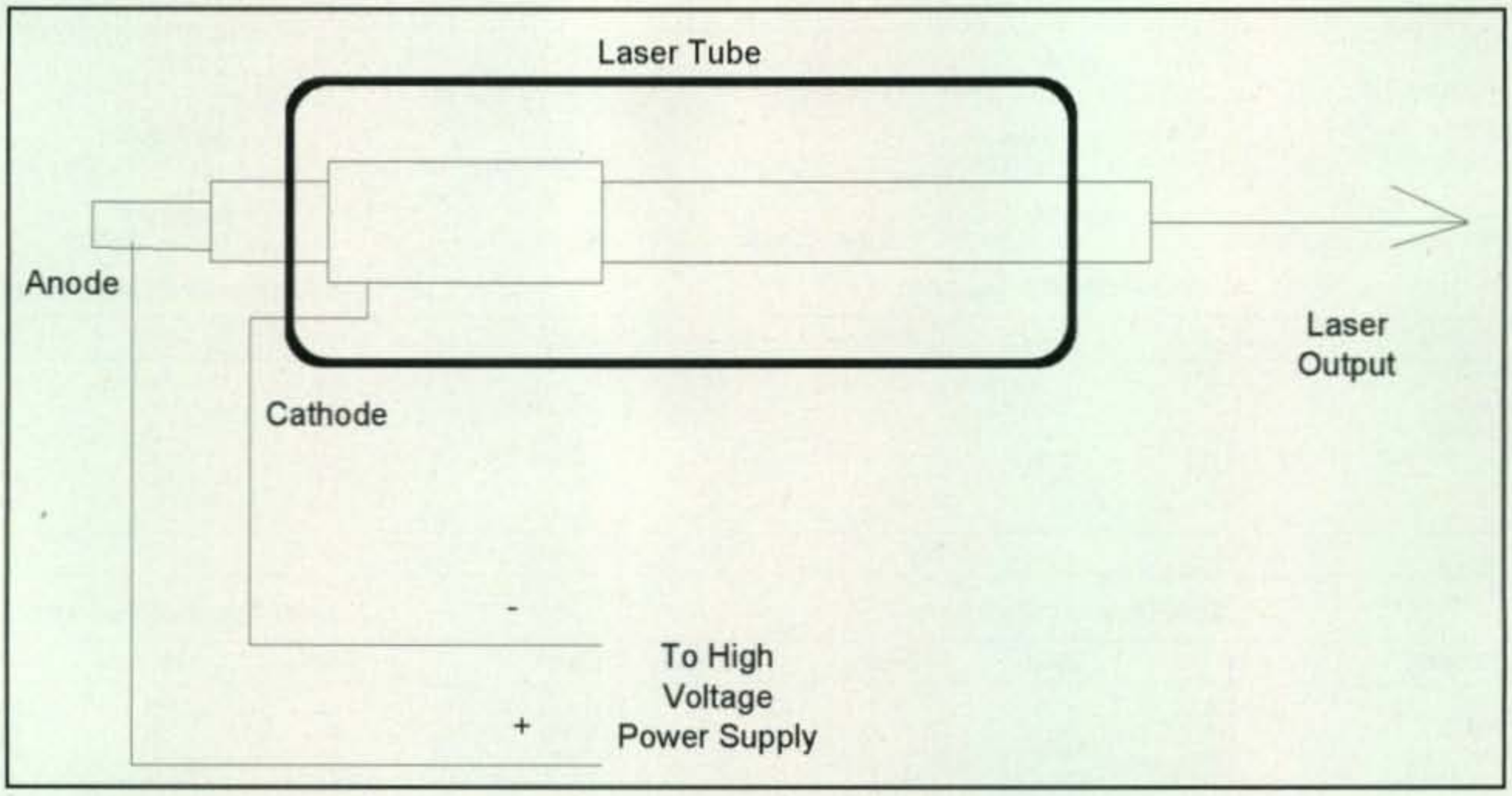

Fig. 1– Typical helium-neon laser tube.

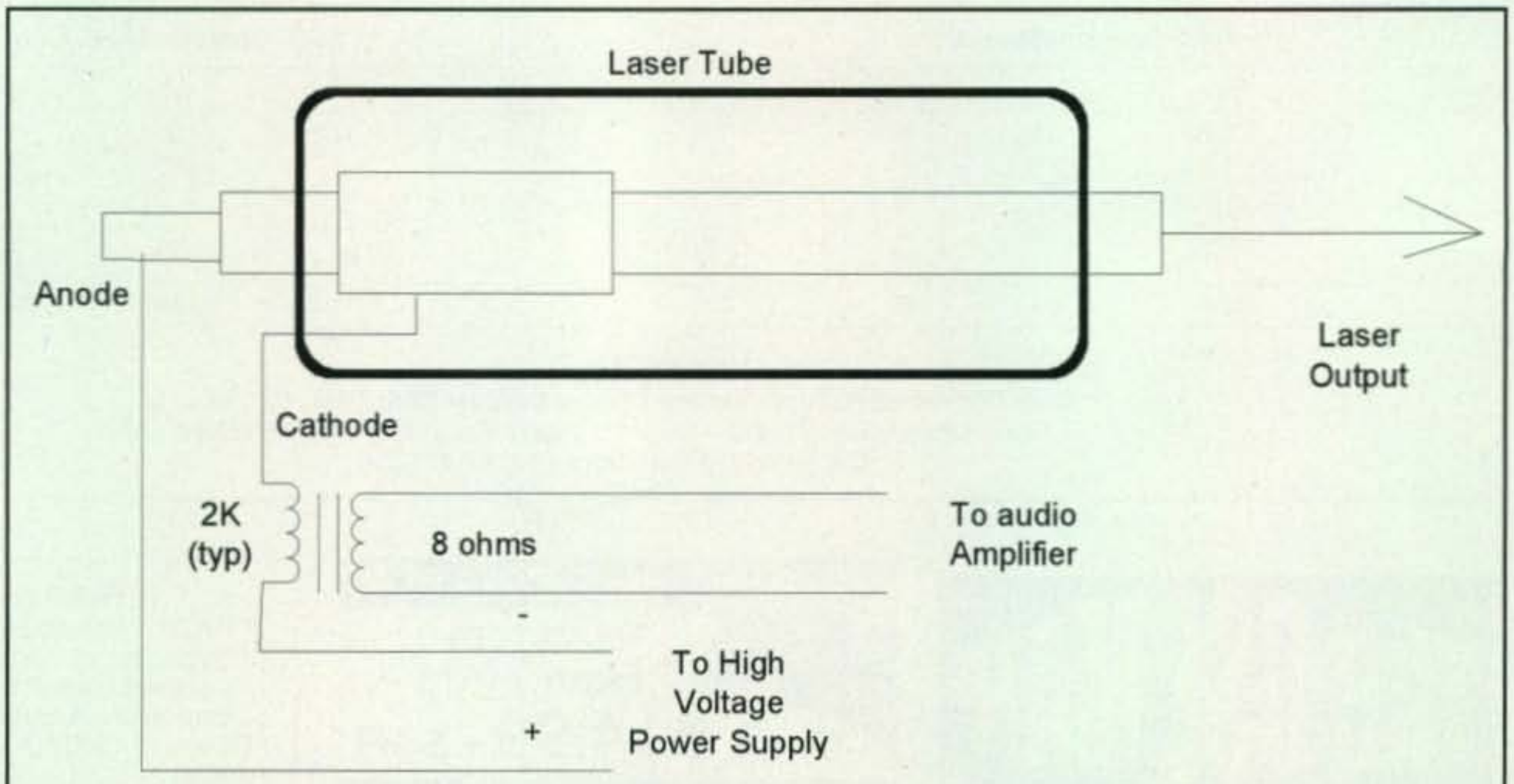

Fig. 2– Typical helium-neon laser tube amplitude modulator.

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Easily handles 1500 Watts continuous carrier even on 160 Meters . . . High-current edge-wound silver plated Roller Inductor . . . Two 500 pf high capacitance tuning capacitors with 6:1 vernier reduction drives . . . 3 core choke balun . . . Six position antenna switch . . . True peak reading Cross-Needle SWR/Wattmeter . . .

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- ***Handles 1500 Watts carrier***
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- ***500 pf tuning capacitors with 6:1 vernier reduction drives***
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AMERITRON's ATR-30 *True Legal Limit*™ roller inductor antenna tuner is ham radio's toughest! It'll handle 1500 Watts *continuous carrier output* on *all* modes and *all* HF bands into most antennas -- even on 160 Meters where most antenna tuners fail.

It's perfect for Ameritron's most powerful amplifiers where the ATR-30 just loafs.

All band coverage lets you operate 1.8-30 MHz including all MARS and WARC bands.

Super High Current Roller Inductor

You'll see Ameritron's new *super high current* air core roller inductor. It's *edge wound* from a thick solid copper strip and silver plated. This produces a large surface area and a massive conductor. It can carry huge circulating RF currents and withstand tremendous heat that'll melt or burn ordinary roller inductors.

A gear driven turns counter and crank knob gives you precise inductance control.

Two 500 pf Tuning Capacitors

Two 500 pf -- *the highest of any antenna tuner* -- variable transmitting capacitors give you no-arc wide range impedance matching for true high power performance.

6:1 vernier reduction drives makes capacitor tuning smooth and easy.

Super Balun, 6 position Antenna Switch

Super heavy duty three core choke balun lets you match virtually any balanced feedline antenna without core saturation.

A 6 position antenna switch lets you select your desired operating antenna.

Read *true* Peak Power

Ameritron's active electronic *true* peak reading meter accurately reads forward and reflected power and SWR *simultaneously* on a lighted Cross-Needle meter.

Roomy Cabinet maintains High-Q

Roomy extra-strong .080 inch thick aluminum cabinet gives highest efficiency and lowest loss. 13¼Wx5⅝Hx17½D inches.

AMERITRON ATR-20 Antenna Tuner

ATR-20, $459.95 Handles a full 1.2 kW SSB and 600 Watts CW. It's designed to safely handle the full SSB power of Ameritron's AL-811/811H/80B, ALS-500M/600 and other 1.2 kW SSB amplifiers.Has vernier reduction drives.

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Imported tube

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Ameritron's *most powerful* amplifier uses the *herculean* 3CX1500/8877 ceramic tube. 65 Watts drive gives you full output power -- and it's just loafing because the power supply is capable of 2500 Watts PEP. All HF bands, all modes. 77 lbs., 17Wx10Hx18½in.

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Get ham radio's *toughest* tube with AL-1200. The *Eimac*(R) 3CX1200A7 has a 50 Watt control grid dissipation and the lowest history of field replacement of any modern transmitting tube that we use. 90 Watts in gives you full power out. All HF bands, all modes. 76 pounds, 17Wx18½Dx10H in.

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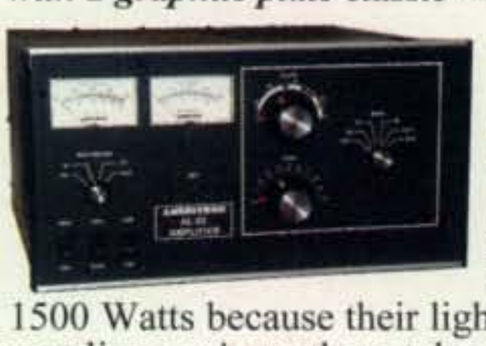
with 2 graphite plate classic (R) 3-500G tubes



AL-82

$2745

Suggested Retail

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Most linears using 3-500Gs *can't* give you 1500 Watts because their lightweight power supplies *can't* use these tubes to their full potential. AL-82 is ham radio's *only* super 3-500G amp! 100 Watts in gives you full power out. All HF bands, all modes. Hefty 76 pounds, 17Wx10Hx18½D inches.

Desktop Kilowatt

with classic 3-500G tube

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AMERITRON *no tune* Solid State Amplifiers

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ALS-500M, $849. 500 Watts PEP/400W CW output, 1.5-22 MHz, instant bandswitching, no tuning, no warm-up. SWR, load fault, thermal overload protected. Remote on/off control. DC amp meter. Extremely quiet fan. 13.8 VDC. 9Wx3½Hx15D in., 7 lbs. **ALS-500RC, $49,** Remote Head.

600 Watt FET Amp

ALS-600, $1499. ***No tuning****, no fuss, no worries -- just turn on and operate.* 600 Watts PEP/500W CW, 1.5-22 MHz, instant bandswitching, SWR protected, extremely quiet, SWR/Wattmeter, ALC control. 120/220 VAC. Inrush protected. 9½Wx6Hx12D in. **ALS-600S, $1599,** ALS-600 with 10 lb., very low RF noise switching power supply.

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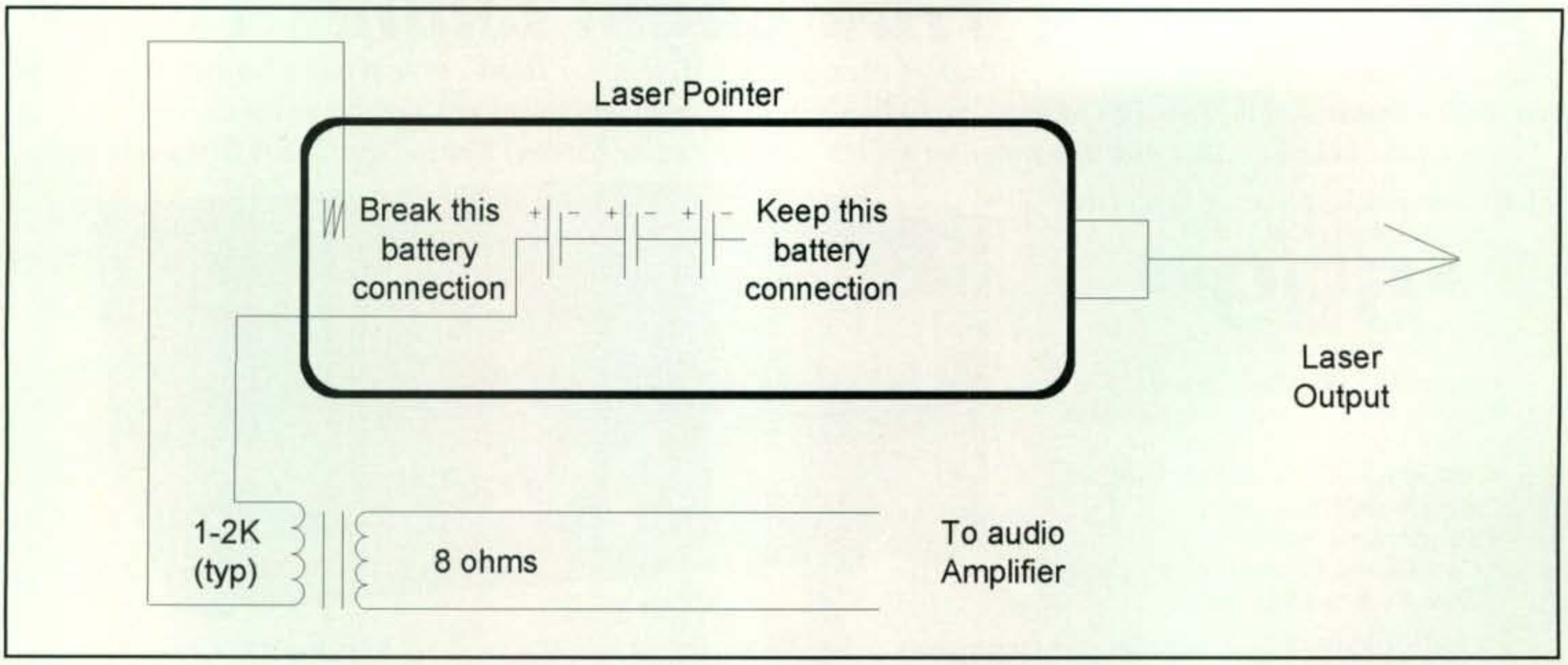


Fig. 3– Typical laser pointer amplitude modulator. Note that the transformer is in series with the battery supply to the laser pointer.

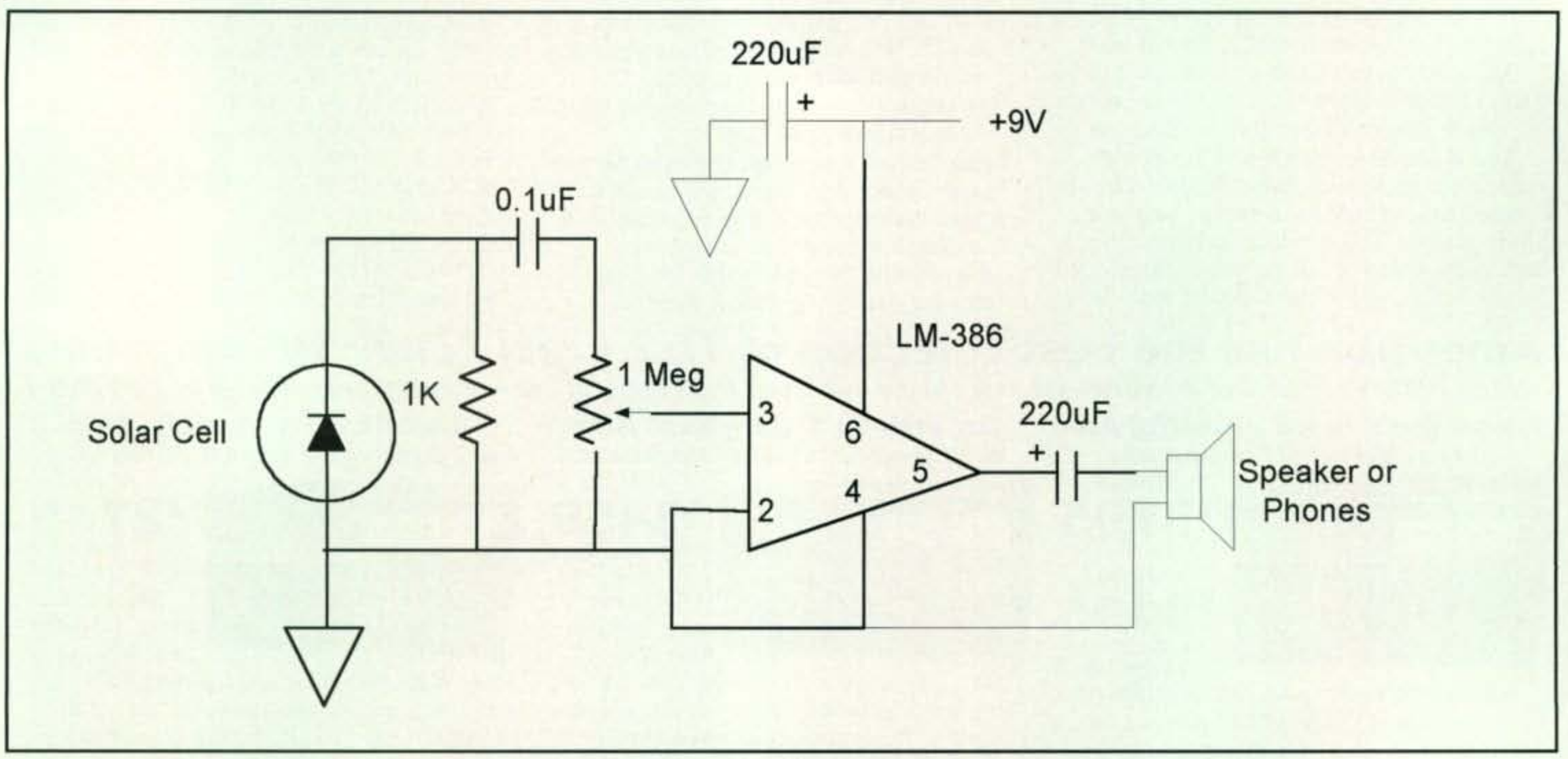


Fig. 4– Simple amplified solar-cell receiver.

so if you do have one, or plan to experiment with one, be extremely careful. Fig. 1 is the circuit of the laser portion we will work with. The laser tube has an internal cathode and anode and a high-voltage power supply connected between the two which causes the gas to ionize and the laser beam to form. By varying the current to the tube, you can control the power output to some degree. Fig. 2 shows the addition of a simple audio-output transformer connected backward. The 8-ohm normal speaker winding is connected to a low-power audio amplifier (or radio receiver) of about a watt or so for testing purposes. The primary side then steps up the audio voltage to a level that can vary the high voltage and current applied to the tube. This results in simple amplitude modulation (AM).

When building such a modulator you have to be careful that the transformer you use can handle the operating voltage of the laser tube. If one side of the high-voltage supply happens to be at ground potential, this would be the place to connect the transformer. Next you have to slowly increase the audio level to the point where the received audio signal is just below the point of distortion. A simple test "receiver" can be fabricated from an ordinary solar cell connected to a pair of high-impedance earphones. This is not a sophisticated receiver by any means, but will certainly suffice for the initial setup and testing of the system. Too high an audio level may cause the laser to go off or produce extreme distortion. The correct level will produce about 20 to 30% modulation with fairly good fidelity. Once you have the level properly

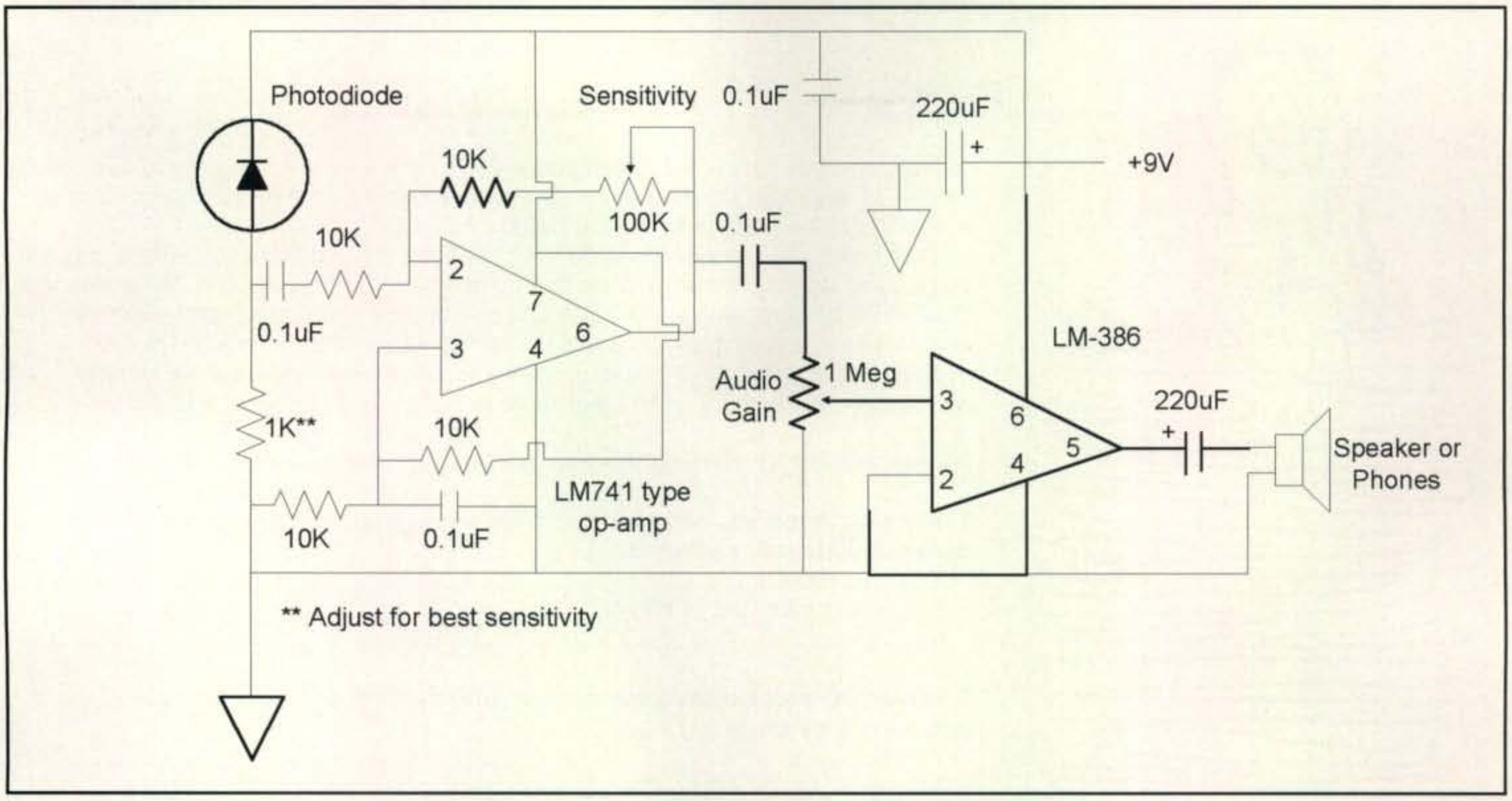


Fig. 5– Photodiode-based optical receiver.

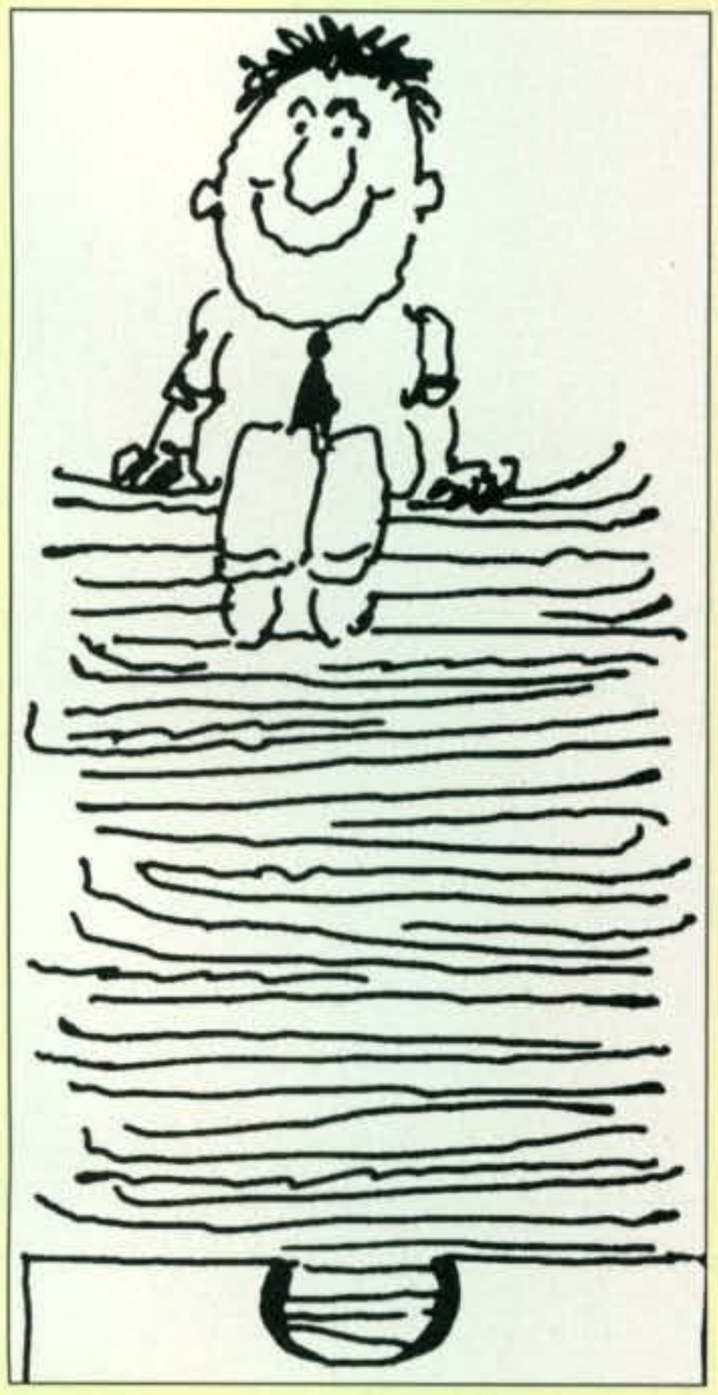
adjusted, you can replace your radio test source with a small amplifier and microphone and you will have a simple AM optical transceiver. For those who are interested, the optical wavelength of the common helium-neon laser is 632.8 nanometers.

A similar scheme can be used to modulate the output of a common solid-state laser pointer. Fig. 3 shows the complete modification method, which is quite simple. As you can see, one battery connection is removed and connected in series with an audio transformer similar to the one used in the helium-neon experiment. Audio present at the output of this transformer varies the current applied to the laser diode and in turn varies its power output. As in the first experiment, slowly increase the audio level to the point where the received signal is just below the point of distortion using the test receiver. Also, as in the first case, too high an audio level will cause the laser to flicker, turn off completely, or produce extreme distortion.

The test receiver we mentioned will only work for a short distance and is really only useful for testing. For longer range experiments you will have to connect the solar cell to a small audio amplifier, which you can fabricate from an LM-386 as per fig. 4. Much better results will be achieved, however, from a simple photodiode, an op-amp connected as a current-to-voltage converter stage, and the LM-386. One version of this is shown in fig. 5.

The systems described here produce simple AM, but will at least allow you to get an idea of what is going on. For "professional" results you will have to use more elaborate techniques such as FM, pulse modulation, etc. If you are seriously interested in pursuing this, check out the *CQ* article indexes of past years on the *CQ* website (www.cq-amateur-radio.com) to locate "Math's Notes" columns we have written on the subject, or just do a simple internet seach for "optical communications."

73, Irwin, WA2NDM



What You've Told Us...

Our July survey asked about your voice operations. It's no surprise that 93% of the readers who responded currently operate voice on the air in some manner, and the majority of you operate voice most, if not all, of the time (100% of the time: 30% of respondents; 76-99%: 27%; 51-75%: 12%; 26–50%: 10%; 1–25%: 15%; None: 6%). Ragchewing accounts for bulk of phone operating for 37% of you, followed by DXing (23%), contesting (17%), other (9%), VHF/UHF weak-signal (8%), and traffic-handling (5%).

Single sideband (SSB) is the most-used voice mode among *CQ* readers, at 85%, followed by FM (60%), AM (14%), digital voice (6%), and other (2%). Asked which voice modes you have *ever* used, the order was the same—SSB 87%, FM 83%—but AM moved way up in the numbers to 63%, followed by digital voice at 14% and other at 3%.

Among those who do not operate voice at all, 55% said they operate exclusively CW, 24% each operate RTTY/digital only or "other," followed by 21% who operate a mix of CW and digital modes.

This month's free subscription winner is Larry Goreham, WØNEB, of Hays, Kansas.

Reader Survey October 2011

We'd like to know more about you—about who you are, where you live, what kind(s) of work you do, and of course, what kinds of amateur radio activities you enjoy. Why? To help us serve you better.

Each time we run one of these surveys, we'll ask a few different questions and ask you to indicate your answers by circling numbers on the Survey Card and returning it to us. As a bit of incentive, we'll pick one respondent each month and give that person a complimentary one-year subscription (or subscription extension) to *CQ*.

This month, with our emergency communications special, we'd like to hear about your involvement in amateur radio emergency communications.

Please answer by circling the appropriate numbers on the reply card.

1. Are you involved with amateur radio emergency and public service communications? (Select one)
- Yes, currently 31
- Yes, in the past, but not now 32
- No 33

2. Have you ever helped provide communications during an actual emergency or disaster?
- Yes 34
- No 35

3. Have you ever helped provide communications during a public service event or emergency drill?
- Yes 36
- No 37

4. **Are you a member of any of the following emergency-communications related groups? (Choose all that apply)**
- ARES® (Amateur Radio Emergency Service) 38
- CERT (Community Emergency Response Team) 39
- Emcomm-focused local ham radio club 40
- MARS (Military Auxiliary Radio System) 41
- RACES (Radio Amateur Civil Emergency Service) 42
- REACT (Radio Emergency Associated Communications Teams) 43
- SATERN (Salvation Army Team Emergency Radio Network) 44
- SBDR (Southern Baptist Disaster Relief) 45
- SKYWARN 46
- Other (Please write in on card) 47
- None 48

5. Have you completed any formal emergency communications training?
- Yes, American Radio Relay League (ARRL) online course 49
- Yes, Federal Emergency Management Agency (FEMA) course 50
- Yes, SKYWARN course 51
- Yes, other formal training 52
- No 53

6. Have you ever held an emergency communications leadership position (e.g., ARRL Emergency Coordinator, RACES Officer)?
- Yes, currently 54
- Yes, in the past 55
- No 56

7. Is amateur radio part of the official emergency response plan in your community?
- Yes, it is an active participant 57
- Yes, but mostly on paper 58
- No 59
- Not sure 60

Thank your for your responses. We'll have more questions next time.

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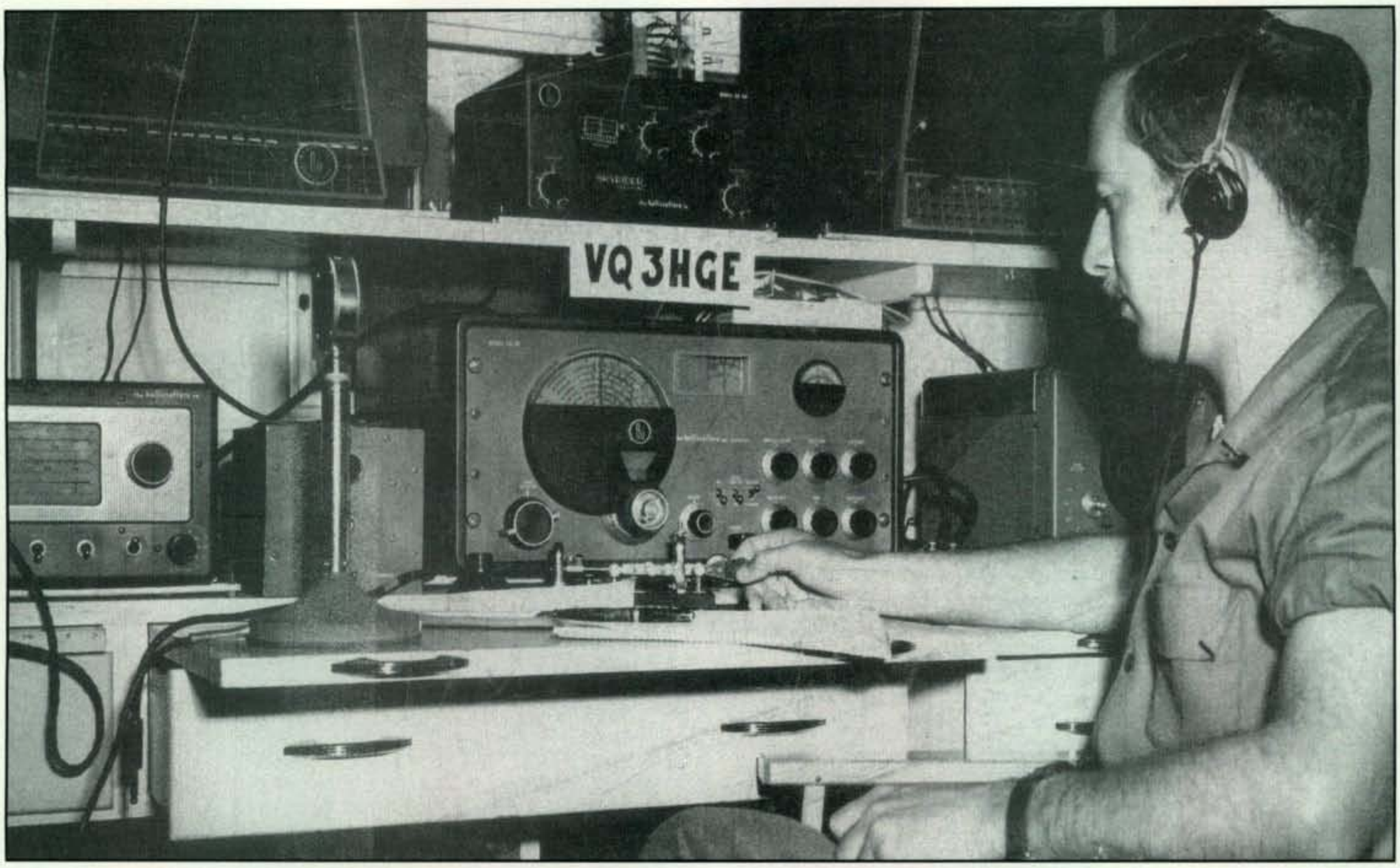


The author in 1948, operating VQ3HGE from Tanganyika on the Gatti-Hallicrafter DXpedition, the first major DXpedition after World War II. (Photo by expedition photographer Errol Prince; all photos courtesy of the author)

Talk about waiting a long time for a QSL card! W7LR reports on the story behind the story of an exotic QSL that arrived in his mailbox 63 years after the QSO!

The Long-Delayed QSL Exchange

BY BOB LEO,* W7LR
(with support from 3B8AD and W6YA)

Sixty-three years after our QSO, a QSL card from Paul Caboche, VQ8AD, arrived here in Bozeman, Montana, at W7LR. This was for a QSO I had with Paul on March 23, 1948, when I was VQ3HGE, operating from Tanganyika with the Gatti-Hallicrafter expedition. At the time, I was 27 years old and VQ8AD was 30. Today we are both in our 90s.

Bill Snyder, WØLHS (SK), and I were the radio operators on this first postwar DXpedition, sponsored by the well-known equipment manufacturer at the time. We first operated VQ4EHG in Kenya, then VQ3HGE in Tanganyika, and later VQ5GHE in Uganda near the border of the Belgian Congo during the first part of 1948. Today Tanganyika is part of Tanzania, along with Zanzibar.

This story is a combination of many unlikely events which all came together to produce a reunion and QSLs from so many years ago. It shows how one thing can lead to another, and how important it is to follow up on vague leads. It also shows how good leads can come from expanded QRZ.com listings. I will write more about this near the end of this story after describing the events that fell into place.

This could be a world record for the most time between QSO and QSL exchange between two hams, especially from two such rare countries.

The story of the possible QSL exchange began in recent months when I received an e-mail message from Jim, W6YA, a dentist in southern California. He has an office in a medical building where a retired pediatrician, Don Ward, AC7RY, had practiced many years earlier. Jim knew that Don now lived here in Bozeman, where I also live. He wondered if I knew Don, and if so, how Don was doing. Don is a good friend of mine and we often have had coffee together, so I relayed current information about Don to Jim.

Then Jim said in another e-mail that he had just finished reading the story

**6790 S. Third Rd., Bozeman, MT 59715*
e-mail: <w7lr@aol.com>

about our 1948 African expedition. He had looked at a page of that story which listed 122 very rare contacts that I had made from VQ3HGE. You can see that list on the website <www.qsl.net/pa0abm/ghe/00ghe.htm> and from a link on that website, "VQ3HGE firsts." The list data came from my W6PBV (my first call, from California) logbook that I carried in Africa.

A few of those rare contact countries include Ethiopia, Suez, Mauritius, French Morocco, French Equatorial Africa, Gold Coast, British North Borneo, Palestine, French Cameroun, Aden, French West Africa, Somalia, and Transjordan.

Jim said he recognized one of the calls in that list—VQ8AD, Paul, now 3B8AD in Mauritius. In 1989 Jim had

Author W7LR today, at his ham shack in Bozeman, Montana.

Paul Caboche, VQ8AD, at his station in 1936.

met and visited with Paul at his home in Mauritius, along with his host, Jacky, 3B8CF. He knew Paul is still alive.

Paul had operated as VQ8AS from his father's plantation house in the Salomon Islands, North Chagos, in 1937, using a 4-watt transmitter. This was the first amateur radio operation from Chagos. (See W6FR's article in *QST*, December, 1998.) Jim sent me a fascinating 10-page story written by Paul of his radio adventures in the 1930s among several French VQ islands, which would make another great ham radio story.

Hallicrafters had all the logs and QSLs from our expedition in its Chicago factory, but all that was lost after Hallicrafters was sold. After the disappointment of that loss, I wondered if it would still be possible to receive a QSL card from any station on the VQ3HGE rare country list.

Jim suggested sending an e-mail to Jacky, who knew and sent me the e-mail address for Paul. I sent Paul a message to see if the VQ8AD/VQ3HGE saga could find a happy ending.

Paul answered right away, and said, "Yes, Bob, you are in the log, March 23, 1948. I noted, 'Bob, Hallicrafter expedition,' in my logbook." Paul soon sent me a copy of this log segment, an original

Paul (left), now 3B8AD, with friend Geoffrey, VK3TL, on a visit to Australia the mid-1990s.

DATE	TIME	RST		OLD BY	STN OLD	FREQ	QSL	REMARKS
		HIS	MINE					
18-3-48	1946	5/9	5/7	VK2JP	VK2JP			JACK Tuesday 1230 435° Jack Pike 14 Sarm 4Rd greenwich
		5/8	5/7	VK2AGJ				435° Std Sunday 4 m 16Z
19-3-48	600	5/9	4/9	8AB	8AB			
	1510	5/9	6/9	ZS2Y				
	1530	4/7	5/7	VK2JP				
		5/6	5/6	OQ5EF			—	JG? EP-H
20-3-48				W7HTB	C8			87001
21-3-48	745	5&9	5&9	W7ASG			—	
	50	55	57	W6LDE				
		55	55	W6RLR			—	
	800	559	44	ZB1Ai			—	Royal Naval Sin Sta Halfar Malta
	10	559	569	RA0LB			—	
		559	559	G6GN			—	Appl at 1805-40
23-3-48	745	569	569	YI2AM	YI2AM		—	Baghdad
	800	589	589	VQ3HGE				Bob Gatti [illegible] VQ3NG
	815	5/8		ZT1BO	ZT1BO		—	85-Std
		559	569	PA0AR	ER6AR		—	[illegible]
24-3-48	600	5	5	8AB	8AB			

VQ8AD's logbook page showing the contact with VQ3HGE on March 23, 1948. See note, "Bob-Gatti Expedition."

VQ8AD QSL, and some photographs. What excitement and joy it was for me!

I have sent Paul an original VQ3HGE QSL and some photographs. In this article I include a copy of the log page, a copy of the VQ8AD QSL, and some photographs. In Paul's original VQ8AD QSL, the note VQ3NW appears. There was no VQ3NW then, and I believe Paul wrote that we were VQ3 now, after earlier operating in 1948 as VQ4EHG. He also wrote the Gatti expedition in his log. Gatti was the leader of that Gatti-Hallicrafter expedition. Most hams think of it as just the Hallicrafer expedition.

What are the odds that this QSL exchange could occur, or what set and sequence of events were necessary for that to happen?

First, the QSO had to occur. Later, the operators had to be still living and have the desire and means to complete the QSL exchange. Study of the list of 122 rare QSOs shows that Paul and I are the only two left to make this possible.

Then it needed Jim, W6YA, to contact W7LR and comment on seeing VQ8AD listed in the expedition story. Also, it was necessary for Wino, PAØABM, to have written the over 100-page expedition story, based on data sent to him by WØLHS and W6PBV, and to include the list of rare VQ3HGE QSOs from the W6PBV logbook data. In addition, it was important for Jim to know Paul and have visited him, for Paul and Bob to have enough good logbook data, and still existing original QSL cards to verify a valid exchange. Wow, this is my first QSL received from the expedition!

Thanks to Jim for review and improvements to this story, for photographs of Paul; to Jacky; and to Paul for his efforts and responses, and copies of his logbook, QSL, and photographs, so that the VQ3HGE/VQ8AD story has a happy ending, after a time span of 63 years.

The two QSLs confirming the contact between VQ3HGE and VQ8AD in 1948, exchanged 63 years later, in 2011!

Sometimes you find a great old radio at a flea market that just works when you plug it in. More often than not, though, a fair amount of work is required to find the "buried treasure" in what looks like a piece of junk. KE4ID shares his story.

Flea-Market Treasure
A National NC-81X Receiver

BY JACK BRYANT,* KE4ID

This story started at the 2011 BirmingHAMfest. I was walking down a flea-market aisle and saw a vintage receiver with a large dial. I purchased the receiver, took it home, and let it fill a vacant spot in the garage. The following describes a radio adventure that includes research, parts acquisition, painting, labeling, and reworking a flea-market treasure. See the opening photo of the completed radio.

After doing internet research using Google, I found some information on the receiver.[1] The Boat Anchor Manual Archive[2] (BAMA) internet site provided a schematic and parts list but no complete manual. Articles describing the radio have been published in a couple of magazines.[3,4]

The receiver was produced between 1937 and 1939. It was offered in general-coverage form as the NC-80X. The ham-bands-only NC-81X covered all of 160, 80, 40, 20, and 10 meters (hams were not given 15-meter privileges until 1947). The receivers were offered as AC/DC with an available isolation transformer and in battery-powered versions. The speaker and output transformer were optional external units.

There are a number of aspects of this line of receivers that make it unique:

• The NC-81X version is unusual for a 1930s radio, since it covered only the ham bands. The tuning mechanism offers a wonderful band spread. It uses a dual-vernier reduction with 55:1 and 11:1 ratios. In the early days, 160 meters went from 1.715–2.000 MHz. (The radio actually tunes below 160 meters just a bit down to 1.690 MHz.)

My National NC-81X Receiver project reworked and in its finished form.

• The superhet circuitry employs an IF at 1560 kHz instead of the usual 455 kHz. With the lower IF, the image frequency is 910 kHz away. The higher IF has an image 3120 kHz from the desired frequency. This allowed National to design a radio with no RF stage and reasonable image response at higher frequencies.

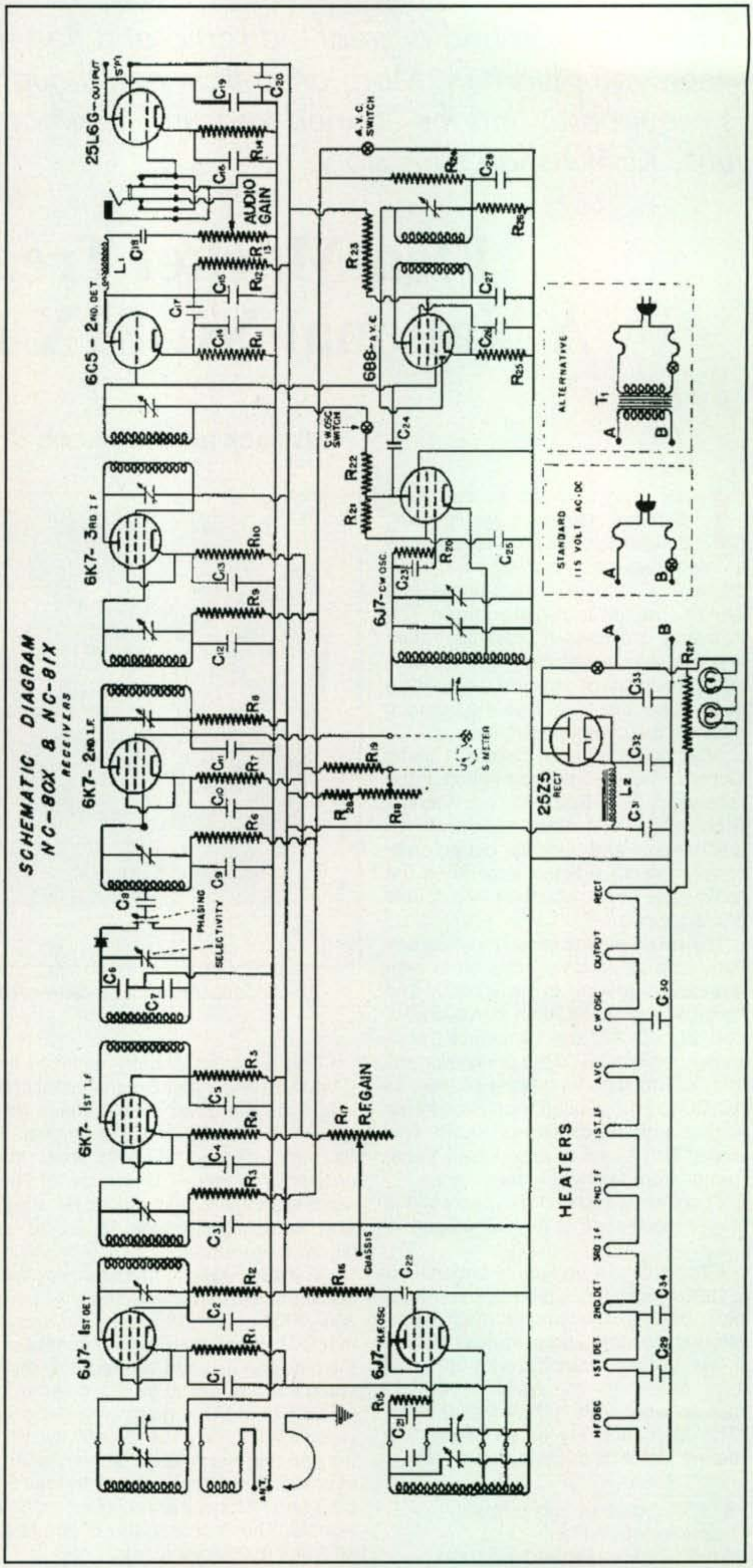
• The 1560-kHz crystal filter provides continuously variable selectivity from 300–7000 Hz.[5,6] After carefully tuning in a CW signal, the Phasing control on the filter can be used to effectively minimize the CW signal on the other side of zero beat. This gives single-signal reception for CW. The Selectivity control can then be varied from very sharp to broad. This filter works pretty well on SSB and AM, but it is very good on CW signals. The filter is in the IF circuit at all times (not switchable).

• The coils for each band are in an aluminum box that slides on a rail, similar to the approach used in the National NC-100 receiver. Turning a knob on the far right of the radio pulls a chain that moves the coil box on the rail. A pointer indicates the band selected.

Here is the tube lineup for the battery-powered version of the set. My particular set appears to be a battery model with an added power transformer and rectifier. The actual tubes that were in my radio are shown in parentheses. An extra tube, a 6C8G, had been added (apparently as a limiter) before I bought the receiver. So far I have seen no effect from the limiter.

Mixer (1st Detector): 6J7 (6K8)
HFO: 6J7 (6K7)
1st I.F.: 6K7 (6K7)
2nd I.F.: 6K7 (6K7)

**8137 Goodner Mountain Road, Trussville, AL 35173*
e-mail: <jackwbryant@gmail.com>



3rd I.F.: 6K7 (6K7)
2nd Detector: 6C5 (6C5)
AVC: 6B8 (6B8)
BFO: 6J7 (6J7)
Power Output: 6V6 (6V6)
Rectifier: None (5Y3GT)

Note that this article is about "reworking" and not "restoring." My intention was to get the radio working well, looking good, but not necessarily back to factory specs. I certainly did not want to convert this back to a battery-powered radio!

Electrical and Mechanical

The schematic shown in fig. 1 from BAMA was a good reference, even though my set differed a bit. Notice that the same schematic was used for the ham-band NC-81X and the general-coverage NC-80X receivers.

The old two-conductor line cord was replaced with a modern three-conductor cord. A word of warning: If you are rewiring an AC/DC set, *use great caution!* You don't want the chassis hot with 120 volts AC!

Since the set did not come with an audio transformer, I temporarily connected one with clip leads. This connection carried high-voltage DC for the audio-output tube, so care was exercised to avoid being shocked. Another danger area was the connection for the Standby line. A small piece of red tape was placed over the Standby screw connections on the back of the radio, since high voltage was also present there. An external antenna was connected with clip leads to the antenna screw terminals.

I replaced several tubes, using stock from my junk box. The 6K7s were replaced with the similar 6J7s. Signals were coming in, but they were not very loud. The radio had a hum, although that was not unexpected.

Next I used the parts on hand and replaced the 0.01 µF caps and some electrolytic caps. Brian Wingard, N4DKD, mentioned that BG Micro had a great buy on 0.1-µF 630-volt caps with short leads. They were only $.10 each, so I ordered 100 caps. The old NC-81X caps were cut out, and one end of each of the new 0.1-µf caps was wired in. The other side of the cap was installed with a new piece of wire. If you want to spend more money, you can find caps with longer leads from other suppliers.

A few more electrolytic caps were ordered and installed. The set was beginning to liven up. The antenna input was designed for an impedance of around 500 ohms or so. I wound a balun on an Amidon BN-73-202 binocular core using a 3:1 turns ratio.[7] This gave a 9:1 impedance transformation. The balun noticeably increased the signal strength. The pots, switches, and tube sockets were cleaned with DeoxIT D5. No resistors were replaced.

The next step was to wire-up the pointer for the band indicator. The design utilized a dial cord wrapped around the shaft of the knob used to change the bands. The first dial cord I tried just was not strong enough. It broke the first and second times I installed it. Next some 65-lb. test fishing line from Wal-Mart was tried, and it worked perfectly.

The pointer for the band indicator was cleaned with alcohol and painted with an orange paint pen from a local craft store. The pointer was now moving up the scale and pointing to the correct band as the coil box was moved for a band change.

Fig. 1– This schematic from BAMA was a good reference, even though my set differed a bit. Notice that the same schematic was used for the ham-band NC-81X and the general-coverage NC-80X receivers. (Schematic courtesy of the BAMA website) ←

After tweaking the IF transformers, the radio volume increased even more. *Caution:* At least one of the screws on the top of the IF cans is wired to the plate of the IF tube. The 200+ volts can be quite surprising if your screwdriver slips and you touch one of those screws! *(It's best to use a non-conductive tuning stick if you have access to one—ed.)*The cathode bypass cap on the second IF stage was disconnected to reduce the excessive IF gain. The gain from three IF stages can be hard to handle.

A more permanent approach was needed for the output transformer. Of the available transformers, a 2000:3.2-ohm unit sounded best. It was mounted on top of a mini-box. A phono connector was used for the speaker side of the transformer. A length of heavy-duty speaker cord was wired in on the high-impedance side of the coil. An adapter was made for the radio end of the cord using two banana plugs from BG Micro and a purple plastic cap from a bottle of detergent. The bottle cap was painted silver with some plastic paint, since the original purple color just looked awful. (See photo.) Use of the cap was critical, since the speaker connection to the back of the radio was "hot."

Several speakers were tried. The audio level was low on most of them. The best speaker tried was a Drake MS-4. It was more efficient than the others that were tried, and it sounded the best. The Drake cabinet does not match the National receiver, so the speaker may be replaced later.

Finally, the oscillator and antenna/mixer coils were tweaked for each band. I used a signal source (TS-850S) to set

Spray-Paint Tips

Here are the keys to a good paint job using spray cans:

- Use a mask while sanding or painting.
- Sand the cabinet and clean off all paint dust.
- Always use good-quality, fresh paint.
- Use a rust converter/reformer paint as a primer, if needed. A primer also helps cover cabinet blemishes.
- Cover any connectors on the cabinet or trim pieces that don't need to be painted. Blue painters masking tape works well.
- Pick a day to paint that is calm and dry.
- Place the cabinet outdoors on a piece of cardboard. A lot of the paint is going to end up on the cardboard, so use a large enough piece.
- Thoroughly shake the can of paint for a couple of minutes.

Rust Reformer:
first inside the cabinet:

- Paint the inside of the cabinet with a light fog coat. Start the painting outside the cabinet, and then move the can quickly around inside, spraying a very light coat.
- Shake the can again and apply another coat inside after the first one dries. Follow the instructions on the can for drying times.

Rust Reformer: outside

- The first coat is a fog (very light) coat rather than a heavy one. Hold the can about 12 inches away from the cabinet and spray the paint with a smooth motion. Always paint parallel to the cabinet. Always start and end the paint spray off the cabinet, on the cardboard.
- With the paint spray now past the cabinet, make another pass over the cabinet, just overlapping the edge of the last pass.
- Take breaks and shake the can as needed. Complete the fog coat.
- It will take a few minutes for the fog coat to dry, but be sure to follow the instructions for the next coat. Don't wait too long!
- Apply the next light coat, with the paint can about six to eight inches above the cabinet. Start and end on the cardboard. Move the can quickly in smooth strokes, parallel to the cabinet.
- Paint all the cabinet pieces.

Final coat:

- After the Rust Reformer has dried, apply the final coat of paint using the same procedure used with the Rust Reformer. Start with the inside, let it dry, and then paint the outside. After applying labels, paint with a clear coat, if desired.

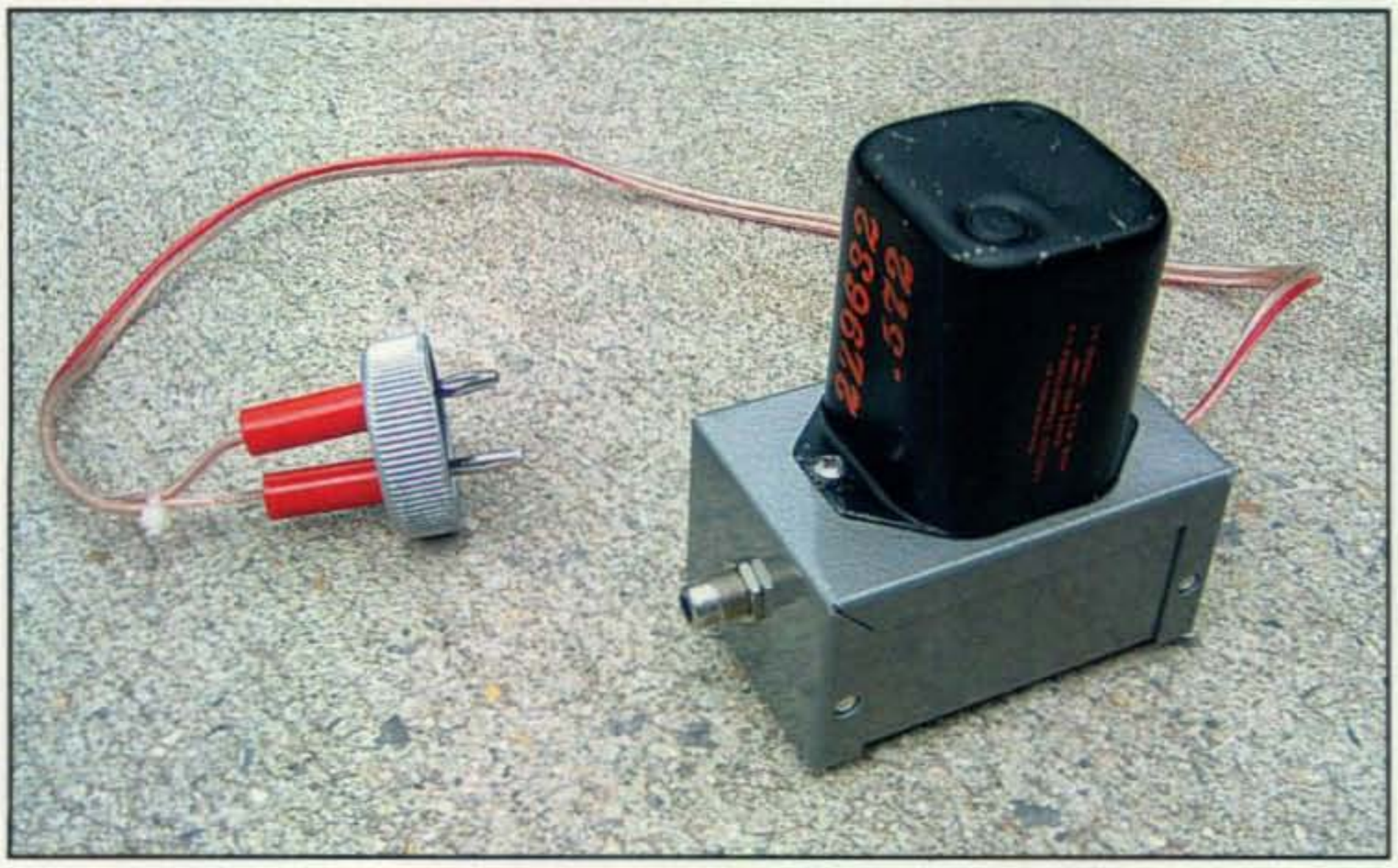


Photo of the output transformer and connector.

the oscillator tuning range at mid-scale. A noise generator provided a signal to peak the antenna/mixer coil.

Painting and Sanding

The radio was now ready for painting. The cabinet was removed—first the top, then the bottom, the clamshell front and sides, and then the back. The tuning mechanism cover was removed from the front of the cabinet.

The old paint on the radio was probably lead-based, so all sanding was done outside with my nose and mouth covered. An orbital sander with 100-grit paper was used. Several sheets of sandpaper were needed.

On my radio, part of the cabinet bottom had rusted and corroded. Rust-Oleum® spray-on Rust Reformer was used in this area and on the whole cabinet as a primer. After using it for several years in many applications, I have found that this product is a great way to deal with rusty surfaces.

Initially the final coat selected for the cabinet was Rust-Oleum 7221830, Dark Pewter Textured. The paint was applied to the cabinet and cured overnight. Next the tuning mechanism cover was installed on the cabinet. The brown plastic cover just didn't look good on the gray-colored paint. Most of the knobs are brown, too, so another color was chosen to complement the brown cover and brown knobs. Rust-Oleum 7226830, Textured Bronze was a good match and became the new final color. The textured paint is pretty easy to apply. It has a look appropriate for this vintage radio. (Again, remember, this is a "reworking," not a restoration.)

The screws for the top of the cabinet were cleaned with a wire brush, and the screw heads were painted. All external nuts and washers for the controls were also cleaned with a wire brush.

NOVUS plastic polish worked well on the old National plastic knobs. The prod-

ucts used were NOVUS Plastic Clean & Shine No. 1 for light cleaning and polishing and NOVUS Fine Scratch Remover No. 2 for the deeper scratches.

Cabinet Assembly and Labeling

After the paint dried, the cabinet was reassembled. The brown tuning-mechanism cover was cleaned and installed on the cabinet. The front/side clamshell was installed next by placing the receiver on its back and flexing the cabinet around the radio. The back was screwed in place and the speaker connector and the Standby terminals were wired in. The new three-conductor power cord was reinstalled. The antenna balun was soldered in place on the inside of the radio. It was time for labels.

Labels

A well-painted radio without labels just looks unfinished. I used to go with a handwritten approach for labeling. When I met Dave Schmarder, N2DS, I discovered one of his radio-building secrets.[8] Dave uses the Brother P-touch label system and that sold me on the product.

I bought a Brother Model PT-2700 which can be used standalone or connected to the PC via a USB cable. For this project, 1/2-inch TZ laminated white-on-clear tape was used. I could not find the white-on-clear tape locally, so I ordered it from cwmediapro on e-Bay. The price of the product was very good, and the delivery time was a couple of days.

The original lettering on the NC-81X was engraved in the cabinet. The new lettering was going to be a bit different than the original, so the labels were placed over the engraving to hide it. Labels were printed and trimmed close to the letters. I installed the labels by eye-balling the location. A ruler could provide a more accurate installation, but I tend to go with the visual approach. One more thing could be done with the labels if desired; the cabinet could be disassembled and sprayed with a clear coat, such as Rust-Oleum 7701, Crystal Clear Enamel.

Comments

I like the radio. The receiver needs to warm up for a few minutes before it settles down. It does drift a little bit after initial warm-up. For SSB and CW, the audio is turned all the way up, and the volume is controlled with the RF gain control.

The radio is surprisingly sensitive on 20 meters, and it receives signals with just a 6-foot piece of wire strung on the floor. I have listened quite a bit on 80, 40, and 20 meters, and some on 160 meters. Ten meters will be checked out as soon as I can catch the band open.

Do I recommend the receiver? Yes. I am wondering if it needs a companion transmitter. Perhaps another project is starting to brew.

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BY FREDERICK O. MAIA,* W5YI

International Amateur Radio Arrangements

We have received several inquiries about the regulations covering amateur radio operations by foreign radio amateurs in the U.S. and by American hams in other countries. This month let's cover the various operating arrangements that exist and the station callsign identification that must be used.

Amateur radio is a worldwide pursuit and exists in just about every country in the world. Currently, foreign amateur operators are authorized to operate their stations in the U.S. and its possessions under four circumstances:

1. U.S. operating privileges are granted to citizens of Canada who hold amateur service licenses issued by the Government of Canada. U.S. amateurs have similar privileges in Canada.

2. Citizens of many countries whose governments have entered into bilateral reciprocal operating arrangements with the U.S. may operate their amateur stations in the U.S (see Table I).

3. Non-U.S. citizens who pass the required examinations are granted licenses in the same manner as U.S. citizens. This latter method is generally used by foreign operators who reside permanently in the U.S. or who are here for lengthy stays.

4. There are two international reciprocal operating arrangements—the CEPT radio-amateur license and the International Amateur Radio Permit (IARP)—that allow certain foreign amateur operators to operate stations in the U.S (see Table II).

Treaty Between Canada and the United States

Amateur radio operation between amateurs of both countries is covered by a 1952 treaty entitled "Operation of Certain Radio Equipment or Stations, Convention between Canada and the United States of America." The treaty implements an automatic reciprocal operating agreement between Canada and the U.S.

Visiting amateurs north and south of the border are not required to register or receive a permit before operating their amateur radio stations in the neighboring country. Each amateur station must indicate at least once during each contact with another station its geographical location. More on callsigns later.

All amateur stations must be operated in accordance with the laws and regulations of the country in which the station is temporarily located.

Visiting amateurs operating in the U.S. or Canada have the same privileges as they have in their own country but not more than their top-of-the-line license. Canadian amateurs are limited by the rules, band edges [§ 97.301(a)] and mode restrictions [§97.305] as defined in the Part 97 of the U.S. Amateur Radio Service rules.

U.S. amateurs operating in Canada must abide by Radiocommunication Information Circular 2 (RIC-2): "Standards for the Operation of Radio Stations in the Amateur Radio Service."

Amateurs of both nations must carry proof of their citizenship and a copy of their valid operator license.

Reciprocal Operating Arrangements

FCC-issued Reciprocal Operating Permits are no longer needed by foreign-licensed amateur radio operators to operate in the U.S. Blanket reciprocal operation in the U.S. is now authorized by rule in the Part 97 Amateur Service Rules at Section §97.107.

Citizens of countries holding an Amateur Radio Service license granted by a country with which the United States has made reciprocal operating arrangements are also authorized to operate an amateur station in the U.S. or its possessions. No additional FCC-issued documents are required. See Table I1 for a list of countries that have signed bi-lateral arrangements with the United States.

Canadian and U.S. citizens should contact the responsible administrations well in advance in order to obtain the necessary documentation to operate in one of the countries listed in Table I.

CEPT and IARP Operating Agreements

With the implementation of two international reciprocal operating arrangements, citizens of certain countries in Europe and the Americas are authorized to operate their ham stations while traveling in the United States and Canada.

The CEPT license and an International Amateur Radio Permit (IARP) allow U.S. and Canadian amateur operators to operate in 48 European countries and 10 South and Central American countries. Plus, CEPT/IARP holders from those countries may operate their amateur stations in Canada and the U.S. Amateurs must be a citizen of the country in which they are licensed.

The CEPT radio-amateur license is issued by a country belonging to the European Conference of Postal and Telecommunications Administrations (CEPT) that has adopted Recommendation T/R 61-01. This recommendation was revised in October 2003 and reflects the outcome of WRC-03 and Article 25 of the ITU Radio Regulations.

The mandatory Morse code requirement was removed and the number of CEPT amateur classes was reduced from two to one. The old CEPT Class 1 and 2 licenses were merged into a single "CEPT radio-amateur license." However, not all of the countries that implemented the previous versions of T/R 61-01 have implemented the revised and current version.

The recommendation as initially approved in 1985 and revised in 2003 makes it possible for radio

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Reciprocal Operating Arrangements

The countries with arrangements in effect are:

Antigua and Barbuda, Argentina, Australia, Austria, The Bahamas, Barbados, Belgium, Belize, Bolivia, Bosnia-Herzegovina, Botswana, Brazil, Chile, Colombia, Costa Rica, Croatia, Cyprus, Denmark (including Greenland), Dominica, Dominican Republic, Ecuador, El Salvador, Federated States of Micronesia, Fiji, Finland, France [including French Guiana, French Polynesia (Gambier, Marquesas, Society, and Tubuai Islands and Tuamotu Archipelago), Guadeloupe, Ile Amsterdam, Ile Saint-Paul, Iles Crozet, Iles Kerguelen, Martinique, New Caledonia, Reunion, Saint Pierre and Miquelon, and Wallis and Futuna Islands], Federal Republic of Germany, Greece, Grenada, Guatemala, Guyana, Haiti, Honduras, Iceland, India, Indonesia, Republic of Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kiribati, Kuwait, Liberia, Luxembourg, Macedonia, Republic of the Marshall Islands, Mexico, Monaco, Netherlands, Netherlands Antilles, New Zealand, Nicaragua, Norway, Panama, Paraguay, Papua New Guinea, Peru, Philippines, Portugal, Seychelles, Sierra Leone, Solomon Islands, Republic of South Africa, Spain, St. Lucia, St. Vincent and the Grenadines, Surinam, Sweden, Switzerland, Thailand, Trinidad and Tobago, Turkey, Tuvalu, United Kingdom [including Bermuda, British Virgin Islands, Cayman Islands, Channel Islands (including Guernsey and Jersey), Falkland Islands (including South Georgia Islands and South Sandwich Islands), Great Britain, Gibraltar, Isle of Man, Montserrat, Northern Ireland, Saint Helena (including Ascension Island, Gough Island, and Tristan Da Cunha Island), and Turks and Caicos Islands], Uruguay, and Venezuela.

Note: If a country is not listed above, then no reciprocal operating authority is in effect between the U.S. and that country and operation is not possible in either country. It is then necessary for the visiting amateur radio operator to obtain a full amateur radio license and call sign from the foreign host country. Some countries may accept foreign amateur radio licenses as proof of qualification in lieu of examination requirements.

Table I– Amateur reciprocal operating arrangements.

amateurs from CEPT countries to operate during short visits in other CEPT countries without obtaining an individual temporary license from the visited CEPT country.

In the U.S. and Canada, the CEPT amateur radio license takes the form of a permit issued by the American Radio Relay League (ARRL) or Radio Amateurs of Canada (RAC). It is drafted in English, French, and German and is valid for the duration of the temporary visit in countries having adopted the recommendation with a maximum of one year term from the date of issue.

CEPT revised its table of equivalence between FCC amateur licenses and the CEPT license. Effective February 4, 2008, Recommendation T/R 61-01 (as amended) now grants full CEPT privileges only to those U.S. citizens who hold an FCC-issued Amateur Extra or Advanced class license. This means that those U.S. licensees who hold an FCC-issued General or Technician license are no longer eligible for *full* operating privileges in countries where CEPT-reciprocal operation had previously been permitted.

In accordance with *ECC* Recommendation (05)06, however, some countries (including the United States) have implemented the *C*EPT Novice Radio Amateur License, which does include U.S. General Class licensees.

CEPT member nations all share the same amateur radio reciprocal licensing arrangements. European amateurs are permitted to operate from other European countries without the requirement of obtaining additional licensees or permits. See Table II for a list of countries that honor the CEPT license.

The International Amateur Radio Permit (IARP) is issued under the terms of the Inter-American Convention on an International Amateur Radio Permit by a country signatory to that convention.

According to the CITEL agreement, the IARP may be issued by a member-society of the International Amateur Radio Union. Being IARU members, the ARRL and RAC have offered their services to issue IARPs in the United States and Canada to those traveling to CITEL countries. A list of countries permitting operation with an IARP is in Table II.

Unlike the CEPT license, there are still two classes of IARPs. Class 1 requires knowledge of the international Morse code and conveys all operating privileges. For foreign amateurs, Class 1 is equivalent to our current Amateur Extra Class. Class 2 does not require Morse proficiency and carries all operating privileges above 30 MHz. It is equivalent to the U.S. Technician Class operator license.

The permit describes its authority in four different languages. The application for an IARP requires the name, address, callsign, and license class of the applicant, along with photocopies of the station license and a recent passport-size photo of the applicant.

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NEW! AT-200ProII

The AT-200ProII features LDG's new "3-D memory system" allowing up to eight antenna settings to be stored for each frequency. Handles up to 250 watts SSB or CW on 1.8 – 30 MHz, and 100 watts on 54 MHz (including 6 meters). Rugged and easy-to-read LED bar graphs show power and SWR, and now includes LEDs for the antenna position and if the tuner is in bypass. A function key on the front panel allows you to access data such as mode and status. Includes six foot DC power cable. ***Suggested Price $259.99***

Z-11ProII

Meet the Z-11ProII, everything you always wanted in a small, portable tuner. Designed from the ground up for battery operation. Only 5" x 7.7" x 1.5", and weighing only 1.5 pounds, it handles 0.1 to 125 watts, making it ideal for both QRP and standard 100 watt transceivers from 160 - 6 meters. The Z-11ProII uses LDG's state-of-the-art processor-controlled Switched-L tuning network. It will match dipoles, verticals, inverted-Vs or virtually any coax-fed antenna. With an optional LDG balun, it will also match longwires or antennas fed with ladder-line. Includes six foot DC power cable.
Suggested Price $179.99

radio not included

Z-817

The ultimate autotuner for QRP radios including the Yaesu FT-817(D). Tuning is simple; one button push on the tuner is all that is needed - the Z-817 takes care of the rest. It will switch to PKT mode, transmit a carrier, tune the tuner, then restore the radio to the previous mode! 2000 memories cover 160 through 6 meters. The Z-817 will also function as a general purpose antenna tuner with other QRP radios. Just transmit a carrier and press the tune button on the tuner. Powered by four AA internal Alkaline batteries (not included), so there are no additional cables required.
Suggested Price $129.99.

radio not included

AT-897Plus
for the Yaesu FT-897

If you own a Yaesu FT-897 and want a broad range automatic antenna tuner, look no further! The AT-897Plus Autotuner mounts on the side of your FT-897 just like the original equipment and takes power directly from the CAT port of the FT-897 and provides a second CAT port on the back of the tuner so hooking up another CAT device couldn't be easier. ***Suggested Price$199.99***

AT-600Pro

The AT-600Pro handles up to 600 watts SSB and CW, 300 on RTTY (1.8 – 30 MHz), and 250 watts on 54 MHz. Matches virtually any kind of coax-fed antenna and will typically match a 10:1 SWR down to 1.5:1 in just a few seconds. You can also use it with longwires, random wires and antennas fed with ladder line just by adding a balun. Two antenna ports with a front-panel indicator, and separate memory banks for each antenna. LED bar-graph meters shows RF power, SWR and tuner status, tactile feedback control buttons and an LED bypass indicator. Operates from 11 – 16 volts DC at 750 mA. Includes six foot DC power cable.
Suggested Price $359.99

Z-100Plus

Small and simple to use, the Z-100Plus sports 2000 memories that store both frequency and tuning parameters. It will run on any voltage source from 7 to 18 volts; six AA batteries will run it for a year of normal use. Current draw while tuning is less than 100ma. The Z-100Plus now includes an internal frequency counter so the operating frequency is stored with tuning parameters to make memory tunes a blazingly fast 0.1 seconds; full tunes take an average of only 6 seconds. Includes six foot DC power cable.***Suggested Price $159.99***

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Suggested Price $159.99

- ***RF Sensing***
- ***Tunes Automatically***
- ***No Interface Cables Needed***

AT-100ProII

This desktop tuner covers all frequencies from 1.8 – 54 MHz (including 6 meters), and will automatically match your antenna in no time. It features a two-position antenna switch with LEDs, allowing you to switch instantly between two antennas. The AT-100ProII requires just 1 watt for operation, but will handle up to 125 watts. Includes six foot DC power cable.

Suggested Price $229.99

AT-1000Pro

The AT-1000Pro has an Automode that automatically starts a tuning cycle when the SWR exceeds a limit you set. Operates at any power level between 5 and 1,000 watts peak. RF Relay protection software prevents tuning at greater than 125 watts. Tunes from 1.8 to 54.0 MHz (inc. 6 meters), with tuning time usually under 4 seconds, transmitting near a frequency with stored tuning parameters, under 0.2 seconds. 2000 memories. 2 Antenna connections. Includes six foot DC power cable.

Suggested Price $599

IT-100

Matched in size to the IC-7000 and IC-706, for either manual or automatic tunes, and status LEDs. Control the IT-100 and its 2000 memories from either its own button or the Tune button on your IC-7000 or other Icom rigs. For your Icom radio that is AH3 or AH-4 compatible. ***Suggested Price $179.99***

YT-100

For Yaesu FT-857, FT-897 and FT-100 (and all D models) an integrated tuner, powered by the interface. Press the tune button on the tuner, and everything else happens automatically. ***Suggested Price $199.99***

KT-100

For AT-300 compatible Kenwood transceivers (except TS-480HX). The KT-100 actually allows you to use the Tune button on the radio. 2,000 memories for instant recall of the tuning parameters for your favorite bands and frequencies. ***Suggested Price $199.99***

YT-450

Designed for Yaesu's newest 100 watt radios. Interfaces directly with the Yaesu FT-450 and FT-950 radios. Press the tune button on the tuner and the rest happens automatically. It will quickly match nearly any kind of coax fed antenna with an SWR of up to 10:1. 2000 memories recall settings in an instant! Seamless connection to a PC.

Suggested Price $249.99

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YT-847 Autotuner is an integrated tuner for the Yaesu FT-847. An included CAT/Power cable interfaces with your FT-847. Just press the tune button on the tuner and everything else happens automatically!

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Purchase an S9V 43', 31' or 18' antenna and fill out the included form. Mail it to LDG Electronics, and we will send you either a 200 watt balun or unun, your choice!

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S9V 43' $199.99

80-6 meters *Fixed Operation*

The S9V 43' is a high-performance lightweight telescoping fiberglass vertical. The best value in high-performance 'tall' verticals!

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LDG

CEPT and IARP Countries

CEPT: Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark*, Estonia, Finland, France**, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldova, Monaco, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, and the United Kingdom.***

Notes:

*Includes Greenland and the Faroe Islands.

**Includes Corsica, Guadeloupe, French Guyana, Martinique, St. Bartholomew, St. Pierre and Miquelon, St. Martin, Reunion and its Dependencies, Mayotte, French Antarctica, French Polynesia and Clipperton, New Caledonia, and Wallis and Futuna.

***Includes Northern Ireland, the Channel Islands, and the Isle of Man.

Australia, Canada, Israel, Netherlands Antilles, New Zealand, Peru, South Africa, and the U.S. are non-CEPT countries that participate in Recommendation T/R 61-01.

IARP: The International Amateur Radio Permit is a document issued pursuant to the terms of the Inter-American Convention on an International Amateur Radio Permit. Canada and the U.S. are signatories to this Convention. Other participating countries are: Argentina, Brazil, El Salvador, Panama, Peru, Trinidad and Tobago, Uruguay, and Venezuela. It is valid for the length of a temporary visit with a maximum of one year.

Table II– Participating CEPT and IARP countries.

If a U.S. license of any class is held by the foreign amateur, it supercedes any other operating authority when operating in the U.S. In that case, the U.S. license must be used in place of any other operating authority.

Station Identification

Station indicators are used in conjunction with the foreign amateur's assigned callsign when operating on U.S. soil.

Under the terms of the 1952 treaty agreement, Canadian and U.S. amateurs must append their callsign with the appropriate call area suffix—WØ to W9 or VE1 to VE9—*after* their callsign when visiting the neighboring country (e.g., VE3XXX/W9 or N9XXX/VE3).

Amateurs from countries *other than Canada* must include the location indicator *before* their callsign when operating in the U.S. (e.g., W1/G1XXX). Stations operating in Hawaii, Alaska or Puerto Rico use KH, KL, or KP as the call area suffix.

At least once during each intercommunication, the identification announcement must include the geographical location as closely as possible by city and state, commonwealth, or possession.

U.S. and Canadian amateurs operating in foreign countries use the ITU-assigned country prefix of that country *before* their own callsign when identifying their station.

Third-party Agreements

Third-party traffic is defined as communications on behalf of persons (a third party) other than the two control operators (the first and second party). A third-party communications agreement is an official understanding between the United States and another country that allows amateurs in both countries to participate in third-party communications.

See Table III for an updated list of countries with which U.S. amateurs may exchange third-party messages and pro-

Third-Party Communications

The following countries have made the necessary arrangements with the United States to permit an amateur station regulated by the FCC to exchange messages for a third party:

Antigua and Barbuda, Argentina, Australia, Belize, Bolivia, Bosnia-Herzegovina, Brazil, Canada, Chile, Colombia, Federal Islamic Republic of Comoros, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, The Gambia, Ghana, Grenada, Guatemala, Guyana, Haiti, Honduras, Israel, Jamaica, Jordan, Liberia, Republic of the Marshall Islands, Mexico, Federated States of Micronesia, Nicaragua, Panama, Paraguay, Peru, Philippines, St. Christopher and Nevis, St. Lucia, St. Vincent and the Grenadines, Sierra Leone, South Africa, Swaziland, Trinidad and Tobago, Turkey, United Kingdom (special event stations with call sign prefix GB followed by a number other than 3), Uruguay, and Venezuela. The United Nations also has arrangements with the United States to permit an amateur station regulated by the FCC to exchange messages for a third party with amateur stations 4U1ITU in Geneva, Switzerland, and 4U1VIC in Vienna, Austria.

Table III– Third-Party communications.

vide international phone patches over ham radio. This prohibition does not apply to a message for any third party who is eligible to be the control operator of the station—essentially, another ham with proper privileges. (Canada does not prohibit international communications on behalf of third parties.)

Article 25.3 of the International Amateur Radio Rules was revised at the World Radiocommunication Conference in 2003 (WRC-03) to expressly permit amateur stations to transmit international third-party communications in emergency or disaster relief situations *whether or not a third-party agreement is in place*. As a result, in May 2006 the FCC amended *Section §97.115(a)(2)* of the rules.

International Waters and Airspace

Amateur radio operators in international waters or airspace are subject to the reciprocal licensing requirements of the country under which the vessel or aircraft is flagged. Permission by the captain of the vessel or aircraft (or cruise line) for on-board use of amateur radio equipment is almost always a legal requirement. A nation's territorial limit can vary from 312 miles off shore. The United States claims 3 nautical miles.

Although Antarctica is considered international by treaty, ham radio operators in Antarctica often are subject to the reciprocal licensing requirements applying to the country under which the camp is flagged.

Importing Equipment

It is a good idea to obtain permission to bring your ham radio equipment into a foreign country. Some countries closely control communications equipment and require special permits and approvals before equipment can be imported. This is usually because the country wants to ensure that the equipment does not interfere with other communications services or to levy customs duty. Hams in the U.S. or Canada should check with the ARRL or RAC, respectively, regarding restrictions in different countries.

Applicability of International Regulations

In addition to these rules, every person who operates radio apparatus must do so in accordance with the Radio Regulations of the International Telecommunication Union.

National or local restrictions of a technical or regulatory nature must also be respected. Any foreign administration may determine whether or not to permit an amateur to operate an amateur station while in its territory, subject to any conditions it may impose.

Be aware that amateur radio in other countries may not have been allocated the same frequencies as the United States. Each of the three ITU Regions has its own spectrum allocations. The U.S. is in ITU Region 2. (Region 1 consists of Africa and most of Europe and the Middle East. Region 3 includes Asia, some parts of southern Europe, and the Middle East and Australia.)

The ITU requires that ham operators be licensed. On request, holders must present their underlying radio license, and, if applicable, their CEPT or IARP permit, to the appropriate government authorities of the country visited.

73, Fred, W5YI

public service

BY RICHARD FISHER,* KI6SN

Emergency Communications Special

Far from "Tornado Alley," New England Hams Stare Down Storms of Their Own

Even lawn-chair weather observers can say with authority that so far 2011's severe storms have been nothing short of epic. Whipping from Oklahoma across the nation's mid-section and slamming mid-Atlantic states, the pictures, videos, and accounts of destruction have been astounding.

While 2011's tornadoes—hundreds of them—added significantly to the annual meteorological statistics heaped upon the United States' traditional "Tornado Alley," New England emerged as somewhat a surprise when super cells and a tornado pounded parts of Massachusetts, Vermont, New Hampshire, and Maine on June 1. Four deaths and millions of dollars in damage were attributed to the severe weather outbreak.

The region's radio amateurs leaped into action, just as their counterparts had done earlier in response to destructive storms in Alabama, Arkansas, Georgia, North Carolina, and Missouri. *(See "Radio Amateurs Face Wrath of Tornadoes Head-On," July 2011 CQ; and "Salvation Army's Show of EmComm Force After Tornado in Joplin, Missouri," August 2011 CQ.—ed.)*

American Radio Relay League Eastern Massachusetts Section Emergency Coordinator Rob Macedo, KD1CY, told SouthCoastToday.com: "It was a couple of ham radio operators from SKYWARN® who first reported the (June 1) tornado in the Westfield (Massachusetts) area."

In the end, "homes and businesses in 19 communities sustained damage, and at least eight communities—Westfield, Springfield, Agawam, Brimfield, Monson, Wilbraham, and Sturbridge—

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A devastating tornado rips through a neighborhood behind an office building in Springfield, Massachusetts on June 1, a relatively rare event for New England. Four people were dead in the storm's aftermath. Radio amateurs in the region rushed to provide EmComm support. (Photograph by Matt Putzel/WikiMedia Commons)

experienced severe damage, including homes that were destroyed. Southbridge also appeared to be hit hard, as well," in the ARRL's Western Massachusetts section, Macedo told the League.

The National Weather Service "had issued a 'tornado watch' until 8 PM, which means that conditions made a tornado possible. It doesn't (necessarily) mean it is going to happen," Macedo told SouthCoastToday.com. "But the live reports made it evident that we had a very serious situation."

An NWS "tornado warning" followed on the heels of the "watch," and likely "helped to save a number of lives," Macedo said in the published report. "The average lead time is about 10 minutes, but the lead times provided in this case were much higher than that. When the tornado touched down and initial reports indicated structural damage, it convinced people to take it much more seriously and take cover."

Macedo reported to the ARRL that amateurs from Western Massachusetts ARES® helped the American Red Cross with communications "in Springfield, Monson, and Brimfield, as well as the office in Springfield."

Stefan Rodowicz, N1SR, told the League that hams with RACES were already in Emergency Operations Center positions in Worcester County and Springfield when the tornado touched down.

"Using the call WC1MAC (Region 3 RACES)," Rodowicz said, "they coordinated through the Mount Tom repeater and provided communications for the three shelters."

Tom Doyle, N1MUV, ARES® District Emergency Coordinator who was at the Springfield American Red Cross, reported to the League at 9:30 PM that "there had apparently been several touchdowns in the region, and normal communication was 'ragged, but coming back.'"

It would not be until the following day that power and phone service was restored.

Macedo said that Ray Weber, KA1JJM, PJ Howe, N1PJ, and Mike Neilsen, W1MPN, assisted in NWS damage surveys. "Neilsen is a meteorologist and a Special Advisor to ARES®/SKYWARN®," he added.

The ARRL reported that in Connecticut and Massachusetts SKYWARN® nets provided "timely reports to the NWS offices in Taunton and Albany, New York. The Albany office covers Berkshire County in Massachusetts and Litchfield County in Connecticut.

"Western Massachusetts ARES® Section Emergency Coordinator John Ruggiero, N2YHK, ran net control for the Worcester County SKYWARN® Net on the Paxton, Worcester, and Marlboro repeater systems, with assistance from Kevin Paetzold, K1KWP. Steve Craven, N9SC, ran the SKYWARN® Net on the Mount Tom repeater."

WX1BOX, at the Taunton NWS office, was on the air for nearly 12 hours beginning at noon. SKYWARN® had activated at 8:15 AM. "This was in response to the warm front that produced large hail in advance of the cold front that spawned the severe weather and tornadoes over northwestern Connecticut; western, central, and interior northeast Massachusetts; and southern New Hampshire," Macedo said in the ARRL report.

Statistics from the Storm Prediction Center in Norman, Oklahoma, indicate Massachusetts' last tornado was in 2008.

On May 29, 1995, three people were killed by a tornado in Great Barrington,

Large hail pummeled many regions in New England, including Keene, New Hampshire, where these pieces were collected and photographed. (Courtesy of KB1VQH)

on the Massachusetts-New York State border.

The state's deadliest tornado struck June 9, 1953, killing 94 people in the Worcester area.

"Given the right conditions, tornadoes can occur at any place, any time of the year in the United States, including Alaska," weather spotter M. L. Baron told SouthCoastToday.com. "Look at what's happening nationwide now. Mother Nature is on the rampage."

It's Goochland County Radio Amateurs to the Rescue

On a lazy Tuesday morning in April, it was Goochland County, Virginia Fire-Rescue Chief Bill Mackay on the phone: "I am sorry to have to call you so early,

Property damage from the severe weather was significant in Brimfield, western Massachusetts. (Courtesy of Matthew Gregorie)

Firefighters assess the damage on Route 169 in Southbridge, Massachusetts. (Courtesy of N1PJ)

but I need you to activate the ARES® group as we are having communications problems," he told Ralph Fetty, W4FEG, on the call to his home in Columbia, Virginia. "The dispatch frequency is not working to our fire-rescue stations and we need emergency backup communications at all fire-rescue stations and the EOC." *(Emergency Operations Center—ed.)*

Fetty, the county's Emergency Coordinator, said candidly that "the old ticker began to race a bit as I began to make several calls.

"The first was to Ray Clemons, WB4IKL, and within a few minutes he was en route to Station 6," he said. "The next two calls were to Mat Long, N4MI; and Ned Creasy, AE4ID. Just as quickly, they were headed to cover stations 2 and 5."

Then it was on to Rick Cook, AB4U, EC of Hanover County. All he asked was "Where do you need me?" Fetty said. Cook was soon on his way to Station 3.

"As I headed to the EOC, Dennis Pinner, N4DEN, came on the Goochland 'call up' repeater," Fetty said. "After

Toppled trees and fallen power lines made for dangerous conditions for both people and wildlife in Springfield, Massachusetts after a tornado ripped through the area on June 1. (Courtesy of KB1VGA)

Radio volunteers, from left: Jim Hansen, KG6ZDP, Shelley Lothringer, KC6ZOW, and Roy Lothringer, N6SLD, take positions in the RACES command vehicle to help coordinate communications from the various stations along the Surf City Marathon course. An emergency anywhere along the marathon course can quickly be communicated from the field to public-safety officials. (Photo courtesy of Dr. Steve Graboff, W6GOS)

explaining the situation, he responded to Station 1. Within an hour we had five stations and the EOC up and running. I called and advised Chief Mackay that we had coverage in place for all stations except Station 4 (and asked) if he wanted the coverage for any stations shifted. He said that the coverage was fine and that he would advise if any changes were needed."

All stations were able to respond to the EOC when connected, Fetty said, because "we have all stations already equipped with radios, power supplies, antennas, and manuals with several log and message-handling forms."

Chief Mackay, offering thanks to all the radio amateurs involved, "expressed his surprise that we were able to respond to the request as quickly as we did."

"We handled communication from a call to Station 3," Fetty said, after "an accident on Route 250 near Route 288. This was relayed to the EOC. (Then), shortly after noon, with all equipment back in service, a stand down was declared."

The call-up had lasted from 8 AM to 12:30 PM.

"Many (operators) had changed plans or had to take time off from work to provide this coverage," Fetty said. "This demonstrates their devotion to the service of our communi-

Students line up to receive their official SKYWARN® Spotter cards in Lake County, Florida. (Photos courtesy of K1AYZ)

ty. I am sure that this sentiment is shared by many other ARES® groups as well."

RACES Team Keeps Watch On "Surf City Marathon"

"As most of the citizens of Huntington Beach slept in their cozy beds," Wayne Yoshida, KH6WZ, writes, "A team of 33 volunteer emergency radio communicators quietly deployed into position at various locations along the Huntington Beach, California Surf City Marathon race course," preparing to "silently watch over the runners, race officials, and other marathon participants in case an emergency of any kind were to happen."

Yoshida, "Surf City's" Radio Amateur Civil Emergency Service (RACES) Public Information Officer (as well as *CQ*'s "Ham Notebook" editor), said the group was ready and trained to "assist city public-safety and law-enforcement officials by providing instant information during a medical emergency or other crisis during the marathon. From locating missing children to notifying a paramedic squad of a heart attack victim, RACES communicators constantly watched the marathon activities from pre-race to the conclusion." The race was held in February.

"Our volunteers are the 'guardian angels' at the city's marathon, or at any event we participate in," said Dr. Steve Graboff, W6GOS, RACES Chief Radio Officer. "I am proud to be a part of the city's group of radio volunteers. We use our personal radio equipment and lend our personal time to provide an extra blanket of safety and security to our fellow residents and participants in the marathon."

The Surf City Marathon—known for its oceanfront course, which includes scenic locations such as the Huntington Beach pier, Huntington Central Park, and Bolsa Chica State Beach—is the final race in the California Dreamin' Racing Series.

SKYWARN® Graduates Lake County Weather Spotters

As Ted Luebbers, K1AYZ, sees it, lots of people talk about the weather "but a large group of people in Lake County, Florida has done something about."

They've become trained SKYWARN® Weather Spotters, the ARES® public information officer reported.

"A basic and advanced spotters' class was given by the National Weather Service in March at the Leesburg (Florida) Public Library," Luebbers said. "The classes were presented by Scott Spratt, KT4PD, and Johnathan Guseman, KJ4ZWS, meteorologists from the NWS office in Melbourne (and) were jointly sponsored by Lake County Amateur Radio Emergency Service and Lake Amateur Radio Association as well as the NWS."

Many of the participants were radio amateurs "and public service personnel or members of the general public who have an interest in learning how to assist the NWS," he said. "They can do this by reporting dangerous weather conditions experienced locally that cannot be seen by weather service radar."

Meteorologists Spratt and Guseman "mentioned many times how important it was to be able to get these reports in order to warn nearby communities about severe thunderstorms or tornados headed in a direction the Doppler radars could not see because their beams were looking at weather

too high in altitude over Lake County."

During the course, students were taught what to look for and how to report conditions such as tornadoes, funnel clouds, hail, flooding, and wind, Luebbers said. "They were issued a SKYWARN® Spotter card and given emergency phone numbers to contact the NWS office in Melbourne, Florida.

"When severe weather is occurring in Lake County, trained spotters are often called at home by the NWS to determine the actual ground weather conditions," Luebbers said. "The Melbourne meteorologists also gave everybody a very detailed analysis of the cause and effect of the February 2, 2007 Groundhog Day tornado that tore through Lake County in which 21 deaths occurred with widespread damage.

"Several of the ham operators in the audience had been deployed to provide backup radio communications for the Lake County First Responders as a result of that severe storm."

For more information, visit: <http://www.SKYWARN.org>.

73, Richard, KI6SN

Strait Hollis, KT4YA, ARES® Emergency Coordinator for Lake County, Florida, checks his card as an Advanced SKYWARN® Spotter after approval by Scott Spratt, KT4PD, seated left, and Johnathan Guseman, KJ4ZWS, NWS meteorologists.

Announcing:

Kaitlyn Cole, KS3P
2011 Newsline Young Ham of the Year

Newsline 2011 Young Ham of the Year Kaitlyn Cole, KS3P, with CQ Advertising Manager Chip Margelli, K7JA (left) and Editor Rich Moseson, W2VU (right) at the YHOTY presentation ceremony at the Huntsville Hamfest in August. (K0NEB photo)

Eleven-year-old Kaitlyn Cole, KS3P, of Harvest, Alabama has been named Amateur Radio Newsline's Young Ham of the Year for 2011. She is the youngest person to receive the award in its 26-year history. CQ is a co-sponsor of the YHOTY program.

Kaitlyn was recognized for her on-air activities in the aftermath of a string of destructive tornadoes that swept through Alabama and other parts of the southeast last April, as well as other ongoing activities. After a tornado hit Harvest, a suburb of Huntsville, Kaitlyn and her father Stan, NX3P, volunteered to help with communication. Kaitlyn began by logging contacts and running errands, but soon stepped in as Net Control Station, dispatching hams with chainsaws and other cleanup tools to areas in need of help. She worked several long days (7:30 AM to 4:00 PM) over the two-week duration of the cleanup operation and earned praise for her on-air skills from several veteran operators.

The local amateur radio response coordinator, Charles Tedder, W1CST, said the NCS position normally is "reserved for only the most experienced amateur radio operators," but that Kaitlyn "performed in a manner that would rival many experienced adult operators."

Kaitlyn also enjoys QRP (low-power operating) and building her own equipment; one recent project was an electronic keyer, which is now motivating her to learn Morse code. In addition, Kaitlyn serves as ARRL Assistant Section Manager for Youth Activities in Alabama, a position that requires her to attend various hamfests and talk with young people about amateur radio. She also has been on the staff of the ARRL Youth Lounge at the Dayton Hamvention® for the past three years (yes, starting when she was 8!) and was named Alabama's Outstanding Youth Ham of the Year in 2009 (at age 9!).

Just starting the sixth grade, Kaitlyn is a straight-A student and a member of the National Elementary School Honor Society; she won the school spelling bee last school year and placed third in the county-wide competition, losing out to middle-school students.

Kaitlyn was presented with the Young Ham of the Year award at the Huntsville Hamfest in August, with the cost of the plaque underwritten by Dave Bell, W6AQ, of DBA Entertainment. Corporate co-sponsor Vertex-Standard covered her travel expenses and provided a gift of Yaesu ham equipment; CQ magazine, another corporate co-sponsor, provided Kaitlyn with a week at SpaceCamp; Heil Sound presented her with a gift as well.

Kaitlyn is the 26th young amateur to be honored with the Young Ham of the Year award, as well as the youngest. The previous youngest winner was Mary Alestra, KB2IGG, who was 12 when she was Young Ham of the Year in 1990.

learning curve

BY RICH ARLAND,* K7SZ

Emergency Communications Special

EmComm Wants YOU!

It is absolutely no secret that I believe in the idea of amateur radio operators giving back to the community and the country by becoming involved with emergency communications, a.k.a. EmComm. This will be the third column in just over one year that I have devoted to EmComm and that is *not* an accident.

Our government allows us hams to participate in our hobby by providing us with licenses and chunks of frequency spectrum. Our hobby exists at the pleasure of our government, and we are under federal mandate to use our equipment and communications skills to help all levels of government in times of crisis, be it a natural or man-made disaster, or a cataclysmic event that disrupts normal communications capabilities for police, fire, and EMS, plus disaster relief/mitigation professionals. We hams know, more than most others, just how fragile our commercial communications infrastructure really is. With the great migration from conventional "old school" VHF/UHF FM analog voice/data networks to cutting-edge digital technologies such as 800–900-MHz digital trunked communications systems, it won't take much to disrupt these new packetized trunked systems, leaving law enforcement, fire, and EMS professionals without communications access. Enter ham radio!

For decades we radio amateurs have stepped into the breach, held our finger in the hole of the dike, and provided the reins of command, control communications/intelligence (C3I) for the profes-

*770 William St. SE, Dacula, GA 30019
e-mail: <k7sz@live.com>

Close up of the K7SZ/KB3MCT quick-reaction package (QRP?) of radios that normally travel with us if we are deployed as part of our ARES/RACES commitment. The main transceiver, an Icom IC-2720 dual VHF/UHF FM set, is ideal for this particular application. An old Kenwood 2-meter FM transceiver is set up for packet via a Signal Link and MFJ TNC-X. A set of FRS/GMRS walkie-talkies is also included. Not shown is a 40-channel CB transceiver and trunking scanner. (Photos by the author)

The Go-Radios are housed in a Stanley™ mobile work center; batteries are in the lower compartment. Additional batteries (four 7-amp/hr gell-cells) are housed in a Stanley™ toolbox. Also included is a small digital volt/ohm/milliammeter. The homebrew antenna mount is to the immediate left of the radio container. The green fiberglass mast set is shown along with the primary VHF/UHF antenna, a Diamond X-50A (on the short green mast).

sionals who suddenly find themselves without communications. While our tried-and-true analog FM voice and data (along with our analog SSB long-haul communications capabilities) systems often are criticized and viewed as outmoded, we still manage to get the job done when the mega-dollar cutting-edge technologies suddenly die. That's what we do. That's our job.

Gwinnett County Situation and Are You Up To Date?

A recent real-world situation arose in Gwinnett County, Georgia, when the ultra-complex digital communications system that the county cut over to about three years ago krumped, leaving the county, along with many of the municipalities, without communications! The call went out to the ARES folks in Gwinnett County to be on alert for possible deployment. The digital system was brought back up but not before it became very painfully apparent to the county communications professionals as to exactly how fragile their ultra-modern, ultra-complex digital system really was. During an after-action briefing I learned that the county had no analog VHF/UHF backup comm system! Talk about putting all your eggs in one basket!

Therefore, our recent county-wide communications "situation" gave our ARES folks a chance in the limelight. We were ready. Are you? Do you have your training up to date? Go-Bag packed? Have you participated in recent training exercises? If not, why not? ARES/RACES depend upon volunteers, and by volunteering you are offering your time, gear, and communications expertise to those in need. Emergency communications is a dynamic facet of our communications hobby. Like anything else in life, in order to be good at it you need practice. Ask any police officer, fire fighter, EMS tech, or military professional, and they will tell you that they train constantly. Can we, as EmComm volunteers do any less? My life-long friend, Staff-Sergeant Jon Nelson, 5SFG, Airborne, used to tell me that "all training is good." He knew first-hand that the more you train in peacetime, the less you bleed in combat.

Training for EmComm What You Need

Training does not need to be an intense, grueling exercise to be effective. How about starting with something very simple such as programming your HT or dual-band high-power VHF/UHF rig? I don't know about you, but over the last 15 to 20 years the programming of VHF/UHF radio gear has gone from relatively simple to downright complex! The manuals for some of these radios are four or five pages of basic operating tips, and the rest is how to program and get the radio to do all sorts of things. As my buddy, Gunny Rake, N3PBL, used to say, "My radio can do more tricks than a monkey with a peanut!"

Thus, next time your ARES/RACES group meets have a radio programming session. Bring your manual(s) and construct an in-house exercise learning how to program your radios on the fly and make contact with several members of the group who are standing by on various channels that you program into your rigs.

Several months ago the Gwinnett ARES group did exactly that, and you'd be surprised at how many of the members were having a *lot* of trouble programming in frequencies, splits, PL tones, reverse splits, and even simplex frequencies! While it was a fun exercise, it pointed out exactly how much training is needed at the individual level for everyone to become proficient in programming their radios. This is *basic* stuff, gang!

Another often overlooked training implementation is the table-top exercise. While there is no actual deployment, each individual at the monthly Gwinnett ARES group meeting is given a specific task and has to detail how he/she would accomplish that task. These individual solutions are critiqued by the group as to feasibility and whether or not the proposed solution would be apropos to the requirements. Do you think this is simple?

Take our recent county-wide digital comm failure, for instance. What would you do first if presented with the scenario of having to call up the entire county ARES organization to fulfill an emergency comm requirement? Which comes first, the chicken or the egg? Get the picture?

Training also can take the form of something as simple as reviewing your Go-Bag contents, radio gear, accessories, etc. How many times have you raided your Go-Bag for spare batteries, a spare HT, antenna, coaxial cable, pad/pencil, flash-

Shown is the top exterior of the Stanley™ plastic tool box (about $5-$6 at big box stores) that holds the extra batteries. The small DMM is included to monitor battery voltage during operations. Inside are four 7-amp/hr gell-cells. Each battery is used seperately via an external cable terminated in push-on connectors with a PowerPole™ connector on the other end that interfaces with the radio gear. One could parallel up two, three, or four of these batteries to extend their operational life. I choose not to do this in case one of the batteries decides to rapidly discharge due to an internal malfunction, which would quickly pull down the rest of the battery bank. These batteries are "pulls" from medical equipment courtesy of one of our club members who works in the bio-medical industry.

light, or some other accessory that you undoubtedly will need if/when you are deployed? One thing that is an absolute "must" is to have your Go-Bag contents listed on a laminated piece of thin cardboard or construction paper. The lamination allows you to write on the list with a grease pencil or non-permanent market to ensure what goes into the field comes back. How many of us actually take the time to do this simple task? That is training!

Training can also amount to fabricating some new piece of gear or accessory that will ultimately make your deployment successful. How about making up various lengths of coaxial cable with proper connectors to fit your gear and antennas? Ditto for DC power cabling. Have you switched over to Power Poles yet (www.andersonpower.com)? If not, why not? They are, after all, the *defacto* standard for ARES/RACES units, so you'd better have your gear capable of using these power connectors. I mean, how would it look if you showed up at a deployment with power connectors that won't interface with the rest of the group's gear/power equipment? Think about it. A word regarding fabricating power cords using Power Poles: Don't be cheap; buy the crimp tool and you'll be very glad you did. It speeds fabrication immensely.

Antennas are another area that we can chock up to training. Several years ago I replaced all my AN/GRA-4 GI-Green aluminum mast systems with much lighter Israeli military masts made from fiberglass. In order to use the masts I had to fabricate a stand that I could place under one rear wheel of our Nissan Pathfinder SUV that would hold the bottom of the fiberglass masts. The solution came in the form of a deck-mounting bracket for a 25-foot flag pole that we had mounted in the ground. The deck mount being surplus, was fastened to a piece of 3/4-inch plywood about 10 inches wide and about 2 feet long. The long end goes under the rear tire, and the fiberglass masts fit into the deck mount. Using a bungee cord, I can brace the second section of mast to the roof rack on the Pathfinder, allowing us to erect at least a 20-foot "instant tower" for a VHF/UHF omni antenna. Oh, the other nice thing regarding these Israeli military masts is that they came with an omni ground-plane antenna that originally was cut for about 80 MHz. By some careful trimming of the main radiating element and the ground plane radials I was able to get the antenna resonant on 2 meters! The entire antenna collapses and stores in one of the fiber-

This illustration shows a close-up of the fiberglass mast and antenna system that I procured from Fair Radio Sales about four years ago. The poles snap together, and I have enough 4-foot poles to erect a 32-foot mast! The original antenna that came with the mast system has been cut down to resonate on 2 meters. The main radiating element (white) and the three radials (black) screw into an insulator complete with a 20-ft. length of RG-58 terminated in a BNC connector to fit the radio. Shown also is a ground stake (white angle iron) that can be driven into the dirt if you lack any other form of antenna mount.

glass mast sections. I can fit about six or seven or mast sections into the carry bag, so I have a nice, compact, easily erectable antenna support for EmComm work. Fair Radio Sales (www.fairradio.com/) was selling these mast systems for a while, but as with all things surplus, the supply may have dried up by now.

Do you have a gas/diesel powered generator? If not, why not? The prices are not all that bad, and there is nothing quite like having electricity to power your blacked-out house during times of inclement weather/severe storms. Besides, it is always handy to have an additional generator in the ARES/RACES group "just in case." We bought our 5-kW genny in 1999 (no, not because of Y2K!) for under $500, which at that time was not a bad price. Prices are even lower now. Look for used (but well-maintained and cared for) generators at estate sales, flea markets, hamfests, etc. Beware of some of the less-expensive two-stroke gasoline engine generators, as you have to maintain a mixture of oil and gasoline in order to run them. This is an extra time-consuming task that you can well do without during times of emergency.

Finally a couple of words of caution regarding gas-powered generators: *Do not* store gasoline in an enclosed, unventilated area or where high temperatures are present. Gasoline fumes tend to expand when in the proximity of heat, and this can be an extremely dangerous situation. Also, if you intend to use your generator to furnish power for your home, be sure to have an experienced, licensed electrician install the necessary circuitry to your main power panel so you won't be placing your AC-generated power onto the AC main lines coming in from the power grid. This can get a power-line worker killed, when he thinks that the lines are "dead" and starts to work.

Summary

That is it for this session, gang. As you can see, "training" can entail many things, not just jumping into your vehicle and hitting the road with your gear. If you have some tips or techniques that the readers of this column might find interesting or helpful, please e-mail me at <k7sz@live.com> and in our next EmComm feature we'll try to include them. Vy 73, Rich, K7SZ

BY GORDON WEST, • WB6NOA

Gordo's shorts

Emergency Communications Special

Roller Bag "Grab and Go" Kit

Volunteering your emergency communications skills and system for a served agency can draw assignments to a cushy EOC, or at the other end of the circuit, a makeshift shelter operation (photo A). As an emergency communicator, your first order of business for your served agency is to come on scene *dressed appropriately,* and have enough gear to keep a remote operation on the air for at least 24 hours.

If you pull the EOC assignment, you likely can leave your comm response bag in the car. Look professional, and if all you have is that agency's issued vest, wear it!

I enjoy field assignments, and my rolling backpack communications station (photo B) has always supported my battery-operated field comms!

The rolling bag can be obtained from camping supply stores and can double as a wearable backpack. Choose one with large wheels (photo C). It's easier to pull the bag with big wheels through dirt, gravel, and other debris. Little plastic wheels may be fine for airline travel, but *not* field deployment.

The bag's telescoping handle will double as antenna support (photo D). Simple stainless-steel L-brackets, designed for mirror-mount antennas, work well. The handle itself, usually aluminum, will act as the VHF/UHF ground plane, so no radials are needed for almost any type of dual-band mobile antenna.

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Photo B– A combination roller bag/backpack is the container of choice for my "grab-and-go" emergency communications kit.

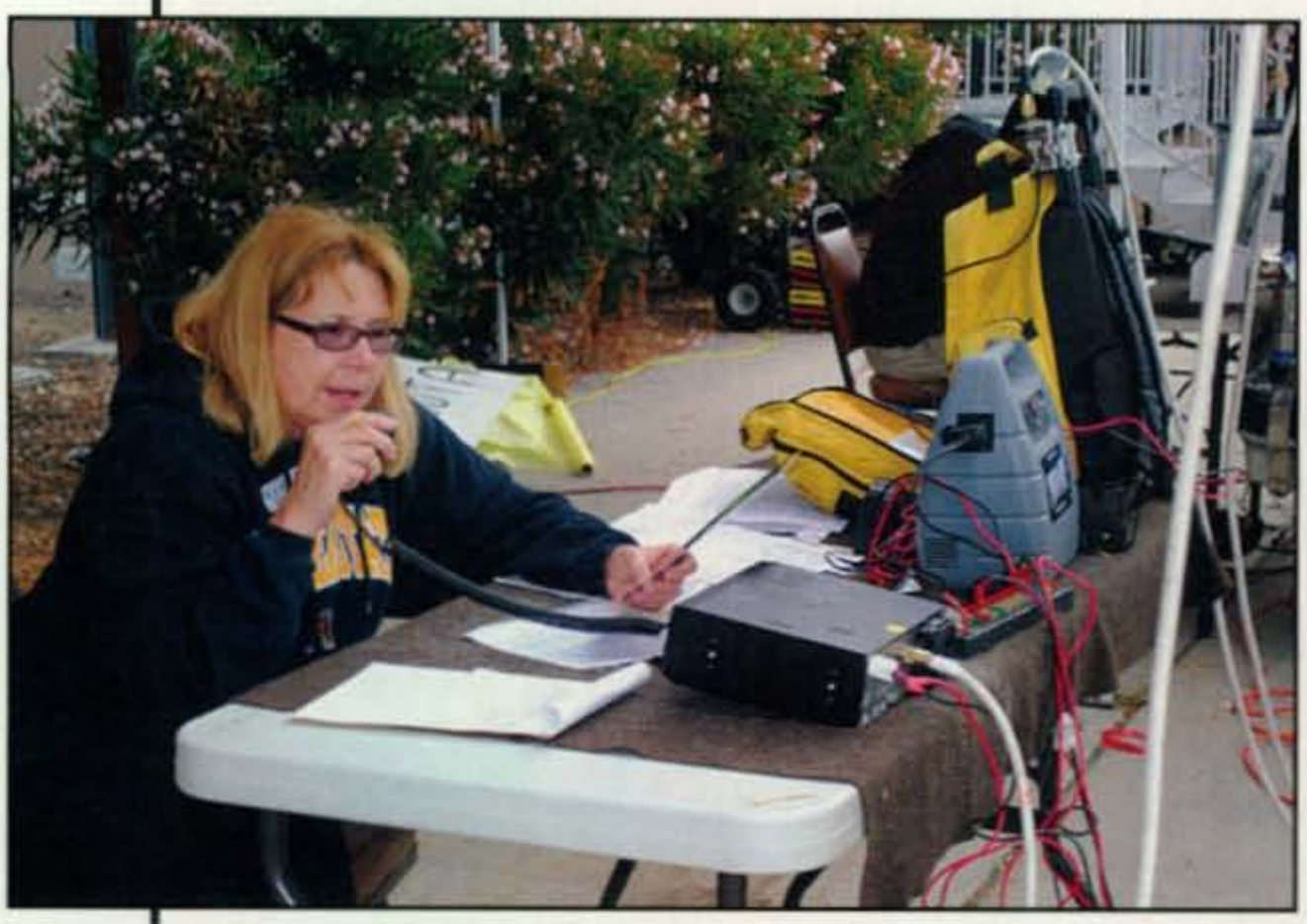

Photo A– You never know where you might be deployed during an emergency response. Here Devon Day, KF6KEE, operates outside at a disaster drill with a radio setup that packs up into the yellow pack at the right in the photo.

Photo C– Go for a roller bag/backpack with big, tough wheels. They are better for pulling your gear across rough surfaces such as gravel or grass.

Photo D– An L-bracket designed for a mirror-mount antenna on a truck can attach to the pull-up handle on the roller bag and either support a small antenna or provide a connection point for coax leading to an externally mounted antenna.

A sealed, gelled lead-acid (gel-cell) motorcycle or jetski battery is my voltage source. Absorbed Gas Mat (AGM) batteries also work well. Twenty to thirty amp hours of capacity are recommended, remembering that for every additional amp hour, your roller bag weighs an additional pound. Twenty pounds of battery will really dig into your shoulder if you plan to wear your roller bag as a backpack.

Small dual-band, 2-meter/440-MHz mobile transceivers can give you added power output over a small handheld. Run the mobile on low power, whenever possible, to conserve battery life in the field.

Stay away from a color LCD display for this purpose, as they are impossible to see in the daylight!

Don't Forget HF

For longer-range high-frequency (HF) work, the new little Elecraft K3 and the Yaesu FT-817 offer excellent QRP operation. The little HF Outbacker "Joey" or any of several portable screwdriver antennas will work well (one with manual tuning will help conserve battery power). Don't forget to ground your roller bag to a nearby metal strip to act as a ground plane.

Each radio can hang on the side of the sealed battery, either with straps, Velcro®, or even double sided sticky tape (see photo E).

Feeding the battery is a small Anderson distribution block, capable of both outputting as well as inputting voltage.

My pack contains a small 6-amp MFJ switcher power supply, and it works fine as a battery charger. It is diode-protected to prevent a fresh battery from zapping the power-supply switcher circuit. I also include a male cigarette-lighter plug in case the fire chief tells me he wants constant communications as he moves me to another location. My battery gets a recharge from his cigarette lighter socket (now called 12-volt outlet), but it is important to only plug into the cigarette-lighter socket when *not connected* to the Anderson block inside the bag. This keeps the tip from accidentally shorting out to the side of the accessory socket. Once you see the red LED light up on the male plug (if your lighter plug has a power LED, which is a good idea), then you are good to reconnect to the Anderson block and give your internal gelled battery a fast boost.

I also have a small magnetic antenna that could allow me to work out of a mobile unit with a much improved signal. If your dual-band whip on the pull-up L-bracket handle features a PL-259 connector, simply unscrew the whip and screw on the small coax going to the external antenna on the chief's vehicle.

For long deployments, I also have a roll-up solar panel to give me a 1-amp boost to my battery-operated system outside.

Here's another challenge easily solved with the roller bag comm station: Your served agency needs comms on 40 meters, and the little QRP rig you brought doesn't have quite enough output power to make the circuit. A fellow operator brings in his 100-watt transceiver, and, like a good emergency communicator, has the universal Anderson connectors on the end of the DC feed.

He plugs into your Anderson strip, rated at 20 amps on the fuse. Although your little switcher power supply is only rated at 6 amps, the 15- to 20-amp HF transceiver draw is easily buffered by the 20 amp-hour battery.

The typical recharge current I have ever had on my own roller pack was maybe 5 amps, when the big battery was relatively discharged. You will be surprised as to how much buffering a 20-amp gel battery will provide for your HF and VHF/UHF high-power operation.

Finally, regularly exercise your roller kit to be sure you can get it on the air in less than 60 seconds when you arrive on scene.

The bag will cost about $50, and the gelled battery about $70, and we will leave it up to you as to how elaborate you are going to make your portable comm kit. Don't forget the volt meter (see top in photo E); it tells all on how that 20-amp hour battery is doing. 73, Gordo, WB6NOA

Photo E– A dual-band FM radio is mounted to the side of the gel-cell battery. Note the control head mounted separately and facing out for ease of use, and the voltmeter monitoring the battery's output. The battery in this photo is a 40-amp-hour gel-cell, good for operating HF, but bad on the back if you need to backpack into your operating location.

GEORGE TRANOS,* N2GA

Emergency Communications Special
Contesting Benefits for EmComm Operators

Amateur radio is a hobby pursued by individuals with diverse interests. Reasons for becoming a ham vary greatly, but many do so to give something back to their community. Ham radio is justifiably called the "Amateur Radio Service" because of our ability to provide vital communication links when all else fails. There are many times hams have provided lifesaving assistance during and after major disasters (see Richard Fisher, KI6SN's "Public Service" column for more). There are major benefits to being trained and prepared in the event of an emergency. Contesting can help develop your skills and get you ready just in case.

Listening Ability

To become a good contester, you must learn to listen well. This implies being able to pull stations out of the noise and the ability to use all of the tools available to help you do so. When operating a contest, finding a new station to contact is a critical skill. Operators search the band to locate someone and then must tune them in properly to hear them well. A contester with "good ears" can copy signals others cannot. He or she can tune out any interfering signal or extraneous data. The seasoned contester will get the most out of the equipment being used regardless of the gear.

Fast and Accurate Copy

Hearing and copying callsigns and contest exchanges is the crux of all contest operating. Contesters learn to pull a full callsign out of a pileup. They can quickly log the contact and send the exchange in the most efficient way using the least amount of time. They are able to rapidly move on to the next contact. Speed is not their only concern, however. They also are accurate in their copying ability. They get all the information correct the first time. Listen to a good contester run stations, and what you'll hear is an efficient operator methodically working down a pileup. Developing the skill to know what to say, how to say it, and what not to say is critical to both contesting and emergency communications.

Message Handling

During emergencies, passing traffic is critical. Sending messages into and out of the disaster area is a lifeline for the victims, their relatives, and their friends. Learning how to pass traffic is a skill that contesting can help develop. Some contests, such as the ARRL November Sweepstakes, have long exchanges that mimic message handling. Sweepstakes has an exchange that consists of a serial number, precedence, callsign, year first licensed, and ARRL section. Sending and receiving this information in the proper sequence, copying it properly, and doing it all quickly requires aptitude. This same talent is needed when getting a health-and-welfare message out during an EmComm operation.

Station and Antenna Construction

Contesters are constantly designing, building, and setting up stations and antennas. The best contest stations frequently change. As technology goes forward, contesters alter their stations to incorporate the latest and greatest equipment to keep them at the cutting edge to be competitive. They learn how to integrate components into an existing operation. They analyze antenna designs, construct new antennas, and test and compare antennas against each other, all in an effort to hear and be heard better.

EmComm operators have similar needs. They must be able to quickly deploy to a stricken area where they will have to erect an effective antenna system so they can get the message through. Having the experience of doing this at a contest

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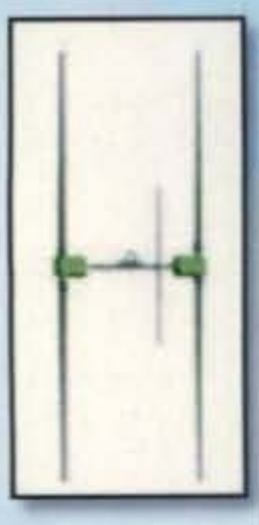
Calendar of Events

All year	**CQ DX Marathon**
Sept. 24–25	**CQ WW RTTY DX Contest**
Sept. 24–25	Texas QSO Party
Oct. 1–2	California QSO Party
Oct. 1–2	Oceania Phone DX Contest
Oct. 8–9	Pennsylvania QSO Party
Oct. 8–9	Scandinavian SSB Activity Contest
Oct. 8–9	Makrothen RTTY Contest
Oct. 8–9	Oceania CW DX Contest
Oct. 8–9	Arizona QSO Party
Oct. 9	North American RTTY Sprint
Oct. 10	10-10 Intl. 10-10 Day Sprint
Oct. 15–16	Worked All Germany Contest
Oct. 15–16	10-10 Intl. Fall CW Contest
Oct. 15–16	New York QSO Party
Oct. 16	Asia-Pacific CW Sprint
Oct. 16–17	Illinois QSO Party
Oct. 17–22	ARRL School Club Roundup
Oct. 29–30	**CQ WW DX SSB Contest**
Nov. 5–6	Ukrainian DX Contest
Nov. 5–7	ARRL CW Sweepstakes
Nov. 26–27	**CQ WW DX CW Contest**

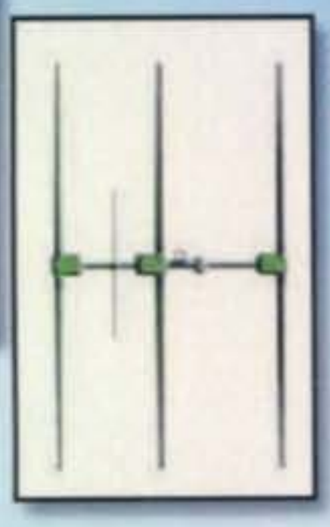
Which *SteppIR* Product is Best for You?

2, 3, and 4 Element Yagis

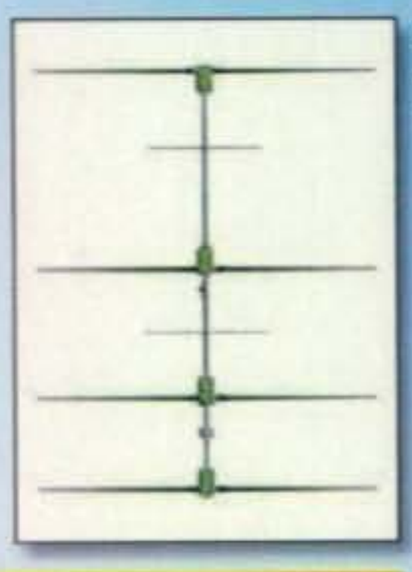
For the hams who are fortunate enough to have towers in their backyards. Gain and directivity is yours with a SteppIR Yagi.



2 Element 20m-6m Yagi
2 element Yagi, 20m-6m continuous coverage; 57" boom, 36 ft longest element, 18.2 ft turning radius, 6 sq ft wind load, 30 lb; SDA 100 controller included.



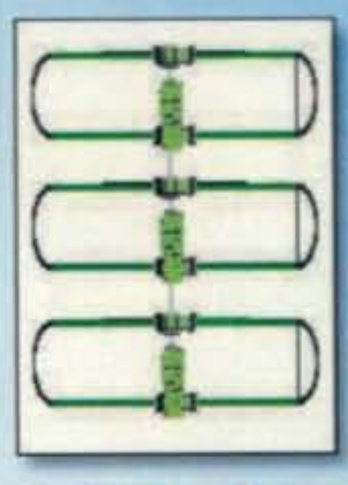
3 Element Yagi 20m-6m
3 element Yagi, 20m-6m continuous coverage; 16 foot boom, 36 ft longest element, 19.7 ft turning radius, 6.1 sq ft wind load, 51 lb; SDA 100 controller included.



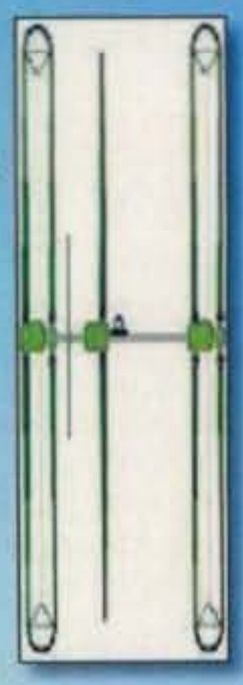
4 Element Yagi 20m-6m
4 element Yagi, 20m-6m continuous coverage; 36 ft longest element, 24.1 ft turning radius, 9.7 sq ft wind load, 99 lb; SDA 100 controller included.

Dream Beam Series Yagi's

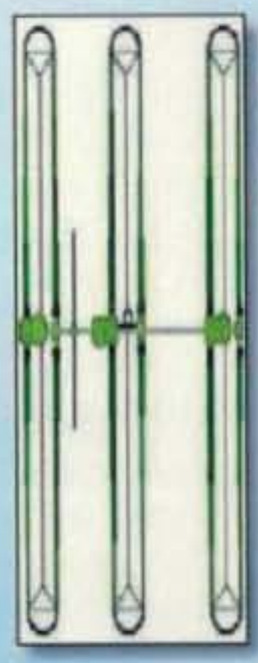
The Dream Beam series offers antennas for both space limited Hams as well as the "Big Guns" who have the space and want the very best.



DB11 Yagi Antenna
DB11 Yagi, 18.5 ft element length, 11 ft boom, 10.8 ft turning radius, 61 lb, 5.9 sq ft wind load; 2 active elements on 20m; 3 active elements on 17, 15, 12, 10, 6m.



DB18 YAGI
Dreambeam DB18 yagi, 3 el on 20m-6m, 2 el on 40/30m, 18 ft boom; Does not include optional 6m passive element kit; Includes SDA100 controller.



DB18E YAGI
Dreambeam DB18E, 3 el 30m-6m, 2 el 40m, three looped elements, does not include optional 6m passive element kit, 18 foot boom; Includes SDA 100 controller.

Vertical and Dipoles

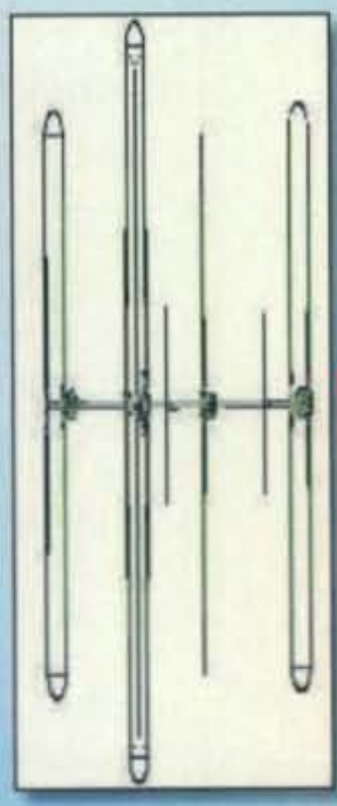
For the ham who may not have a tower, but a tree or two for a dipole. SteppIR verticals work great when there are no tall structures around to hang some wire. And, the low take-off angle can be your friend.

BigIR Vertical Antenna, 40m-6m
BigIR vertical antenna, 40m-6m continuous coverage, 32 ft length, 15 lb total weight, 2 sq ft wind load; EIA 222C wind rating when guyed; Comes with SDA 100 controller and 1.5"mounting pole ; Does not include optional 80m coil.

SmallIR Vertical Antenna 20m-6m
20m-6m continuous coverage, 18 ft total length, 12 lb weight, 1 sq ft wind load; EIA-222C wind rating without guys.

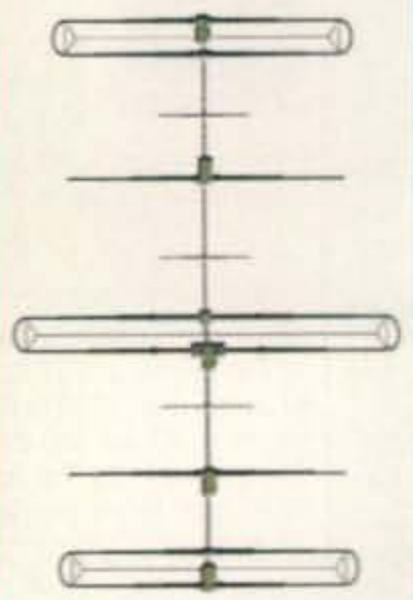
20m-6m Dipole
20m-6m continuous coverage dipole; 36 ft element length; Comes with SDA 100 controller.

40m-6m Loop Dipole
40m-6m continuous coverage, 39 ft total length; SDA 100 controller included.



DB36 DreamBeam Yagi, 40m-6m
DreamBeam DB36 4 element Yagi, 40m-6m continuous coverage; 36ft boom, 48 ft longest element, 26 ft turning radius, 17.5 sq ft wind load, 160 lb; SDA 100 controller included.

NEW!!
DB42 MonstIR PRO 5 Element Yagi
40m-6m continuous coverage, 80m dipole option available; includes SDA100 controller and connector junction box



SteppIR

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Steve, GW4BLE, shown here with his Chiltern DX Club trophy. The CDXC Cup is awarded to the leading UK single operator in the CQ WW DX SSB Contest by the CDXC (The UK DX Foundation). After a decade or more of single-op all-band entries, Steve bowed out of that category in the 2009 contest and received the cup at the 2010 RSGB HF Convention. The Chiltern DX Club supports both contest and DX enthusiasts. The club is a major player in the upcoming T32C Christmas Island expedition as well. (For more on that, keep posted in CQ's "DX" column by N4AA.)

station will help them know what will work and what won't. Knowing how to set up a station will help them do so when time is critical and lives depend on it.

Battle-Tested Gear

Contesters are continually searching for equipment that will stand up to the rigors of the contesting competition. Their gear must be reliable and able to withstand high-duty-cycle operation. EmComm has similar requirements. Radios must work when needed and be able to tolerate long hours of action. Contesting helps develop the habit of creating checklists of things needed, things to do, and future improvements. This is a desirable trait for the EmComm op as well. A well-stocked "Go Kit" is the first item grabbed on the way to an emergency. Creating, maintaining, and improving that "Go Kit" is an important job. It should contain backup gear as well in case the primary stuff breaks. Contesters have similar needs, as having to spend time during the middle of a contest to go out and replace a broken piece of equipment takes away from making contacts and increasing a score. In an emergency situation, a broken piece of gear could keep a message from being passed that could cause hardship, delay, or worse.

Hours in the Chair

The accomplished contester becomes comfortable operating for long stretches at a time. This endurance is an important contributor to increasing the score. Staying on the radio is even more important during an emergency. The primary operator may not even have a backup in really bad situations, and stamina may be critical to save lives and property.

Operating contests help develops the persistence needed to stay on the air under less than ideal conditions. Seasoned veterans learn to pace themselves to minimize off-time. The best operators have an eating and drinking strategy and look at major contests like runners view a marathon. They train for survival and develop staying power to capitalize on-air time.

Constant Training and Readiness

Many contesters view the period from September to May as "contest season"

N2GA Honored by ARRL Hudson Division

CQ Contest Editor George Tranos, N2GA, has been named ARRL Hudson Division Amateur of the Year for 2011. In addition to writing this column, George is past Section Manager of the ARRL New York City/Long Island (NLI) section and currently serves as the section's State Government Liaison; is a long-time committee member and past chairman of Ham Radio University, and is a three-time participant in the World Radiosport Team Championship (WRTC). Congratulations, George!—*the editors*

and plan for it in advance. To prepare themselves, they make station improvements during the off-season and then try to schedule their operating events. They operate frequently to keep in condition. Continually training, their ears become accustomed to being on the radio and thus they stay in prime readiness for the next event.

This is just as important for EmComm personnel, as they must be ready to go when the situation arises. They can stay in radio shape by operating frequently. Contests, public-service events, and directed nets are great training and can keep the skills fresh for when they are needed most.

Synergy

Emergency communications training is an important part of being ready for the real thing. Humans tend to revert to their training when an emergency arises and we are pressed to respond. That response may be critical to the public and to our own family during a disaster.

Operating ham radio contests will help you continually train and be ready. Both contesters and EmComm operators must have good listening ability and be able to quickly and accurately pass messages. Both must learn how to set up radio stations and antennas, and have reliable equipment and backups on hand in case of breakdowns. Operators must develop endurance to stay on the air and practice regularly to maintain and increase their skills.

There is synergy between the two disciplines and overlapping knowledge and skills. Being a good contester can help you become a better emergency communications operator and vice-versa. If you're serious about emergency communications, give contesting a try. It will help you be ready "when all else fails."

73, George, N2GA

qrp

BY CAM HARTFORD,* N6GA

A Couple of New QRP Gems

New QRP radios keep coming down the pike. This month we take a look at a new kit and another new ready-made rig from China, by way of MFJ Enterprises.

SS-40 Receiver

In the last couple of years the Four State QRP Group (www.4sqrp.com) has offered some interesting and innovative kits. The NS-40 transmitter kit comprised a circuit board that is slightly larger than a QSL card, a small bunch of parts, and a clean 5-watt output after just a couple hours' work. The most notable feature was that the inductors were etched onto the board, making it a joy to build if you suffer from toroid-phobia.

About a year ago the club followed the NS-40 with its Magic Box, a kit designed to do the switching chores when you wanted to use the NS-40 with a separate receiver. Jim Kortge, K8IQY, designed the Magic Box so that just about any QRP transmitter could be interfaced with any receiver. The result was clean and simple QSK operation with any two separates.

Now the Four State club is offering the SS-40 receiver, another K8IQY design. The "SS" in the receiver's name stands for Stable and Sensitive, which this receiver definitely is. The stability comes from a stable VXO used as the frequency-determining oscillator. This is no ordinary VXO, however. It's a wide-range VXO which employs three crystals in parallel to widen the tuning range. Most VXOs are able to squeeze a few Hz out of a crystal. This one, according to the literature, "tunes 25-30 kHz of the band including the two QRP watering holes at 7030 and 7040 kHz." When I finished building and aligning mine, it tuned from 7019 to 7044, so indeed the segment of 40 CW I use the most was well covered. Also, having built and tried to tame some wide-range VXOs in the past, I was impressed by the unit's stability. From a cold turn-on, it sits quite still with no perceptible drift. The VXO is tuned by a varactor, so you get about 25 kHz spread in one turn, making tuning slow and smooth.

As to the sensitivity, my lab doesn't contain the gear necessary to make the needed measurements, so measuring by ear I can say that everything I can hear with my K2 I can also hear with this receiver. At the other end of the S-meter, strong signals are handled with an audio-derived AGC. A drawback to most receivers with audio-derived systems is that the leading edge of the first code character creates a pop before the system catches up, and this receiver is no different. However, once you're into a word or sentence, the AGC handles the strong ones well and saves your ears. Most receivers in this price class don't even have AGC, so you're dependent upon having quick fingers on the gain control to save your ears while

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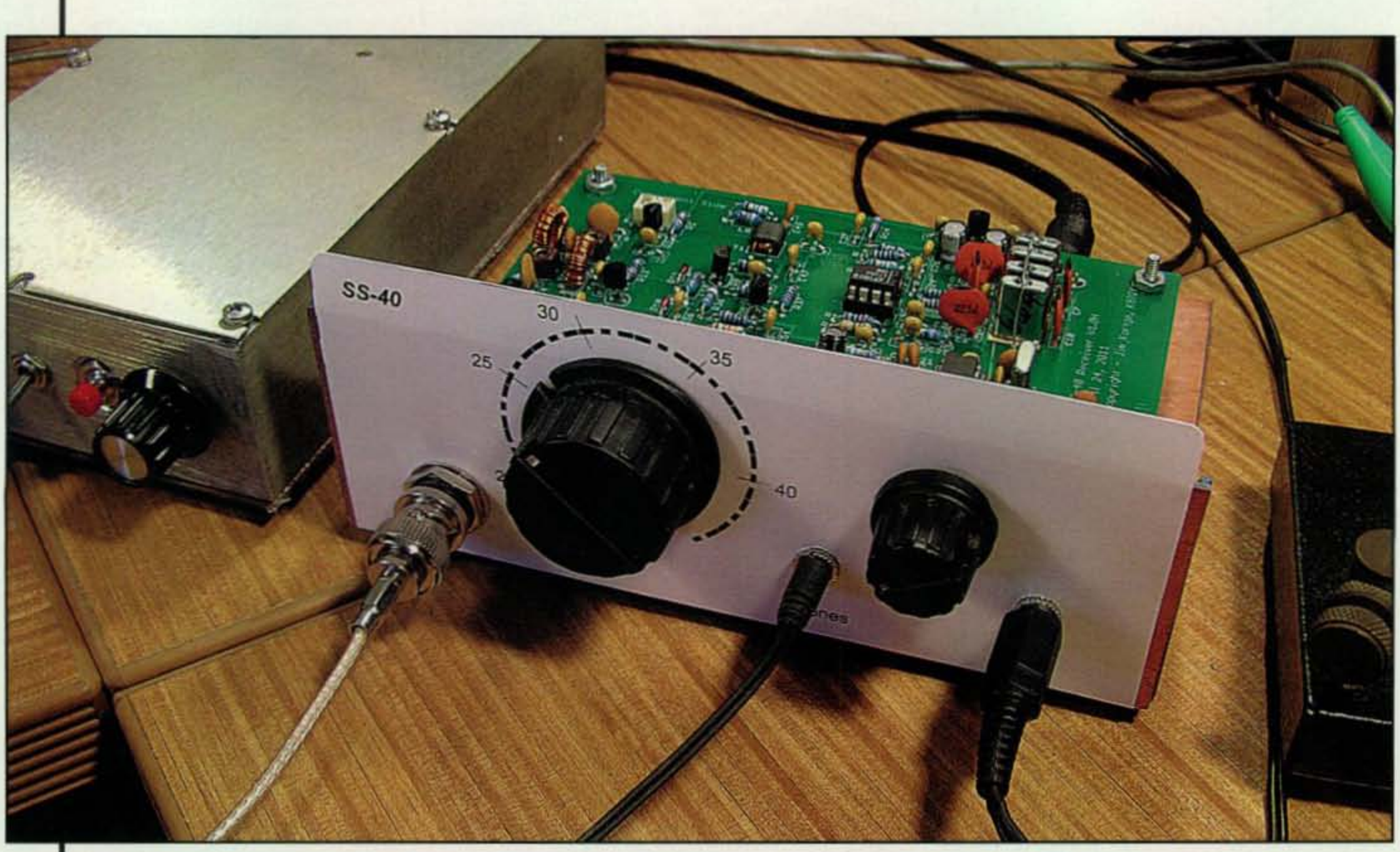
e-mail: <qrp@cq-amateur-radio.com>



The Four State QRP Group's SS-40 receiver, mounted in an N6GA Quickie-Almost-Box.

tuning across the band. Interestingly, I discovered that the cheap earbuds I was using were contributing to the problem, and a change to some real headphones cleared up most of the grunge I was attributing to the receiver's AGC.

Selectivity comes from a four-pole crystal filter in the IF strip. The literature says the passband is 500 Hz, but my example seems a bit wider. This presents absolutely no problem for me, since I prefer a slightly wider CW filter passband, especially when tuning the band and operating casually.

When you are using a separate receiver and transmitter, receive muting can be a problem. Anticipating this, K8IQY included a muting circuit in the receiver audio that is accessible from a jack on the front panel. Good thinking! In the accompanying picture you'll see the SS-40 receiver wired to a homebrew CW transmitter. This transmitter has a muting output from its keying circuit that I can plug directly into the SS-40's Mute input. This cuts off the receive audio during key-down, so QSK is easily and very cleanly accomplished. I also interfaced these two units with the Four State Magic Box and that's a combo that makes really sweet CW music!

This kit was easy to build and get going. All the parts are through-hole, and all the connectors and controls are mounted on the board so there's no flying wiring to deal with. The one downside to having the controls and connectors mounted on the board is that if you are going to mount the board in an enclosure, you have to be pretty steady with the drill or have a well-appointed shop. Either way, it presents you with a good opportunity to show off your mechanical construction skills!

This would be a good kit for a first-time builder. The step-by-step instructions are logical and well-illustrated. After every build section there's a test section so the builder can be assured the final product will work when finished.

It's a receiver that is aimed at a very narrow slice of the ham radio spectrum, that being the 40-meter CW band, and more specifically, a very narrow slice of that band. *Bottom line:* It hits that target dead on with good performance in the areas that count.

MFJ-9200

About the time I was wrapping up the review of the Ten-Tec R4020 for last time's column, along came the MFJ-9200. The coincidence is such that without any other info in hand, I'd have to say that these two rigs were punched out of the same mold. At the minimum they appear to be designed by the same hand and manufactured in the same country.

Just by chance, as I was signing off at the end of a 40-meter CW QSO I was called by Vic, WA6MCL, who lives about 20 miles from me. He said he had just ordered an MFJ-9200 and was awaiting its delivery. Vic does lots of camping and likes to take along a rig. He was looking forward to being able to use the MFJ both barefoot and driving a Ramsey 20-watt amp. I had to see this rig in person, so we arranged a meeting at a local swap meet a couple weeks hence.

The appointed day came and we set up shop in the swap-meet parking lot. I brought a mag mount and Hamsticks for 40 and 20 meters. Vic brought the radio. My first impression was that it's quite a bit smaller that the Ten-Tec. The Ten-Tec has a battery pack inside which accounts for the main difference in their sizes. Looking at the general layout of the rigs, the visual clues are pretty compelling. One notices that the connectors are in roughly the same locations, as is the On-Off switch. The display on the MFJ rig is smaller and provides slightly less information, but it has a backlight which can be controlled from the push button marked "BL." The rest of the buttons do pretty much the same things on the two rigs and the tuning works the same, with three tuning speeds available.

In the swap-meet parking lot we wired up the radio to my roof-mounted antenna for a hands-on trial. Twenty meters was dead as doornail, so we switched to 40 and didn't have much luck there either. The band modules are pretty easy to change. The back of the box is held on by two thumb screws. Once you've removed it, it's a simple matter of pulling out one module and popping in the new. Forty meters had just a few weak signals, nobody I could even get a signal report out from. However, it did allow me a chance to twiddle the knobs, key the rig, and listen to the T/R turnaround. It was quick and smooth, just like its TT sibling.

I can't say for sure that these two radios are electronic equivalents, but they sure look and play very similarly. If a person were in the market for one of these rigs, the decision would hinge on a couple of things. The TT is a two-bander and can carry its batteries inside the

MFJ's latest entry into the QRP radio field, the 9200.

box. The MFJ is a monobander, but for about $30 a pop you can buy additional band modules. It also needs an external power source. Either way, you would get lots of performance and features in a small box.

Going Stealth

One recent evening I ran into Rob, KA6JLT, calling "CQ QRP" on 40 meters. He had a pretty good signal, so I gave him a shout. It turns out that Rob was running a stealth station from his apartment using an indoor antenna. He has a cabin up in the Sierras with plenty of tall pines for holding up his real antennas, but at home in his apartment during the week he was pretty much off the air.

Rob is not a die-hard QRPer, but rather came to the mode through a desire to get on the air from the apartment. In an e-mail he wrote: "The impetus to even try operating HF was the demise of Analog TV. I thought I would give HF a try. I was very skeptical myself and the solar flux was around 67! The first time I tried operating from this apartment, I connected about 20 feet of magnet wire to the random-wire terminal on the back of a Murch roller-inductor tuner. I ran the wire along the floor in more-or-less a straight line. I connected an Icom IC-745 to the input of the

MFJ-9200 with its back off, ready for a band change. The board to the right is one of the band modules.

tuner using a two-foot RG-58 jumper. I disregarded the Murch instruction manual, adjusted the tuner for minimum SWR in the 20-meter phone band, tuned around, and called a station that was just ending a QSO (15 watts) and got a 5 by 5 report!"

Quite frankly, I was surprised at how good Rob's signal was, considering the limitations of his antenna and power level. I shouldn't have been, since I got interested in QRP for the same reason, trying to operate from a dorm room, then later from a series of apartments, some with better success than others!

Here's a rundown of Rob's current station: "The station I am running now is an Icom IC-761 (I like the receiver) to an MFJ-989D Versa Tuner. (It seems as though pretty much any tuner with a roller inductor works.) The antenna is a random wire shaped like the letter "J." From the rig I use a 5-foot length of RG-8 to the tuner. Out of the back of the tuner I run a 14-gauge wire, nearly straight-up, to a door jamb. From the door jamb, I ran 23 feet of RadioShack magnet-wire along the ceiling (28 gauge) straight to the next wall (a 90-degree turn to the right) and then a 14-foot *length along* this wall, then another 90-degree turn, 16 feet coming back parallel to the 23-foot run, another 90-degree turn and a six-foot run. At the end I hang the spool that the wire came on and change the length of this 'dangling-section' from about one foot to the floor depending on what part of a band I'm in. Very ad-lib, 'willy-nilly' fashioned.

"This antenna arrangement is now a permanent fixture; however, it took a lot of empirical effort to find the best performance. This antenna is attached to the ceiling using 'T-Pins' for anchoring and rubber bands for insulators. The wire passes very close to A/C ducts, the main circuit-breaker panel, and a sliding-glass door frame, among other technical 'no-nos.' I was getting small RF burns from my paddle when on 30 meters, so I connected a 25-foot piece of wire to the back of the rig, placing it around the baseboard. No more problems."

Stealthy New Book

About the same time I was trading stories with Rob, I ran across a new book on the subject by *CQ*'s sister publication *Popular Communications* ham radio columnist Kirk Kleinschmidt, NTØZ. Kirk's book, *Stealth Amateur Radio*, is available from his website, <www.stealthamateur.com>. I downloaded the .pdf version which now resides on my Netbook. As I'm writing this, Kirk is at work doing the necessary editing to make the book also available in the Kindle format.

My first reaction to the book was that the author spent quite a bit of time in the early chapters discussing antenna and operating basics, things we already know about. However, as I read on it occurred to me that many readers of this book might be fairly new to the hobby and might have missed some of this information in their licensing studies. For those of us who've been around a while and "know everything," a good refresher course applied periodically can bring us back up to speed and back to reality (myself definitely included!).

My interest in this book was also driven by the fact that my wife and I were contemplating moving to a condominium. Thankfully, clearer thinking prevailed and we dropped the plan, but this book would have proven very helpful if we'd gone ahead. The list of topics covered includes things such as Encroaching Reality, CC&Rs, Interference (both to and from your radio), Safety, Radio in Motion, Alternative Antennas, and a whole raft of items I hadn't spent much time thinking about. So it turns out this book would be useful to a large segment of the radio population, including me!

Sign Off

Looking ahead, we're working on a segment aimed at homebrewing QRP radios. By homebrewing I mean things other than kitbuilding. Therefore, if you know of any good sources of info on homebrewing or have made something you want to share with the group, please let me know.

Thanks and 72/73, Cam, N6GA

Kit-building

BY JOE EISENBERG,* KØNEB

Resistance is Futile

It is time to take a closer look at techniques to have a better chance of success in kit-building. In past columns, I have touched on the proper handling of components. This time, I will go into a bit more detail and explore the best ways to handle the common parts in our kits to minimize any chance of problems.

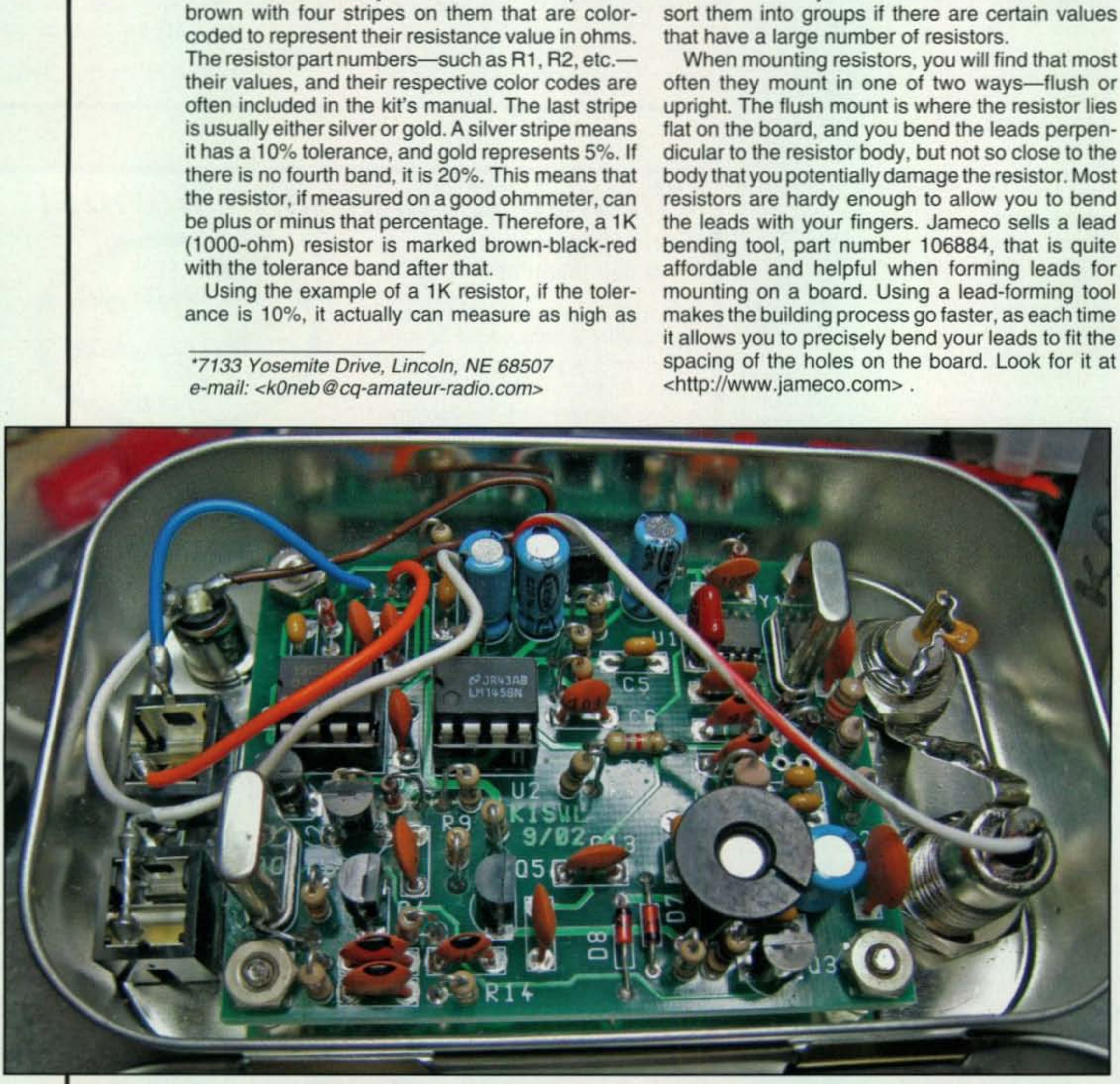
By far, the most common parts found in kits are resistors. Resistors come in different wattage values and different degrees of precision. The physical size of a resistor denotes its power capability in watts. The most common ones in kits are of the 1/4- or 1/8-watt variety. Most resistors are painted brown with four stripes on them that are color-coded to represent their resistance value in ohms. The resistor part numbers—such as R1, R2, etc.—their values, and their respective color codes are often included in the kit's manual. The last stripe is usually either silver or gold. A silver stripe means it has a 10% tolerance, and gold represents 5%. If there is no fourth band, it is 20%. This means that the resistor, if measured on a good ohmmeter, can be plus or minus that percentage. Therefore, a 1K (1000-ohm) resistor is marked brown-black-red with the tolerance band after that.

Using the example of a 1K resistor, if the tolerance is 10%, it actually can measure as high as 1100 ohms or as low as 900 ohms and still be within specs. More precision resistors are 1%, and those usually are painted light blue with the stripes color coded like the other types, but have an extra brown stripe signifying 1%. Precision resistors are common in kits that perform some sort of measurement such as an SWR measuring device. They also are more common in some oscillators to assure the proper frequency and component performance.

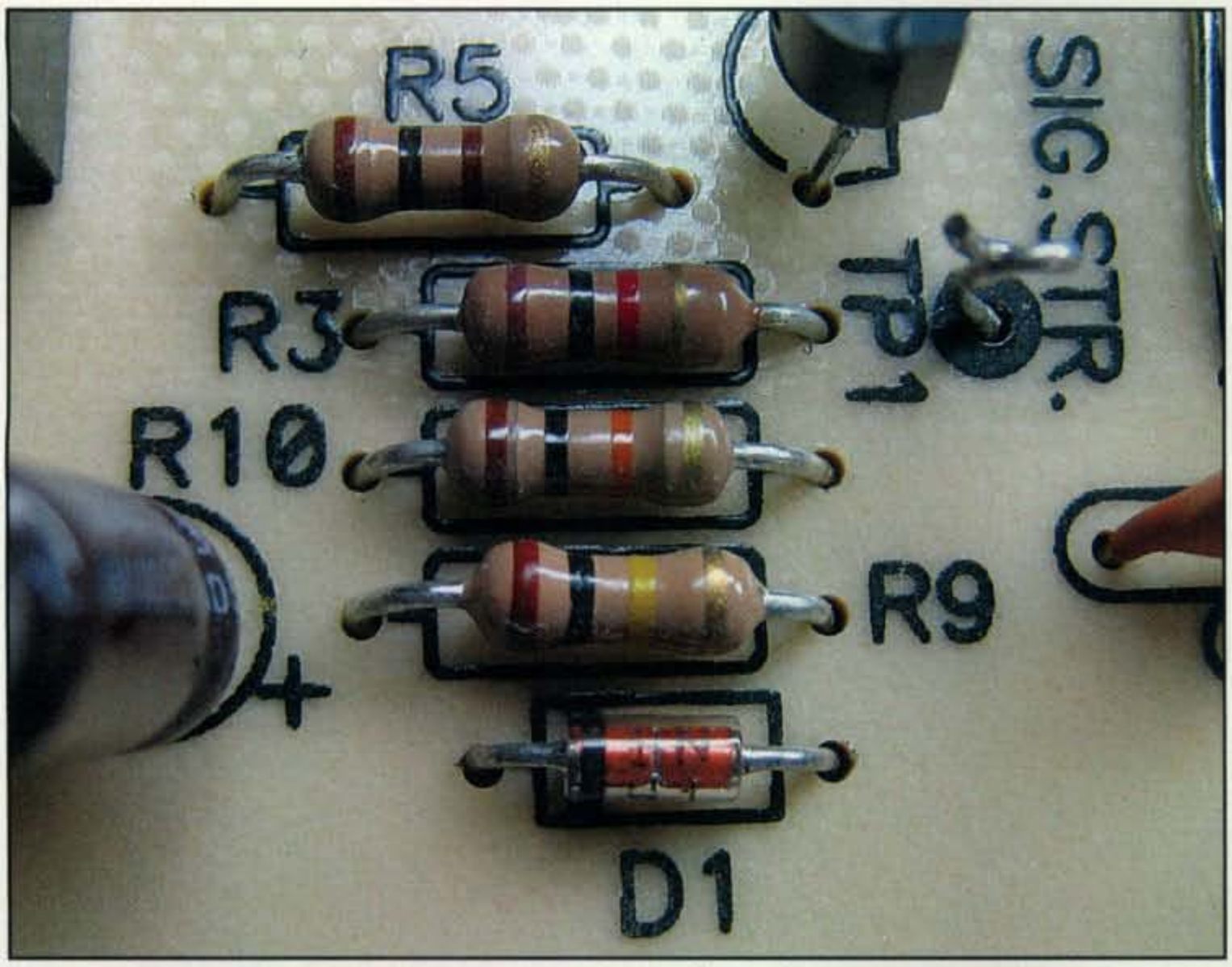
Some builders like to sort their resistors in order of their value or in the kit's part-number order. A complete resistor color-code chart can be found online or in many radio handbooks. I sometimes sort them into groups if there are certain values that have a large number of resistors.

When mounting resistors, you will find that most often they mount in one of two ways—flush or upright. The flush mount is where the resistor lies flat on the board, and you bend the leads perpendicular to the resistor body, but not so close to the body that you potentially damage the resistor. Most resistors are hardy enough to allow you to bend the leads with your fingers. Jameco sells a lead bending tool, part number 106884, that is quite affordable and helpful when forming leads for mounting on a board. Using a lead-forming tool makes the building process go faster, as each time it allows you to precisely bend your leads to fit the spacing of the holes on the board. Look for it at <http://www.jameco.com> .

*7133 Yosemite Drive, Lincoln, NE 68507
e-mail: <k0neb@cq-amateur-radio.com>



Small Wonder Labs RockMite in mint tin. Notice most of the resistors are mounted upright.



Resistors aligned so that the color codes can easily be read along with a diode.

When mounting resistors, I tend to position them so that all of them that are aligned from top to bottom on the board are arranged so the color code begins at the top and ends at the bottom. The left-to-right facing resistors are placed so the color codes go from left to right. This method makes troubleshooting a lot easier. By doing it this way, you take advantage of the fact that resistors are not polarized and you always know which way to look to quickly read the value of the resistor.

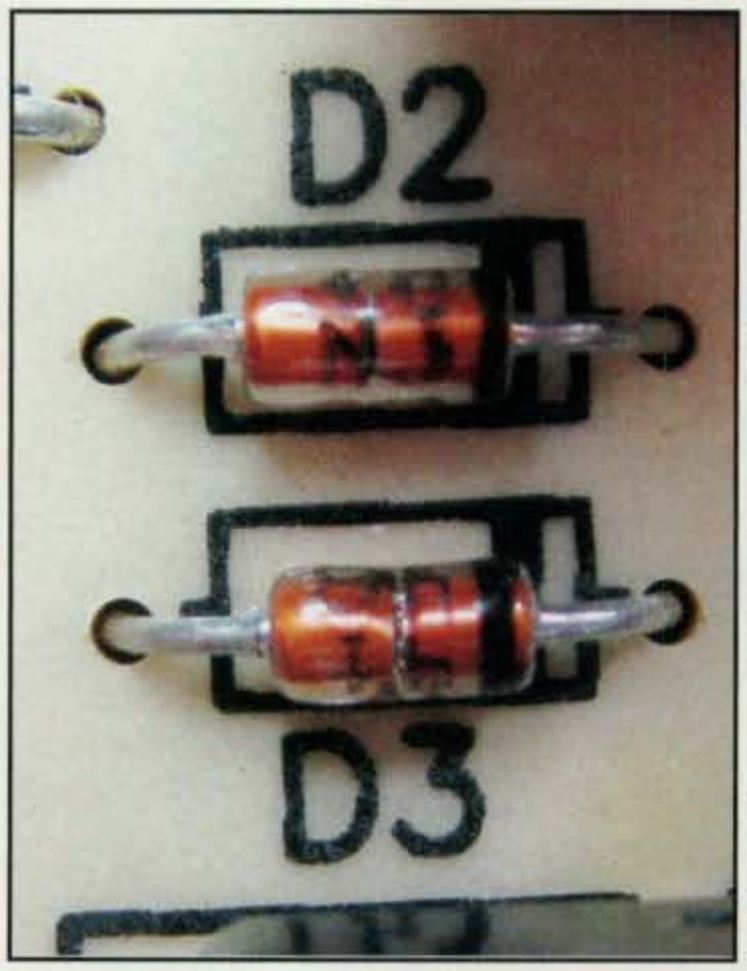
The other way to mount resistors is upright. This method is often used to maximize the number of components that can fit on a board. Often there is a circle around a hole, representing the body of the resistor, and a thin line going to the adjacent hole on the board for the other lead. When I have a "hairpin" or upright resistor to mount, I always position it so that the color code is read from top to bottom. By following this convention, again it makes troubleshooting a lot easier. When mounting upright resistors, be careful not to bend the lead too close to the body and stress the connection inside it.

Some kits, including dummy load kits and some power supplies, require you to mount a higher power resistor at a distance off the board. This is to aid in dissipating heat, which is given off by the resistors during use. Be sure to mount them away from the board the exact distance specified. Some larger wattage resistors are not round in shape and have their values printed on the side of the case. These higher power resistors also often are mounted with a gap between them and the board to prevent their normal heating from damaging the board below it.

When troubleshooting a non-functioning kit, always look to see if a resistor is unusually hot or discolored, due to dissipating too much power. If in doubt of a resistor's value, a meter is always a fast way to see if it is within tolerance.

Diodes also are an interesting component to mount. Since they only pass current in one direction, correct placement is essential to the success of your kit. A common diode found in kits is the 1N4001, a black-plastic-cased diode that is most often seen in power-supply circuits to prevent reverse-polarity damage. These and similar diodes often feature a slightly thicker gauge of wire and are still relatively easy to bend by hand or in a jig. Since diodes can have a wide variety of specifications and purposes, they have a part number printed on them. It can be difficult to read those tiny numbers, so a lighted magnifying glass is helpful.

More commonly seen in kits are smaller glass-body diodes such as the 1N914. These diodes easily can be broken when bending the leads, so a special technique is in order. I often use a sharp-tipped needlenose pliers to hold



Two diodes with the stripes aligned with the markings on the board.

the diode near its body and then use a finger or another needlenose to bend the lead down. This method prevents stressing the glass portion of the component and only allows the wire to bend.

When mounting a diode, you must pay careful attention to both the instructions and the markings on the board. The position of the stripe is often marked on the board. In the case of upright mounting, it can vary among kit designers as to whether the part is placed with the stripe up or down. Once again, like the resistors, look for the circle printed around a hole and a wire lead to the other hole and often a diode symbol printed next to it. The flat line in the symbol signifies the position of the stripe.

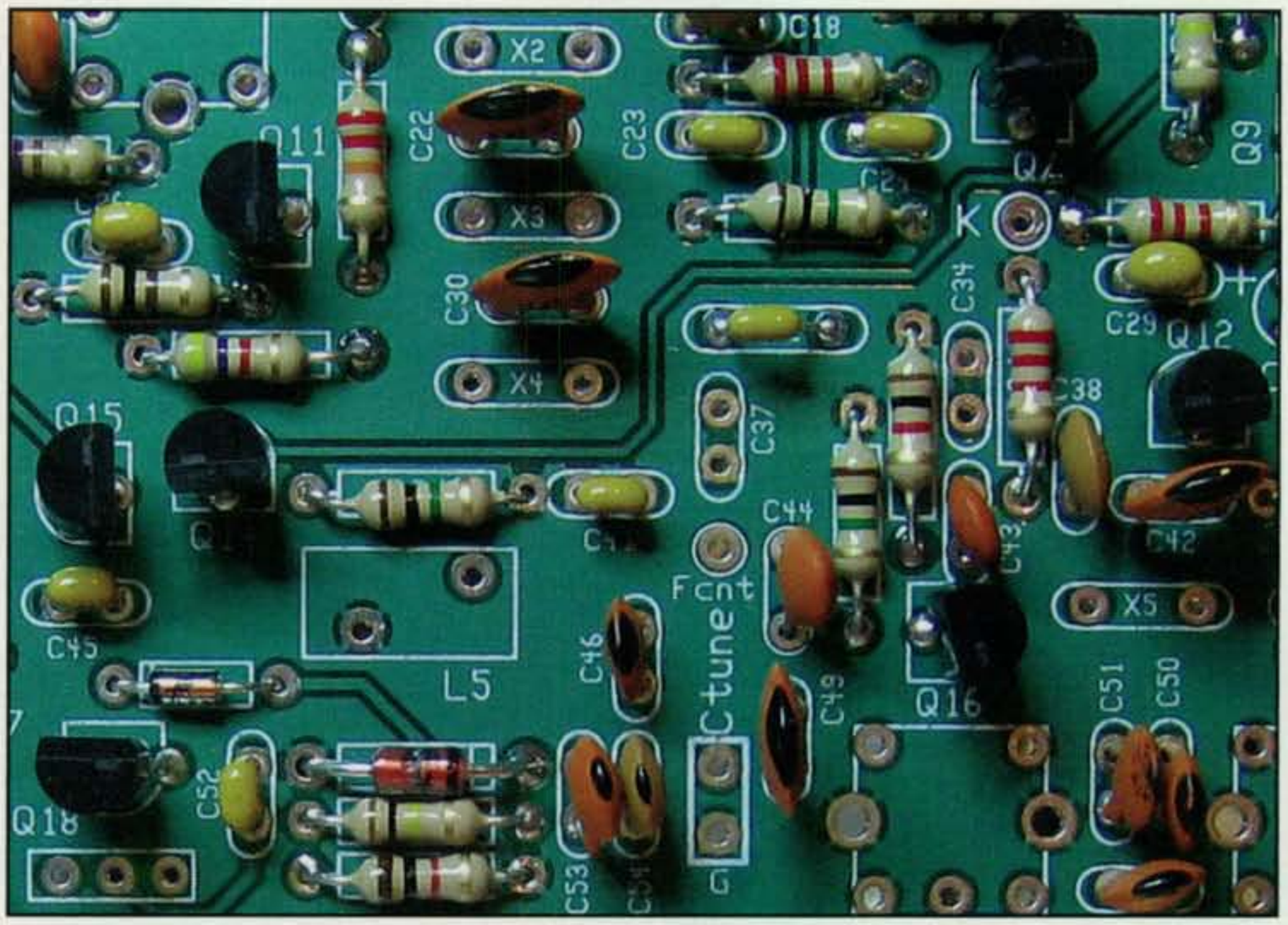
I try to mount diodes so the majority of the part number can be read from the top. Many diodes have the number printed completely around the body, making it hard to read it all after mounting. It does no good to hide the number on the bottom against the board, so I position the numbers so the part I need to see the most is visible. An example might be if it is a 1N914, it probably is best to show the "914" part, as most diodes have "1N" before the number. I'll cover more types of components in future installments of this column.

In Closing . . .

During a recent visit to a local RadioShack store, I saw a couple of low-cost and simple Velleman kits on the shelf. With RadioShack's recent inquiry into the DIY (Do-It-Yourself) community's needs, the appearance of some simple kits that are suitable for a beginner is a good start toward the re-emergence of RadioShack as a place to buy kits and parts. Its research indicated a strong interest in Arduino kits (www.arduino.cc/), which are small microcontrollers that can be programmed by the builder to perform many tasks.

With the fall months here, it is time to clean off the bench and prepare for a long, fun fall and winter of building!

Until next month . . . 73 de KØNEB



Board with resistors uniformly positioned for easy reading of color codes both vertically and horizontally.

After the Big Dayton Party

BY JOHN WOOD,* WV5J

It seems like everybody can remember almost precisely what they saw at the big party after the big party was over. In this case, the big party I refer to was the Dayton Hamvention® 2011. Hamvention attendees tend to talk about what they did and what they saw, which is exactly what we did in our recently completed two-part Hamvention® New Product Safari published in the August and September issues of *CQ*. However, now we can ask the current question: Do they remember what items they were introduced *after* the big party? I guess we need to show those after-party new products first, the ones that maybe weren't shown to the public at this year's Hamvention® but are primed and ready to be seen for the first time in this, our October "What's New" column. Okay, so we'll do that first, and then we'll ask questions later.

Photo A– K4AVU has brightened your world and his with an improved 303 stainless steel version of the Coax Crimper.

A New and Improved Coax Crimper

K4AVU tells us that now there is finally a practical alternative for those of us who struggle to solder the shield connections on standard PL-259 coax cable connectors. His new product, the K4AVU Coax Crimper, which we first introduced in this column some months back, fits around the part of the connector where the solder holes for the shield are located and crimps the body of the connector firmly in place. The product has now been improved but the idea is basically the same (photo A): Simply solder the center pin connection, twist on the connector's coupling ring, and you're good to go.

The K4AVU Coax Crimper works with nearly all varieties of 1/2-inch diameter cables, as well as when using standard UG-175 and UG-176 reducers for smaller coax cable types, such as RG-58, RG-59, and RG-8X. It also works well with LMR-400 cable. The new and improved crimper is machined out of bright and shiny 303 stainless steel. Its dimension are $2\frac{1}{2}" \times 1\frac{1}{2}" \times \frac{5}{8}"$.

For more information, contact Paul Marsha, K4AVU, 200 Garden Trail Lane, Lexington, SC 29072. Products and ordering can be viewed on the website <www.k4avu.webs.com>.

Photo B– Telemakus has released its first Millimeter Wave product, the TEG26500-5 Synthesized Signal Generator with USB port.

Telemakus Wave Synthesized Source

Telemakus has announced the release of its first Millimeter Wave product, the TEG26500-5 Synthesized Signal Generator (photo B). This USB-controlled signal generator adds to the growing family of low-phase-noise-generator products in the Telemakus test-equipment family.

Operating from 24 to 26.5 GHz with +5 dBm output power, the TEG26500-5 offers –85 dBc/Hz phase noise at 100 kHz offset and a minimum step size of 1 kHz. The RF connector is 2.92 mm (K) female, and the DC/control connector is USB type A. Flash memory contains all necessary installation files for Windows® XP or Vista. Weighing less than 1 oz., this generator is one of the smallest on the market and can be carried in a pocket or a tool box.

For more information, contact Telemakus Stocking Distributor at RFMW, Ltd., 90 Great Oaks Blvd. #107, San Jose, CA 95119; call 408-414-1450; send an e-mail to <info@rfmw.com>.

A Nifty New Product from Nifty! for the Kenwood TH-D72A

Nifty! Ham Accessories recently added the TH-D72A Mini-Manual and Folded Reference Card to its series of quick reference guides that give amateurs condensed, handy, and easy-to-understand operating instructions for the dual-band, dual-receive, EchoLink, GPS, APRS, wireless remote, and many other capabilities of Kenwood's latest VHF/UHF transceiver, the D72A.

The radio's different modes of operation, controls and setup menus are fully described. Lightweight, water-resistant and color-coded for

*1870 Alder Branch Lane, Germantown, TN 38139
e-mail: <wv5j@cq-amateur-radio.com>

quickly finding needed information, the Mini-Manual is a convenient memory jogger for instantly recalling how to set up and operate the TH-D72A transceiver.

The Mini-Manual is 20 pages, 4.5" × 8", printed in color, and laminated for durability. The tri-folded reference card covers the basics and can be carried in a wallet so it's there when you need it. The Mini-Manual and wallet card come as a set and list for $24.25. For further information visit <www.niftyaccessories.com> on the web; Nifty! Ham Accessories, 1601 Donalor Drive, Escondido, CA 92027; or call 760-505-6537.

Mini Operating Manuals

ManualMan, owner of Nifty!, is like many companies searching to find profitable niche markets in today's economy. To that end, ManualMan is now striking out into unexplored territory with the release of its mini operating manuals for the popular Flex-1500 and Flex-3000 software-defined radios from Flex Radio Systems. These diminutive manuals, half the size of the typical manuals, come with a coil-type binding that allows the book to lie flat on a surface such as a tabletop. Being small, they should be easier to carry along on a DXpedition or to a Field Day site.

For details on these manuals, visit <www.manualman.com>; contact ManualMan, 27 Walling Street, Sayreville, NJ, 08872 ;or call 732-238-8964.

A New Kit From Xtal Set Society

The Xtal Set Society tells me that the inspiration for its new QRP 5-Watt Step-Attenuator and Dummy Load Kit was its enthusiasm for low-power communication.

With the power step-attenuator inline between your transceiver and antenna, you can reduce the output power to your antenna in steps and ask the station in contact, "Can you copy now?" or "QCN?" You'll be able to see how low in power you can go and still maintain contact.

In order to continue to hear the other station as power is attenuated, a bypass switch is provided for reception and/or full power operation. Three –6 dB and one –3 dB power attenuator pads are provided, allowing you to reduce five watts in 15 half-power steps to as low as 0.2 mW. A 5-watt dummy load is included and may be engaged instead of the antenna load for bench work or comparison with antenna. An LED power indicator, adjusted to emit light at or above about 40 mW, samples the output of the line of attenuation pads and can be used with the pads to provide a rough estimate of transmitter power.

Maximum power into the attenuators is 5 watts (i.e., at QRP max). The full kit includes all needed parts and a case. The tools you'll need to supply are pliers, screw drivers, solder, soldering iron, masking tape, drill, and 9/32-, 5/32, and 1/8-inch drill bits. Assembly time is said to be less than one hour for the regular builder.

The QRP SADL kit sells for $49.95, the QRP SADL kit without case sells for $41.95, and the QRP SADL kit with PCB and manual only sells for $24.95. Orders may be placed or additional information obtained via the Xtal Set Society website catalog at <www.midnightscience.com> or by phone at 405-517-7347.

NHRC-3.1 Repeater Controller

NHRC of Pembroke, New Hampshire, is ready to tell the amateur radio world about its latest product, the NHRC-3.1 Repeater Controller (photo C), which features stored speech. The newest in the company's series of repeater controllers and accessory products, this 3.1 unit improves on the previous NHRC-3 and NHRC-3+ models by including free Windows®-based serial programming, an alarm input, NHRC's unique audio test function, active-high and active-low inputs, two digital outputs, and two courtesy tone select inputs.

The repeater controller is programmable by sending DTMF sequences over the air or with NHRC's free Windows®-based programming software. Functions such as CW ID, hang time, ID timer, timeout timer, and tail message counter can be programmed through an off-site transmitter. Real speech and other messages can be recorded over the air and all programming is password protected.

The NHRC-3.1 sells for $179 and is available now from NHRC. For more information, visit NHRC on the web at <www.nhrc.net>.

"The Last BIG Field Day"

Our friends over at Amateur Radio Video News, or ARVN, tell me it's time to warm up the flat screen, pop some popcorn, gather the gang, and prepare to experience a whole new Field Day.

ARVN is talking about its newest video production, "The Last BIG Field Day" on DVD, a 41-minute documentary covering the operation of W3AO, a combined effort of the Potomac Valley Radio Club and the Columbia Amateur Radio Association, both from Baltimore, Maryland.

Producer Gary Pearce, KN4AQ, tells me that the callsign W3AO has occupied the top spot in the ARRL Field Day "Top Ten" box every year since 1999. This video for ARVN tells the story of the 2004 effort and how this organization coordinates the operation of fifty or more stations to score lots of points in the annual Field Day exercise held every year in

Photo C– NHRC has come out with version 3.1 of its repeater controller whichcomes with stored speech.

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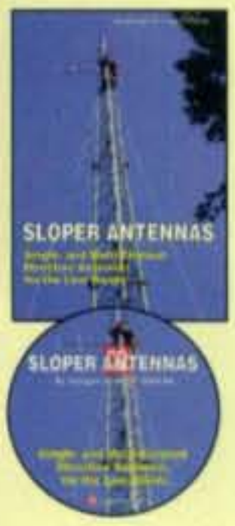

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June. The video is aimed at providing clubs with an interesting program and sells for $20. If you'd like to order this DVD for your group, visit <www.ARVideoNews.com>.

The Quad Lock by NN4ZZ

Locks are not necessarily the first thing you might find in a functioning ham station. However, considering what the folks at NN4ZZ have developed, a number of hams might soon be finding themselves to be owners of a QuadLock (photo D).

The QuadLock is a safety and convenience product for hams who use a cubical quad antenna. A problem that owners of a cubical quad antenna have is bringing the antenna down to near ground level for maintenance and adjustment. The three-dimensional shape of the quad antenna prevents lowering the antenna to ground level for installation or maintenance even if mounted on a tilt-over tower.

This usually means hams are forced to work from a tall ladder or rent a bucket truck. The QuadLock is a device that will let you tilt your tower all the way to the ground to work on the antenna, rotator, or tower. It works by letting the quad loops swivel out of the way. When the tower is in the operational position, the elements are locked into position. The locking mechanism is powered by gravity. No cables, bolts, or climbing is required to lock or unlock the elements.

The patented design focuses on strength, quality, and durability while using lightweight materials. All of the hardware is stainless steel to withstand years of exposure to the elements.

The QuadLock is another product from the maker of the NN4ZZ TiltPlate for Yagi antennas. QuadLocks are priced at $425 each. For more information, pictures, and video, visit <http://www.nn4zz.com/quadlock.htm>.

Photo D– The NN4ZZ QuadLock is a safety and convenience product for hams who use a cubical quad antenna.

Website of the Month

This Website of the Month comes from Lee Tingler, who makes the Solder Buddy. He tells me that Solder Buddy now has a new website at <http://solderbuddy.com>. Lee invites us to visit and view all of the variants of the Solder Buddy.

It's Question Time

Okay, get ready because it's question time, the questions I mentioned in the opening paragraph that I would be asking about the after-party items viewed in this column. Now without looking back (that would be cheating!), try to name as many of the new products in this column as you can. After no peeking(!), that includes the new and improved K4AVU Coax Crimper, the Telemakus Wave Synthesized Source, Nifty! Card for the Kenwood D72A, and the Mini Manuals for the Flex SDRs, the Xtal Set Society's new step attenuator and QRP unit, the NHRC-3.1 repeater controller, the ARVN video entitled "The Last Big Field Day," and finally, the Quad Lock. So how did you do? One-hundred percent, right? Well, then, it was a good thing I asked, wasn't it?

That's a wrap for this month's "What's New" column. So until November, 73 from Germantown, a suburb of Elvis Town (Memphis), and if you have a new product that you'd like to have featured in this column or if you have any questions for me, send me an e-mail at <wv5j@cq-amateur-radio.com>.

de John, WV5J

Note: *Listings in "What's New" are not product reviews and do not constitute a product endorsement by CQ or the column editor. Information in this column is primarily provided by manufacturers/vendors and has not necessarily been independently verified. The purpose of this column is to inform readers about new products in the marketplace. We encourage you to do additional research on products of interest to you.*

Spotting DX Stations

BY DON ROTOLO,* N2IRZ

Way back in the "Stone Age," when I was a young man with my new amateur radio license, finding stations to work involved a lot of listening. The internet hadn't been invented yet, and packet was still in its infancy. While U.S. stations seemed plentiful, I just can't imagine the effort necessary to earn DXCC (DX Century Club) or WAS (Worked All States). Surely there were untold hours of tuning around listening to static and those loud Texas stations, hunting for that barely audible exotic callsign, but as we all know, thousands of operators earned those awards back then.

For me, chasing distant (DX) stations and QSL cards wasn't all that interesting. I preferred (and still do) longer ragchews with someone loud enough for "armchair" copy. I didn't feel the need to work so hard at snagging a rare callsign, but admit that it was still a big thrill when I stumbled across one, like the time I worked Easter Island on 10 meters packet. As I recall, I didn't even think to ask for a QSL card.

Around 1988 when packet was peaking in popularity, DX Clusters were quite common. You would hear them on their user frequency—packet networks were still in their infancy—sending out the same DX spot lists to every connected station, essentially key down for dozens of minutes at a time. Packet, while free, was limited in both the number of users who could maintain a direct packet connection and the geographic area from which they could obtain spots. Of course, the more users you have, over a larger area, the more spots can be posted.

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e-mail: <n2irz@cq-amateur-radio.com>

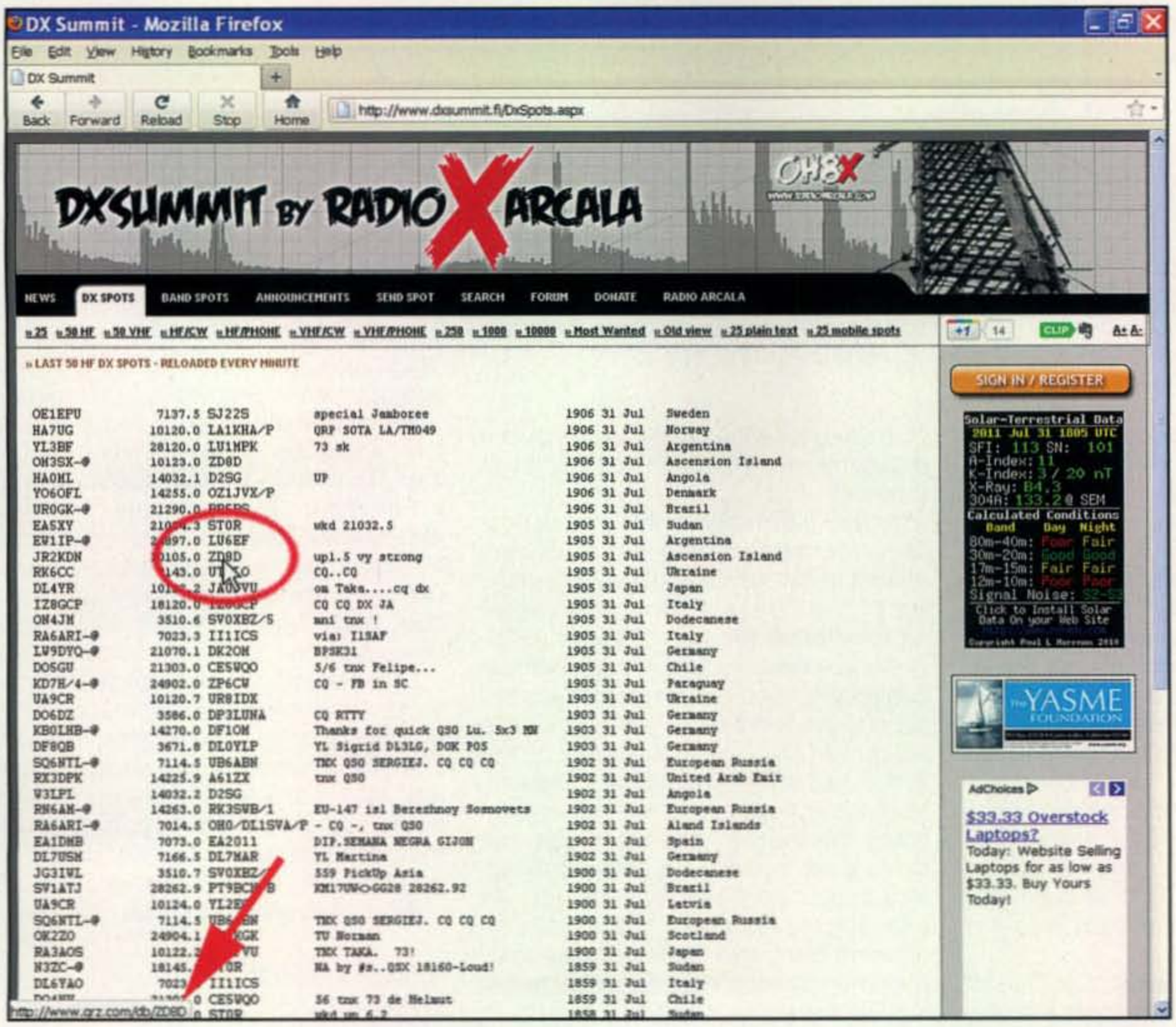

Fig. 1– The DX Summit website. Here we see that JR2KDN has posted a spot for ZD8D (circled). When you click on a callsign, you're linked to the QRZ.com database for a quick lookup, as shown by the arrow. Also note the several different views for spots: Most recent 25, 50 HF, 50 VHF, Spots by Band, and so on. These help you narrow down what is displayed for you. This page updates automatically every minute.

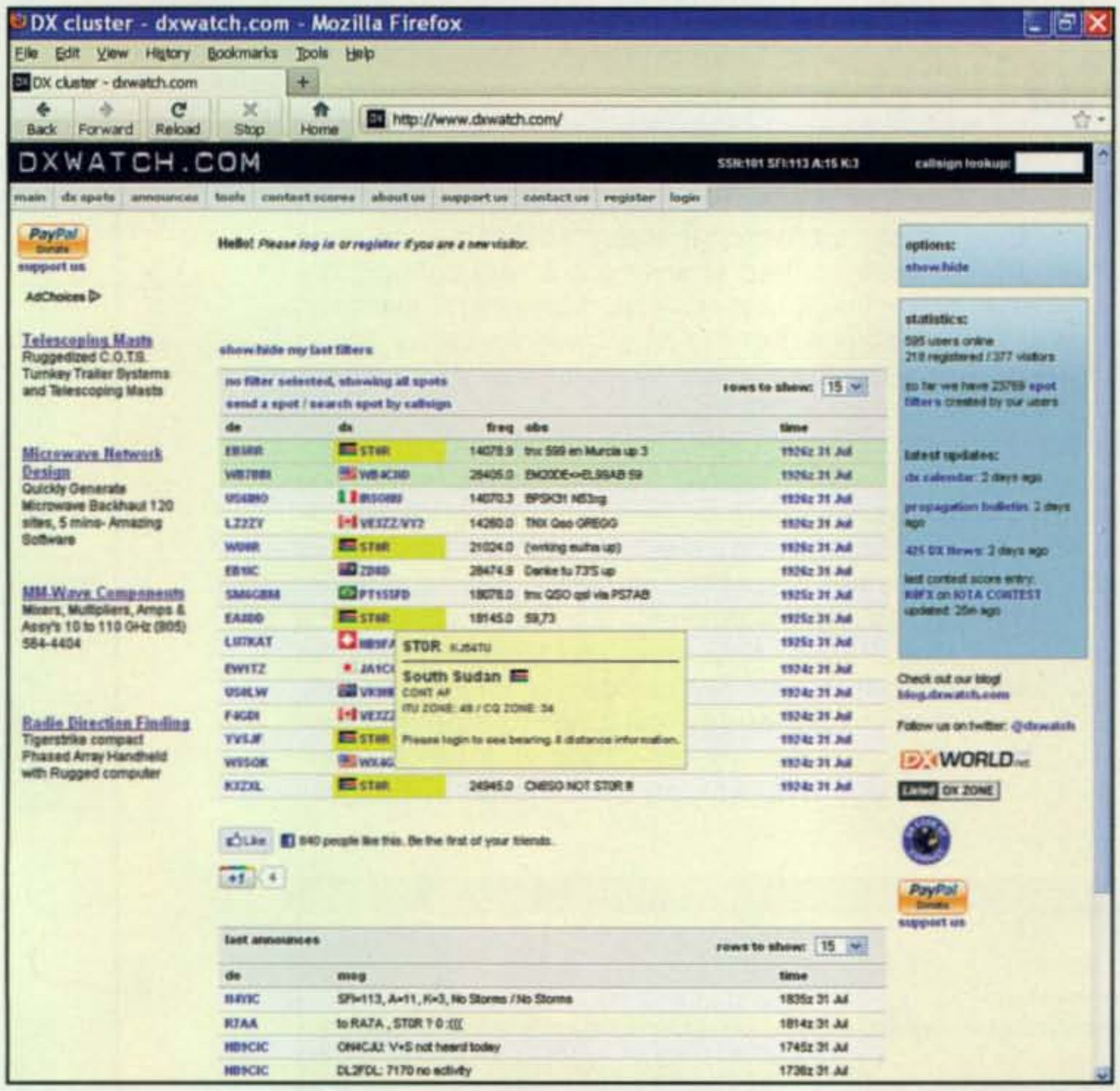

Fig. 2– The DX Watch website. With somewhat different functionality from the website in fig. 1, here we see five recent spots for STØR that are highlighted (along with a pop-up window with relevant info) when the mouse cursor is hovered over the callsign. Note that at the moment this screen shot was taken there were 595 users online. As with most sites, registering lets you access additional features, such as filters to show only certain kinds of spots.

There were a few dial-up spotting "boards," but since a phone call cost money back then, only the most serious DX chasers would log in. I remember that CompuServe used to have a DX spotting section that seemed popular at the time.

As packet networks grew in capability and reach, the problems with overwhelmed user ports and limited geographic range mostly were solved. The NEDA network once covered an area from Buffalo to Maine to southern New Jersey, and when conditions were right, you could work the entire network from end to end. However, one problem still remained, and that was 1200 baud. The typical data rate for packet was still slow, even at its best.

Then came the internet. DX Cluster software is still used (and there are several still on packet), but today there are several different applications used to collect and deliver DX spots. A search for "DX Spots" on your favorite internet search page will yield a dozen or more of the largest sites, many having over a thousand users logged in at any given moment.

As you can imagine, this makes finding a rare or semi-rare station to work almost trivial, with some saying it's "too easy" now. There is some controversy as to whether the use of spotting networks is "cheating" or not, particularly in contesting, but the reality is that you still have to work the other station by radio and get a QSL card (or Logbook of The World [LoTW] equivalent) for it to count. Perhaps DX spots are a crutch, weakening the average operator's skill, but that's a controversy I'm going to avoid. You should be aware of it, though. As for using the DX spots, this is really no different from your buddy across town phoning you early on a Saturday morning to let you know that he just worked a rare DX station from East Jebib on 40 meters, a fairly common occurrence back in the day.

I'm writing this month's column for those readers who may not be familiar with DX spotting, in the hope that: (1) You will better understand both the positive and negative aspects of DX spots, and (2) You will actually try using a few spots to work a station outside your normal range. Just like the thrill of that Easter Island contact, or working the ISS (International Space Station) on packet (did you read my June column?), there's still some magic in using your radio and a piece of wire to speak with someone far, far away. Also, by "speak," I don't only mean phone communications. CW, PSK-31, and RTTY all are perfectly acceptable ways to "speak" to someone (except perhaps at a cocktail party).

Even those who are not on the HF bands can use a DX spotting service to work some unusual contacts. On a recent midsummer day, when this column was written, I saw several spots on the Magic Band (6 meters) highlighting some outstanding sporadic-*E* (*Es*) propagation. There were even a few 2-meter spots (and one on 10 GHz in the UK!). Therefore, a VHF station will benefit from an internet spotting site as well.

HF-capable stations will benefit even more, though. You'll almost always see a few VHF spots, but the vast majority will be on the HF bands. For example, today the DXpedition STØR was very active on several HF bands. STØR is the first amateur radio license issued by the newly independent South Sudan, and it is also a new DXCC entity, making it a "must have" for many operators. I hope you got it if you wanted it.

Just a side note here: If you're new to DX operations, or have never heard of the DX Code of Operations, please take a moment to visit the website <http://www.dx-code.org/> and abide by the simple recommendations there. Doing otherwise might mark you as a "Lid" (poor operator) and hurt everyone's chances to make a contact.

Let's take a look at a typical DX spot list. I'm not going to recommend a particular site, or list popular sites. You can find one yourself easily enough; trust me. Also many sites share spots, and users sometimes post spots to more than one site, so one is just about as good as any other. However, they all seem to use similar formats, like this:

N2IRZ 14020.3 DF9IC
1755Z 31JUL 579 FB Signal in NJ

The first indicator is the person who posted the spot, me in this example. The next is the frequency on which I worked or heard the other station, which is list-

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ed in the next phrase. The time and date is when the spot was posted, in UTC. The person posting can also put up a short bit of text, sometimes describing the contact (as shown here) or contact details (such as "Listening up 5"), and other times a message to the DX operator ("Tnx contact, pse QSL").

Sometimes you'll see someone self-spotting —putting their own callsign onto the DX spot list. Perhaps they are a very rare station and just want to get a few quick contacts, but for the most part is it considered poor form to self-spot unless you're a relatively rare or sought-after station. For example, N2IRZ self-spotting on 40 meters would be tacky and mark me as a Lid.

Also, don't trust too much what you see in a DX spot. The poster might have gotten some of the details such as callsign just plain wrong, or fat-fingered the keyboard. Not everyone's radio is properly calibrated for frequency, so don't consider that infallible either. Always, *always* verify the DX station's callsign before calling (listen!), and use the radio to exchange all information, not the internet. Sometimes well-meaning operators post things that are not absolutely accurate, and in some cases malicious operators put up posts that are deliberately wrong. Just like the fellow who kerchunks the repeater, these folks just have nothing better to do.

Take note of who is posting the spots. If I were to see one or two spots from hams in the 2nd callsign district (right where I am), I have a greater likelihood of also hearing that DX station than if all the spots are from hams in the 5th callsign district. The advantage of having a very large geographic area of hams making spots needs to be offset by the disadvantage of radio propagation not being the same to every part of the world. Just because Texas can hear Zimbabwe does not mean that New Jersey can hear it, too.

If you see several spots of the same DX station, all from several different posters and generally on the same frequency, there's a good chance the station is real, so go have a listen. Conversely, a single spot of a North Korean station is suspicious at the very least. There may be someone on the other end who responds with that call, but your guess is as good as mine as to who they really are. Last I heard North Korea has not been on the air for quite a while. I suppose the best advice is to treat the DX spotting site as one tool in the toolbox; be sure to use the other tools such as listening and common sense before believing anything. Like President Ronald Reagan used to say, "Trust, but verify."

For casual operating, a DX spotting site can add to your enjoyment of the hobby. I'm not aware of any awards (such as DXCC, WAS, WAZ, etc.) that restrict the use of online spots. Contests, however, are a completely different matter. Some contests explicitly prohibit the use of spots, while others explicitly permit their use without restriction. Many others allow their use, but place these operators into a different category, often called "assisted" or similar. Be sure to understand the rules of any contest in which you enter and obey them as well. It's good operating practice and just plain fair.

By the way, these days you're not limited to your internet connection for DX spots at home. Certainly your laptop computer can be carried to a local wireless hotspot, but most DX spot sites have specially formatted pages that cater specifically to mobile devices (known to us old-timers as "cell phones"). At work they recently insisted on my having a SmartPhone (I was just as happy with my old "DumbPhone"), and with it I can browse the World Wide Web. Viewing DX spots on the regular page is a bit cumbersome, since the data doesn't fit well, but on the special mobile page it looks great. Also, now that some "unlimited data plans" have gone the way of the spark transmitter, the mobile-optimized page is a lot smaller, with far fewer bytes marked against my 2-GB monthly limit.

Looking back at my June 2011 column, I had several hams e-mail me with stories of their success in working stations through the ISS (International Space Station), one while Atlantis was docked there on the very last space shuttle flight. A few needed some assistance in getting the whole thing to work, but overall everyone found that making the contacts actually were quite easy. The point is, even with a modest station (one fellow used an HT!) you can do it.

And so it is with DX. Listening, the old-fashioned way, still works just fine. If you "want it now," log in to a DX spotting site. Go make a few special contacts. Get that warm, glowing feeling that has nothing to do with a 12AX7 or 6146B. Ham radio is fun, and what still thrills me after all these years is that there are virtually no limits to the breadth and depth of this wonderful hobby. Just a small effort can get big results. Now go out there and work Easter Island on packet for me!

73, Don, N2IRZ

SUCH A HAM

Stop making such a fuss, Mavis.
The salesperson distincly said
this model radio was affordable.

BY CARL SMITH,* N4AA

A DXer's Challenge: Stay on the Air and Behave!

By guest columnist Lynn Lamb, W4NL

When Carl, N4AA, your long-standing and outstanding "DX" Editor for *CQ*, asked me to prepare a guest column this month, it was somewhat sad, since he was recovering from a serious heart attack in late July and unable to do it himself. Carl, one of my best friends, is a hard act to follow, but one should never say no to a friend. My first question: What would he like me to write about, of course staying within the basic DX foundation? He wouldn't say, so I can talk about him, right?

Carl Smith, N4AA/C6AAA, is one of the most honorable hams I know. What he says is the truth, period. I have known him to have some of the greatest DX information and yet wouldn't publish it here in this column or in his own online QRZ.DX or *The DX Magazine* without proof, or the "go ahead" from those he received it from. My point is, if Carl says it, it's the way it is and his timing is outstanding.

He'll be back next month after some rest, ready to do what he has done for years: Give you the most accurate, honest DX information you will ever get.

Joe, W8GEX, and wife Janet, W8CAA, needed a break after the Dayton Hamvention®, so they went to Germany for the Friedrichshafen convention in Julnne. Here they are enjoying the company of a few friends: (left to right) Alveena, DE1AJS (XYL of Gary, DF2RG); Janet and Joe; and Franz, DJ9ZB. (Photo courtesy of Markus, DL9RCF)

Considerations and Challenges

I'd like to engage a subject often facing DXers, since we have been known to have some reasonably good antenna installations, high and big. Let me ask this question of you, the DXers of the world: As you get older, do you get concerned about leaving it to your "better half" or friends to remove and/or maintain the system? Many of us do, but can we do better? This is a personal issue, but important for each of us.

Do we think about downsizing from a two-story home to a one-story dwelling because of age and the pressure it puts on the entire family?

Antennas, high and big, are wonderful, and DXers know this. We spend many years working DX, racking up the numbers for many awards programs and contests, as well. Are you challenged when you have worked nearly all of them? Big antennas and tall towers are great, and if you are fortunate to have some room/property, well that's gravy. However, the challenge of your youth may not be there anymore or to the extent it once was when KP4 was a new country on that Windom and an AT-1. We must not forget tube gear, either, the S-38 or the BC-455. A challenge is good and makes us learn and try harder, and by the way, be very appreciative of the accomplishments we make.

This is true of life itself. If you had basic training in military service, it was a challenge, was it not?

A down-payment for that first home or even first car was a challenge. Looking back, didn't it make you proud (perhaps especially if you had a life-partner to share it with you)?

Ham radio is the same, and all I want you to do is think about how you could create challenges in ham radio again. Do CCRs have you somewhat blocked? If so, don't let them, since a DXer is progressive and can find a way to stay on the air with key and/or mic in hand until the last, period. I know hams who have loaded up gutters/downspouts, taped wire to walls, created attic antennas, experimented with digital modes, which do get out well under these situations, and have done things with wires which would tax any imagination.

Downsizing in ham radio can be fun. How about starting a new log working everything all over again? Make that DL QSO, one with a "low-power, 'nothing' antenna," . . . a joy. And don't forget that KP4, too. Then relax and know you have done it all anyway. Lower those big, high antennas if you must, but *never* go off the air. No one can remove us from what many of us have lived and loved for most of our life. There is help out there, as well. Hams are some of the best for helping others. I've never known a group of people like DXers (and hams in general), where imagination and ideas would make Einstein smile.

The bottom line is to stay on the air and have fun. Don't let age get to you such that you are not

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Left to right: Chris, DL1MBG; Franz, DJ9ZB; and Ric, DL2VFR. Franz presents the GDXF Trophy for the best DXpedition 2010 to Chris for ZL8X during the DX Forum at Friedrichshafen. Ric was the moderator for the forum. (Photo courtesy of Franz, DJ9ZB)

in control to "bring 'em down" and be in charge of new challenges that can keep you on the air. Power isn't everything, by no means. Good operators, good DXers, can do it with all sorts of wonderful transceivers and 100 watts, more or less. QRP (5 watts and under) is very rewarding, also.

Let's take it to this level. Someone like N4AA could work the world with a wet string, keying by clicking two wires together. Don't get me wrong, as Carl is going to be okay and far from the downsizing I am talking about, but an experience such as he has lived through should make all of us think about our future in staying on the air. I know it did me, and I'm very excited about a new log, with antennas I would have laughed at 10 years ago.

Think about this, please, and know we need every DXer on the planet. So get out there and work the DX, help others, and enjoy that easy-chair while logging that 59 or 559 from a DX station somewhere on this wonderful "Ham Planet."

Getting the DX in your Log with the Proper Ethics

Lately DXing has been a challenge for many, but there are bright spots. I heard some good operating by the STØR operators from South Sudan plus the hams in the hinterland attempting to get that Q in their logbook. Yes, there were behav-

The WPX Program

CW

3269.....I8JIT 3270.....SQ7B

SSB

3101.....I8JIT 3102.....SQ7B

Mixed

2163.....N6HE 2164.....R2DW

Digital

60.....K9OHI 61.....SQ7B

CW: 700 SQ7B. 2700 IØNNY. 2800 KA7T. 3250 W8IQ.
SSB: 900 I8JIT. 1100 SQ7B.
Mixed: 450 K9OHI. 1100 I8JIT. 1650 SQ7B. 2150 KØKG.
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Award of Excellence: RX3AGD
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12 Meter Bar: RX3AGD

Award of Excellence Holders: N4MM, W4CRW, K5UR, K2VV, VE3XN, DL1MDD, DJ7CX, DL3RK, WB4SIJ, DL7AA, ON4QX, 9A2AA, OK3EA, OK1MP, N4NO, ZL3GO, W4BQY, IØJX, WA1JMP, KØJN, W4VQ, KF2O, WB8CNL, W1JR, F9RM, W5UR, CT1FL, WA4QMQ, W8ILC, VE7DP, K9BG, W1CU, G4BUE, N3ED, LU3YL/W4, NN4Q, KA3A, VE7WJ, VE7IG, N2AC, W9NUF, N4NX, SMØDJZ, DK5AD, WD9IIC, W3ARK, LA7JO, VK4SS, I8YRK, SMØAJU, N5TV, W6OUL, WB8ZRL, WA8YTM, SM6DHU, N4KE, I2UIY, I4EAT, VK9NS, DEØDXM, DK4SY, UR2QD, AB9O, FM5WD, I2DMK, SM6CST, VE1NG, I1JQJ, PY2DBU, HI8LC, KA5W, K3UA, HA8UB, HA8XX, K7LJ, SM3EVR, K2SHZ, UP1BZZ, EA7OH, K2POA, N6JV, W2HG, ONL-4003, W5AWT, N3XX, HB9CSA, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YBØTK, K9QFR, 9A2NA, W4UW, NXØI, WB4RUA, I6DQE, I1EEW, I8RFD, I3CRW, VE3MS, NE4F, KC8PG, F1HWB, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, KC7EM, YU1AB, IK2ILH, DEØDAQ, I1WXY, LU1DOW, N1IR, IK4GME, VE9RJ, NN1N, HB9AUT, KC6X, N6IBF, W5ODD, IØRIZ, I2MQP, F6HMJ, HB9DDZ, WØULU, K9XR, JAØSU, I5ZJK, I2EOW, IK2MRZ, KS4S, KA1CLV, WZ1R, CT4UW, KØIFL, WT3W, IN3NJB, S50A, IK1GPG, AA6WJ, W3AP, OE1EMN, W9IL, I7PXV, S53EO, DF7GK, S57J, EA5BM, DL1EY, DJ1YH, KUØA, VE2UW, 9A9R, UAØFZ, DJ3JSW, OE6CLE, HB9BIN, N1KC, SM5DAC, RW9SG, WA3GNW, S51U, W4MS, I2EAY, RAØFU, CT4NH, EA7TV, W9IAL, LY3BA, K1NU, W1TE, UA3AP, EA5AT, OK1DWC, KX1A, IZ5BAM, K4LQ, KØKG, DL6ATM, VE9FX, DL2CHN, W2OO, AI6Z, RU3DX, WB9IHH, CT1EEN, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1AOB, KT2C, UA9CGL, AE5B, KØDEQ, DKØPM, SV1EOS, UAØFAI, N4GG, UA4RZ, 7K3QPL, EW1CQ., UA4LY, RZ3DX, UA3AIO, UA4RC, N8BJQ, UA3BS, UA9FGR, UT3UY, WA5VGI, UT9FJ, UT4EK, K9UQN, UR5FEO, LY2MM, N3RC, OH3MKH, RA3CQ, UT3IZ, S55SL, RU3ZX, YO9HP, RA3DNC, K8ZT, KE5K, JH8BOE, TF8GX, S58MU, UX1AA, AB1J, DM3FZN, AG4W, UA3QNS.

160 Meter Endorsements: N4MM, W4CRW, K5UR, VE3XN, DL3RK, OK1MP, N4NO, W4BQY, W4VQ, KF2O, W8CNL, W1JR, W5UR, W8ILC, K9BG, W1CU, G4BUE, LU3YL/W4, NN4Q, VE7WJ, VE7IG, W9NUF, N4NX, SMØDJZ, DK5AD, W3ARK, LA7JO, SMØAJU, N5TV, W6OUL, N4KE, I2UIY, I4EAT, VK9NS, DEØDXM, UR2QD, AB9O, FM5WD, SM6CST, I1JQJ, PY2DBU, HI8LC, KA5W, K3UA, K7LJ, SM3EVR, UP1BZZ, K2POF, IT9TQH, N6JV, ONL-4003, W5AWT, N3XX, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YBØTK, K9QFR, W4UW, NXØI, WB4RUA, I1EEW, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, YU1AB, IK4GME, NN1N, W5ODD, IØRIZ, I2MQP, F6HMJ, HB9DDZ, K9XR, JAØSU, I5ZJK, I2EOW, KS4S, KA1CLV, KØIFL, WT3W, IN3NJB, S50A, IK1GPG, AA6WJ, W3AP, S53EO, S57J, DL1EY, DJ1YH, KUØA, VR2UW, UAØFZ, DJ3JSW, OE6CLD, HB9BIN, N1KC, SM5DAC, S51U, RAØFU, CT4NH, EA7TV, LY3BA, K1NU, W1TE, UA3AP, OK1DWC, KX1A, IZ5BAM, DL6ATM, W2OO, RU3DX, WB9IHH, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1AOB, UA9CGL, SM6DHU, KØDEQ, DKØPM, SV1EOS, N4GG, UA4RZ, 7K3QPL, EW1CQ, UA4LY, RZ3DX, UA3AIO, UA4RC, N8BJQ, UA3BS, UA9FGR, UT3UY, WA5VGI, UR5FEO, N3RC, UT3IZ RU3ZX, YO9HP, RA3DNC, K8ZT, KE5K, JH8BOE, S58MU, UX1AA, DM3FZN, AG4W, UA3QNS.

Complete rules and application forms may be obtained by sending a business-size, self-addressed, stamped envelope (foreign stations send extra postage for airmail) to "CQ WPX Awards," P.O. Box 355, New Carlisle, OH 45344 USA. Note: WPX will now accept prefixes/calls which have been confirmed by eQSL.cc. Other electronic QSL confirmation means are not accepted.

*Please Note: The price of the 160, 30, 17, 12, 6, and Digital bars for the Award of Excellence are $6.50 each.

CQ DX Awards Program

SSB Endorsements

340.....W9SS/340 310.....XE1MEX/310
330.....F6HMJ/337 150.....YO6HSU/160

CW Endorsements

330.....F6HMJ/331 150.....YO6HSU/168

RTTY Endorsements

150.....YO6HSU/188

The basic award fee for subscribers to *CQ* is $6. For non-subscribers, it is $12. In order to qualify for the reduced subscriber rate, please enclose your latest *CQ* mailing label with your application. Endorsement stickers are $1.00 each plus SASE. Updates not involving the issuance of a sticker are free. All updates and correspondence must include an SASE. Rules and application forms for the CQ DX Awards may be found on the <www.cq-amateur-radio.com> website, or may be obtained by sending a business-size, self-addressed, stamped envelope to CQ DX Awards Manager, Billy Williams, N4UF, Box 9673, Jacksonville, FL 32208 U.S.A. We recognize 342 active countries. Please make all checks payable to the award manager. Photocopies of documentation issued by recognized national Amateur Radio associations that sponsor international awards may be acceptable for CQ DX award credit in lieu of having QSL cards checked. Documentation must list (itemize) countries that have been credited to an applicant. Screen printouts from eQSL.cc that list countries confirmed through their system are also acceptable. Screen printouts listing countries credited to an applicant through an electronic logging system offered by a national Amateur Radio organization also may be acceptable. Contact the CQ DX Award Manager for specific details.

ior problems in the pileups, and more on CW, at times than I've witnessed in the past, but the good outweighed the bad and many were happy with the operation. I'd like to leave this subject with some specific observations and see if it triggers some thoughts from you.

It may get some of you thinking about having a cup of coffee with some of your peers and known players of this so-called bad behavior. We know many of the ones doing the deeds that cost others their QSO. A friendly talk with them at a club meeting may be just what they need to help them remember what their mom may have tried to teach them: peer pressure.

5 Band WAZ

As of August 1, 2011, 850 stations have attained the 200 zone level and 1741 stations have attained the 150 zone level.

New recipients of 5 Band WAZ with all 200 zones confirmed:

RG4F

The top contenders for 5 Band WAZ (zones needed, 80 or 40 meters):

N7US, 199 (18)
N4WW, 199 (26)
W4LI, 199 (26)
K7UR, 199 (34)
IK8BQE, 199 (31)
JA2IVK, 199 (34 on 40)
IK1AOD, 199 (1)
VO1FB, 199 (19)
KZ4V, 199 (26)
W6DN, 199 (17)
W3NO, 199 (26)
RU3FM, 199 (1)
N3UN, 199 (18)
W1JZ, 199 (24)
W1FZ, 199 (26)
SM7BIP, 199 (31)
N4NX, 199 (26)
EA7GF, 199 (1)
JA5IU, 199 (2)
RU3DX, 199 (6)
N4XR, 199 (27)
HA5AGS, 199 (1)
N5AW, 199 (17)
JH7CFX, 199 (2)
K7LJ, 199 (37)
RA6AX, 199 (6 on 10)
RX4HZ, 199 (13)
S58Q, 199 (31)
KQØB, 199 (2 on 10)
K9OW, 199 (34 on 10)
G3NKC, 199 (31 on 10)
K8PT, 199 (26)
N8AA, 199 (23)
HB9ALO (1)
IZ1ANU, 199 (1)
IN3ZNR, 199 (1)
EA5BCX, 198 (27, 39)
G3KDB, 198 (1, 12)
JA1DM, 198 (2, 40)
9A5I, 198 (1, 16)
G3KMQ, 198 (1, 27)
N2QT, 198 (23, 24)
OK1DWC, 198 (6, 31)
W4UM, 198 (18, 23)
US7MM,198 (2, 6)
K2TK, 198 (23, 24)
K3JGJ, 198 (24, 26)
W4DC, 198 (24, 26)
F5NBU, 198 (19, 31)
W9XY, 198 (22, 26)
KZ2I, 198 (24, 26)
W9RN, 198 (26, 19 on 40)
W5CWQ,198 (17, 18)
I5KKW, 198 (31&23 on 20)
UA4LY, 198 (6&2 on 10)
IK4CIE, 198 (1, 31)
K2FF, 198 (18, 23)
JA7XBG, 198 (2 on 80&10)
JA3GN, 198 (2 on 80&40)
K2FF, 198 (18, 23)

The following have qualified for the basic 5 Band WAZ Award:

I8DPP (160 zones)
DK3DG (170 zones)
SQ7B (162 zones)

5 Band WAZ updates:

9A5CY (200 zones)
N4GG (196 zones)
EA3EQT (170 zones)
UT2UB (197 zones)

***Please note: Cost of the 5 Band WAZ Plaque is $100 shipped within the U.S.; $120 all foreign (sent airmail).**

Rules and applications for the WAZ program may be obtained by sending a large SAE with two units of postage or an address label and $1.00 to: WAZ Award Manager, Floyd Gerald, N5FG, P.O. Box 449, Wiggins, MS 39577-0449. The processing fee for the 5BWAZ award is $10.00 for subscribers (please include your most recent *CQ* mailing label or a copy) and $15.00 for nonsubscribers. An endorsement fee of $2.00 for subscribers and $5.00 for nonsubscribers is charged for each additional 10 zones confirmed. Please make all checks payable to Floyd Gerald. Applicants sending QSL cards to a *CQ* checkpoint or the Award Manager must include return postage. N5FG may also be reached via e-mail: <n5fg@cq-amateur-radio.com>.

The WAZ Program

12 Meters CW

57 .....RA1AOB

15 Meters CW

343.....JG3LGD

17 Meters CW

79 .....RA1AOB 80 .....RA1AOB

30 Meters CW

102 .....RA1AOB

40 Meters CW

283.....K2FF

160 Meters

387.....I8SAT (40 zones) 389.....K4HB (31 zones)
388...WD5COV (38 zones)

160 Meter Updates

9A5CY .....39 zones UT2UB..... 32 zones

All Band WAZ

Mixed

8823 .....KE5AKG 8825.....R2DW
8824.....RØQA

SSB

5171 .....JR6GUU 5175.....N6VNI
5172.....5P5N 5176 .....AE5JG
5173 .....K4EZY 5177.....PS8ACL
5174 .....DS4DRE

CW

635 .....OK2JOW 638.....W4UR
636 .....JA1MOD 639 .....DS2GWM
637.....RØJY

Rules and applications for the WAZ program may be obtained by sending a large SAE with two units of postage or an address label and $1.00 to: WAZ Award Manager, Floyd Gerald, N5FG, P.O. Box 449, Wiggins, MS 39577-0449. The processing fee for all *CQ* awards is $6.00 for subscribers (please include your most recent *CQ* mailing label or a copy) and $12.00 for nonsubscribers. Please make all checks payable to Floyd Gerald. Applicants sending QSL cards to a *CQ* checkpoint or the Award Manager must include return postage. N5FG may also be reached via e-mail: <n5fg@cq-amateur-radio.com>.

I don't kid myself that I've not made the mistake of tuning on the wrong frequency. We all have done it in innocence, but if we pay more attention, it won't happen as often. So let's pay attention. Actually, calling on the DX frequency is another situation that is front and center, and we do recognize those calls, don't we? Others recognize ours, too, hi. We need to know our equipment and even in the excitement—and there is excitement in a pileup—we need always to be mindful of where we are transmitting.

The innocent tuners are generally short in trying to make a contact, and the ones calling on the wrong frequency are for the most part short, as well. However, the "KC Cops" are the worst in my book. Honestly, they have caused much more trouble for me through the years. We can fix that easily by not doing it. I have a dear friend, a relatively new ham, who actually thought he was helping by saying, "UP UP UP UP UP." I had a friendly talk with him suggesting he refrain from "helping," since he cost me a QSO. I never heard him do it again, and it's been years. Lesson learned.

Those who intentionally interfere are really the worst. Nothing we do will help them, since they didn't listen to their mother and they won't pay attention to this column, if they pay attention at all. Ignore them, please, as they want attention and they most likely can't work the DX anyway.

Behavior on our precious bands is one of Carl's passions, as it is for many of us.

CQ DX Honor Roll

The CQ DX Honor Roll recognizes those DXers who have submitted proof of confirmation with 275 or more ACTIVE countries. With few exceptions, the ARRL DXCC Countries List is used as the country standard. The CQ DX Award currently recognizes 341 countries. Honor Roll listing is automatic when an application is received and approved for 275 or more active countries. Deleted countries do not count and all totals are adjusted as deletions occur. To remain on the CQ DX Honor Roll, annual updates are required. All updates must be accompanied by an SASE if confirmation of total is required. The fee for endorsement stickers is $1.00 each plus SASE. Please make checks payable to the awards manager, Billy F. Williams. All updates should be mailed to P.O. Box 9673, Jacksonville, FL 32208.

CW

NØFW 340	EA2IA 340	K9BWQ 339	K3JGJ 338	N6AW 334	K8SIX 329	W9IL 319	WD9DZV 310	WA2VQV 277
K2TQC 340	N7FU 340	N4MM 339	F3TH 336	HB9DDZ 334	K1FK 329	W6YQ 319	KT2C 302	
WB4UBD 340	K4IQJ 340	W7CNL 339	DL3DXX 336	W7IIT 334	W6OUL 327	OZ5UR 318	HA5LQ 302	
K3UA 340	K4MQG 340	N5ZM 339	YU1AB 336	G3KMQ 332	KE3A 327	CT1YH 318	N2LM 300	
N4JF 340	W8XD 340	N4AH 339	WØJLC 335	K6LEB 332	K6CU 327	EA3ALV 317	K4IE 296	
K2FL 340	N7RO 340	K9IW 339	PY2YP 335	N7WO 332	W1DF 327	RA1AOB 315	HB9DAX/QRPp 284	
WK3N 340	N5FG 340	K8LJG 339	K9OW 335	F6HMJ 331	KA3S 326	WA4DOU 314	N2VW 281	
N4NX 340	K4CN 340	W7OM 339	K2OWE 334	K5RT 330	IKØADY 326	YO9HP 314	K4EQ 279	
K9MM 340	OK1MP 340	K7LAY 338	W4MPY 334	JA7XBG 330	EA5BY 326	KØKG 314	4Z5SG 277	
W4OEL 340	K4JLD 339	KA7T 338	K5UO 334	W4UW 330	WG5G/QRPp 325	ON4CAS 312		

SSB

XE1AE 341	EA2IA 341	VE3XN 341	W4UNP 339	W8AXI 336	W7BJN 335	K7HG 329	N8SHZ 314	4Z5FL/M 304
NØFW 341	IN3DEI 341	K5TVC 340	K9IW 339	VK4LC 336	W4UW 335	KE4SCY 328	IV3GOW 314	K7SAM 303
K6YRA 341	DU9RG 341	W6BCQ 340	N7WR 339	WS9V 336	K1UO 335	K6GFJ 328	W6NW 312	I3ZSX 302
IK1GPG 341	K4MQG 341	VE2GHZ 340	W2FKF 339	VE3MR 336	HB9DDZ 335	KD5ZD 328	KU4BP 312	AE9DX 300
K2TQC 341	N4MM 341	K2FL 340	W2CC 338	VE3MRS 336	K8SIX 334	W9GD 327	N2LM 312	4X6DK 299
K4MZU 341	K9MM 341	K9BWQ 340	K3LC 338	AA4S 336	KE3A 334	SV3AQR 326	KA1LMR 310	WD9DZV 299
K5OVC 341	K3JGJ 341	K7LAY 340	4Z4DX 337	PY2YP 336	N2VW 334	VE7EDZ 326	RA1AOB 310	K7ZM 298
DJ9ZB 341	N5ZM 341	W6DPD 340	W4WX 337	K9OW 336	JA7XBG 334	W1DF 324	G3KMQ 310	W9ACE 292
OZ5EV 341	N7RO 341	K8LJG 340	IØZV 337	EA5BY 336	N5YY 334	WØROB 324	XE1MEX 310	W6MAC 290
K3UA 341	KE5K 341	YU3AA 340	OE2EGL 337	XE1J 336	K5UO 333	W4MPY 323	IØYKN 308	N3KV 290
WB4UBD 341	K4IQJ 341	W7OM 340	W4ABW 337	OE3WWB 335	K5RT 332	TI8II 322	XE1MW 307	WD8EOL 282
N4JF 341	N5FG 341	AB4IQ 340	DL3DXX 337	N6AW 335	WØYDB 332	YO9HP 322	AA1VX 306	N3RC 278
VE2PJ 341	K4CN 341	W8ILC 340	VE1YX 337	IK8CNT 335	WA4WTG 332	KW3W 322	W5GT 306	IWØHOU 278
WK3N 341	OZ3SK 341	W9SS 340	EA3BMT 337	EA4DO 335	ZL1BOQ 332	W6OUL 320	K4IE 306	WA5UA 276
N4NX 341	OK1MP 341	K9HQM 340	IKØAZG 337	CT3BM 335	W9IL 332	XE1RBV 319	AD7J 306	
K4JLD 341	I8KCI 341	KØKG 339	YU1AB 337	K8LJG 335	CT1AHU 330	VE7SMP 318	K4ZZR 306	
N7BK 341	N4CH 341	W7FP 339	KZ2P 336	W3AZD 335	N1ALR 330	ON4CAS 317	HB9DQD 305	

RTTY

WB4UBD 339	N5FG 336	K3UA 333	K4CN 323	K8SIX 298
NI4H 339	N5ZM 335	OK1MP 333	WK3N 314	

Help by being good Elmers in this black eye of ham radio. Do your best to promote ethical behavior on the ham bands.

DX Cluster

And finally, the wonderful cluster. It truly is a wonderful tool for DX, and while we can see personal slams, political persuasions, and a few religious comments now and then, just ignore them. What bothers me more are the mistakes of calls and frequencies. It would be funny, if not so serious. The cluster is a help, certainly, but nothing beats hearing that call yourself, not depending on the cluster. By the way, on the good side, I've become aware of THE DXWATCH (www.DXWATCH.com) as another good alert tool that allows some sleep when trying hard to log that rare one!

Summary

To Carl, N4AA, a wonderful friend, a top-notch DXer, an Elmer, a loyal, honest editor and publisher . . . hurry up and get well and know you are not alone. We'll see you here next month in the "DX" column, as well as on QRZ.DX and in *The DX Magazine* before that.

In ending this column, to each of you: Be proud of your license and your call. It is part of you. Set an example, please.

73, Lynn, W4NL

Yuri, 4J3M, doing a bit of maintenance on one of his rooftop antennas. His antenna "farm" is high above the city of Baku on top of the apartment building. (Photo courtesy of DJ9ZB)

QSL Information

ET3JA via OK3AA
ET3JD via WUØI
ET3PG via DJ9ZB
ET3PS via DJ9ZB
ET3YU via YU1FW
EU1EU via OK8EU
EV5OP via DL7VFM
EV5P via EW1WA
EV5S via EW1ABA
EV5V via UA3FDX
EV6ZK via UA3FDX
EV8D via EW8CY
EV8DP via UA3FDX
EV9WFF via EW4DX
EW/DL6KV via DL6KV
EW/NP3D via W3HNK
EW3LB via W3HNK
EW5WFF/P via EW4DX
EX/DM3VL via DM3VL
EX8A via W3HNK
EX8AS via EX2A
EX8ML via W3HNK
EX9FF via EX8AB
EY1ZA via W3HNK
EY7/DJ8Q via DJ8QP
EY8/DJ8QP via DJ8QP
EZ8AI via W3HNK
F/0T3T via ON7EQ
F/DK1AF via DK1AF
F/DL3OCH via DL3OCH
F/DL8AAV via DL8AAV
F/G3RTE via G3SWH
F/G3SWH via G3SWH
F/G5XW/P via G5XW
F/ON7JA via ON7JA
F/PA65DDAY via PAØHFT
F/PE1HB via PE1HB
F/PH1MRF via PH1MRF
F/TU5KG via F4EFI

(The table of QSL Managers is courtesy of John Shelton, K1XN, editor of "The Go List," 106 Dogwood Dr., Paris, TN 38242; phone 731-641-4354; e-mail: <golist@golist.net>; <http://golist.net/>.)

More on Lightning Protection

BY DALE SVETANOFF*, WA9ENA

The following was directed to Youth Editor Brittany Decker, KB1OGL, regarding her article in the August issue, "A Striking Story, Lessons Learned from a Close Encounter with Lightning."

Brittany,

Thank you very much for your interesting article on the lightning strike at your home. I was very glad to see that no one was injured.

With one rather minor exception (discussed later in this memo), I very much agree with the conclusions and suggestions made in the article. However, I do have a few questions and then I'd like to make some comments on relevant points.

A Few Questions

My first question concerns the attic area of your house. Are there electrical power wires routed up there? (My house has many such wires, all run as unshielded Romex by the electricians.) Since the attic area was the recipient of what I believe to be a secondary-level discharge, some strong electromagnetic fields would have been radiated there. Those fields would then have caused surges on any of the power lines running through or near the attic area.

Next, you list several devices in the house that were damaged by the lightning. Did any of them have power surge protectors at the AC wall outlet? The severely damaged radio: was it one of the ham rigs or a table top AM/FM type of broadcast radio? If it was a ham rig, was it connected to the loop antenna?

You then mention the loop antenna, "seared" into two sections. My belief is that the main energy of the stroke went to the antenna or whatever tree was supporting it. You don't mention the feed line from that antenna. Was the feed line to the shack open wire/ladder line, or coax with a balun near the antenna?

I do agree with the conclusion that the loop antenna did not directly cause the lightning strike. I suspect that it became a victim of "lightning attachment" when the support tree (or other tall nearby object) was hit. The energy coupled into an antenna when direct attachment occurs can be substantial.

Practical Issues

My only real nit to pick in your entire article is not based upon technical aspects, but practical ones. I completely agree that disconnecting radios and equipment from antennas is a good way to minimize damage to them. Unplugging unnecessary appliances and devices will save them from power surges. No argument from me, but ... how many people will actually do that because of time constraints in their busy lives, information overload to their brains, etc.? Many devices have a remote control power on/off function. They therefore must be left constantly energized so that the remote control function can operate.

For those hams with relatively simple station configurations (with maybe 1 to 3 or 4 antenna lines, maximum), disconnecting the antennas from the rig(s) is a viable approach and one that should not be a problem to perform once the op gets used to doing it. However, here is the real issue: what happens to the disconnected end of the antenna feed line? If it is merely removed from the antenna connector on the rig or tuner and left to lie on the floor, one still has a major safety issue at hand; if lightning strikes or attaches to the given antenna, the energy can still flow down the cable and right into the shack. This can result in a shack fire or if the end of the cable arcs to grounded objects in the shack area, the resulting fields can induce damaging surges into equipment and the AC power wiring.

Thus, if cables are simply going to be disconnected and laid on the floor, then there had better be lightning protection on those antenna cables outside of the ham shack. Otherwise, the antenna lines must be removed from the shack or house completely when not in use and stored outdoors.

I believe that a more practical approach, especially for those of us with many antenna cables (I have about 15 coax lines and 5 rotator or remote RF switch cables) coming into or out of the shack, is to construct an interface box or panel that mounts on the outside of the shack or house, is solidly bonded to a robust ground system, and provides a protective device for each and every I/O line. Yes, this does get pricey, but it's still cheaper than replacing rigs or people.

As for the AC power, I strongly endorse the concept of a whole house surge protector, I had one installed on the main power panel when my house was built 11 years ago. Here is an important note: the protector comes with a very generous guarantee regarding damage to connected equipment. However, the guarantee is null and void unless the protected equipment has an auxiliary protector located at its AC power outlet. Is this trick advertising? No. Remember, antennas are made of conductive materials, such as copper wire. Let's say that there are 50 feet of AC power wire between the house power panel and the AC wall outlet that powers your computer or ham shack. If a lightning strike occurs at or near your house, large fields will be induced into the wiring of the house. If the only protective device were the whole house protector, then that leaves a 50-foot long antenna floating out there to pick up more energy and couple it into the load (your computer or radio gear).

I have the whole house protector and separate surge protectors at all AC wall outlets that power sensitive electronic equipment. (Keep in mind that many "mundane" appliances now contain microprocessors, so plan to install protectors at devices such as the refrigerator, microwave and toaster.) I also have a full perimeter ground system with more than 200 feet of heavy gauge bare copper wire buried around the foundation of the house and welded to a network of 13 ground rods. This "system" is considered an auxiliary grounding system and is bonded to my main electrical panel ground. It also ties into all of my antenna protectors and towers. The design is based upon a proven military facility ("fixed building") grounding plan.

My system has taken two direct lightning strikes of which I am aware. The first was in June, 2008, and the second in May of 2009. My main tower and antenna structure, 100-feet high, was the "target" both times. I had antennas blown apart, coax damaged, rotator fried, and remote RF relays welded. However, damage inside the shack/house was zero, with no blown circuit breakers or tripped GFI devices. The tower is 50 feet from the house.

Vindication of all the work to install the protectors and grounding system came with that first blast in 2008; I was on the air doing emergency communications at the time and the lightning strike was directly to my VHF/UHF dual band antenna at the top of the mast. The antenna was blown to bits but the rig and I survived. The huge currents during the strike were successfully handled by the grounding system and I did not become a carbon block sitting in my shack chair.

Again, many thanks for your interesting article. You show Polyphaser and Alpha Delta coax protectors, and those are good ones. I use both brands, as well as several others. Just keep in mind that those protectors can be no better than the quality of the ground to which they are connected. It must be low impedance and into conductive earth.

About me: I've been a ham for 49 years and an active Electromagnetic Compatibility Engineer for most of the past 30 plus years. I've taught RF and lightning grounding techniques to personnel from various US Government agencies, and I've worked in aerospace for more than 10 years. (The average commercial jet airliner takes at least one lightning hit per year.) Keep up the good work.

*Senior EMC Engineer (Consultant)
Certified iNARTE EMC Engineer
e-mail: <svetanoff@earthlink.net>

vhf plus

BY JOE LYNCH,* N6CL

ARISSat-1 Deployed

Amateur radio operators were among the hundreds of viewers of NASA's live TV coverage of the launch of ARISSat-1 on August 3, 2011. From the the beginning of the Extra-Vehicular Activity (EVA) to the actual deployment took more than four hours.

It was about an hour into the EVA when cosmonauts Sergei Volkov, RU3DIS, and Alexander Samokutyaev were told to hold up on the launch when Volkov and Samokutyaev were concerned when they saw only the VHF antenna. The television coverage showed that there was something amiss with the UHF antenna. Conversation between the cosmonauts and Mission Control indicated confusion as to whether or not there was supposed to be another antenna. Finally, Mission Control instructed the cosmonauts to not deploy the satellite as scheduled.

During the next three hours the cosmonauts completed the installation of a LASER antenna. When that task was completed, Mission Control advised the cosmonauts to proceed with deploying the satellite. Concern over the International Space Station (ISS) approaching the terminator between daylight and darkness put pressure on the cosmonauts to get the satellite deployed before they reached that point in the orbit.

Finally, at 1843 UTC Volkov deployed the satellite from its tethered position on the Pirs docking compartment. Those of us who were watching the live coverage had to rely on the translations to know that the deployment had taken place, because at that moment the video signals were not available.

Later in the day Andrew Glasbrenner, KO4MA, uploaded a video to YouTube demonstrating that the transponder was indeed working (see: <http://www.youtube.com/watch?v=0AFyZNAbOeA&feature=related>). During the subsequent days amateur radio operators from around the world experienced the latest amateur radio satellite. For more information, see <http://www.amsat.org> and <http://www.arissat1.org>. Telemetry is available at: <http://www.ARISSTLM.org/mobile>.

CQ VHF magazine's satellite editor Keith Pugh, W5IU, devoted most of his Summer 2011 issue column to the satellite. The weekend after the deployment, Pugh demonstrated reception of the satellite at the Austin (TX) Summerfest.

The first Spanish QSO took place on August 16, 2011 at 2007 UTC between EA1BYC and EA1JM. For them, the pass was very favorable, with a maximum of 67 degrees elevation. Thanks go to "Southgate Amateur Radio News" for this report.

e-mail: <n6cl@sbcglobal.net>

VHF Plus Calendar

The following is a list of important dates for VHF-Plus enthusiasts:

Oct. 4	First quarter Moon
Oct. 5	432 MHz Fall Sprint
Oct. 8	*Draconids* meteor shower
Oct. 12	Full Moon
Oct. 12	Moon apogee
Oct. 13–16	Microwave Update Conference
Oct. 15	Microwave Fall Sprint
Oct. 20	Last quarter Moon
Oct. 21	*Orionids* meteor shower
Oct. 22-23	ARRL 50- to 1296-MHz EME Contest
Oct. 26	New Moon
Oct. 26	Moon perigee
Oct. 29–30	50 MHz Fall Sprint

—EME conditions courtesy W5LUU

Trinidad & Tobago Students' Historic ISS Amateur Radio Contact

The following also is from "Southgate Amateur Radio News":

The paper reports on the historic amateur radio

Keith Pugh, W5IU (left front), listens for ARISSat-1, along with Larry Brown, W7LB, and Merton Eastman, AC7KY (both front in photo), while a group of amateur radio operators observe them. Included between Keith and Larry is Larry's son, Ken, KE5RTA, who is wearing sun glasses. (N6CL photo)

contact that sixth-form students in Trinidad & Tobago had with the International Space Station (ISS).

The students at the National Institute of Higher Education, Research, Science and Technology's (NIHERST) Caribbean Youth Science Forum (CYSF) were the first from the region to speak to an astronaut on the ISS. The students were assisted by volunteers from the Trinidad and Tobago Amateur Radio League (TTARL). The contact was an amateur radio telebridge via Luis LU8YY in Argentina.

Read the story "TT students talk their way into space history": <http://www.newsday.co.tt/news/0,145262.html>, and "ARISS ham radio contact planned with Caribbean Youth Science Forum, Nat. Inst. for Higher Edu, Trinidad, W. Indies": <http://www.southgatearc.org/news/august2011/ariss_ham_radio_event_0808b.htm>.

Trinidad and Tobago Amateur Radio League (TTARL): <http://www.ttarl.org/>. Also see: <http://www.ttarl.org/main/page_iss_history.html>.

N6CL, *CQ VHF* magazine Editor and *CQ* magazine's "VHF-Plus" column Editor Receives Wilson Award

Kent Britain, WA5VJB, The Central States VHF Society's Awards Manager and Antennas Editor for CQ, CQ VHF, *and* Popular Communications *magazines, presents Joe Lynch, N6CL, with the society's Wilson Award during the society's annual meeting in July.*

CQ VHF magazine Editor and *CQ* magazine's "VHF-Plus" column Editor Joe Lynch, N6CL, received the Central States VHF Society's Mel Wilson, W2BOC, Memorial Award at its annual banquet on July 30, 2011. In the photo, presenting the award to Joe is Kent Britain, WA5VJB (left), the Society's Awards Manager (and Antennas Editor for *CQ, CQ VHF,* and *Popular Communications* magazines). The award is for continuous service and dedication toward promoting VHF and UHF amateur radio activity. Lynch has served 8 1/2 years as the *CQ VHF*'s Editor and 20 years as *CQ* magazine's "VHF-Plus" column Editor, along with editing the Society's 2003 and 2005 *Proceedings*. Lynch is also the author of *The VHF "How To" Book* (published by CQ Communications and currently out of print).

Two other major awards were also presented at the ceremony. The Chambers award for technical contributions to amateur radio went to Joe Taylor, K1JT, developer of the WSJT suite of weak-signal modes. Gene Zimmerman, W3ZZ, recently retired *QST* VHF Editor and former CQ World-Wide VHF Contest Director, was presented with the President's award for his lifetime contributions to the VHF and UHF community.

Two-meter DXCC Achievement

In addition, from the "Southgate Amateur Radio News": "Lee Jennings, ZL2AL, reports that Bob McQuarrie, ZL3TY, has just achieved the first and only 2-meter DXCC in ZL and the Oceania region. Only 62 two-meter DXCCs have ever been awarded worldwide, so it is an amazing achievement to confirm 102 countries on this band from this part of the world. Lee had the pleasure of checking Bob's cards before submission and was astounded to see so many rare QSLs from AF and EU."

Current Contests

The **432 MHz Fall Sprint** is scheduled for October 5, 7 PM to 11 PM local time. The **Microwave (902 MHz and above) Fall Sprint** is October 15, 6 AM to 12 PM local time. The **ARRL 50 MHz to 1296 MHz EME Contest** is October 22–23. The **50 MHz Fall Sprint** is October 29, 2300 UTC to October 30, 0300 UTC.

Current Conference

The 2011 **Microwave Update** conference is to be held October 13–16, 2011 in Enfield, Connecticut at the Holiday Inn. Reservations (must mention Microwave Update): 1-860-741-2211. For further information, check the Microwave Update website: <http://www.microwaveupdate.org>.

Meteor Showers

The *Draconids* is predicted to peak on October 8. The predicted zenith hourly rate (ZHR) may reach storm levels, because Earth will encounter several dust trails from the Giacobini-Zinner comet. Look for peaks between 1600 and 2100 UTC. The *Orionids* is predicted to peak on October 21.

For more information on the above meteor shower predictions see Tomas Hood, NW7US's "Propagation" column elsewhere in this issue. Also visit the International Meteor Organization's website: <http://www.imo.net/calendar/2011> and <http://www.imo.net/draconids2011>.

And Finally . . .

During and shortly after the ARISSat-1 was deployed, certain individuals found it necessary to criticize the deployment—in particular the cosmonauts—for how the deployment was handled. To your editor, these comments were deplorable and unwarranted.

ARISSat-1 is one of four satellites of almost identical design that are planned for future deployment from the ISS. The overall program is educational and will showcase amateur radio in a positive light around the world.

Lessons learned from all aspects of this first deployment will help all parties make even better deployments happen in the future. Unwarranted critical and unconstructive comments have no place in the learning process.

As always, I look for your input for this, your column. Please e-mail me at the adress shown on the first page of this column. Until next month . . .

73 de Joe, N6CL

awards

BY TED MELINOSKY,* K1BV

The USA-CA Plaque and New Awards

When I process a USA-CA All Counties application, one of the steps is to ask the recipient if he/whe would like to purchase the USA-CA plaque. About two thirds of those asked do purchase it. This is a reminder to those who decided not to purchase the plaque years ago, that the offer still stands. We understand that while finances may have been tight at the time, they do change, and it might be really neat to have a plaque to commemorate your achievement. The plaque is always available for those who have completed USA-CA at any time in the past. The current cost is $44, and it will be mailed directly to the recipient from the engraving company in Michigan. Internet: <http://hrac.tripod.com/pka.htm>

USA-CA Honor Roll

500

3545 .....K8ZEE
3546 .....9A2EU
3547 .....RX3AGD

1000

1817 .....9A2EU

1500

1527 .....9A2EU

The total number of counties for credit for the United States of America Counties Award is 3077. The basic award fee for subscribers is $6.00. For nonsubscribers it is $12.00. To qualify for the special subscriber rate, please send a recent CQ mailing label with your application. Initial application may be submitted in the USA-CA Record Book, which may be obtained from CQ Magazine, 25 Newbridge Road, Hicksville, NY 11801 USA for $2.50, or by a PC-printed computer listing which is in alphabetical order by state and county within the state. To be eligible for the USA-CA Award, applicants must comply with the rules of the program as set forth in the revised USA-CA Rules and Program dated June 1, 2000. A complete copy of the rules may be obtained by sending an SASE to Ted Melinosky, K1BV, 12 Wells Woods Road, Columbia, CT 06237 USA. DX stations must include extra postage for airmail reply.

DX Awards

Awards from France. The two awards described here require working about half of either the provinces or departments for the basic award. They are very similar to many U.S. county awards. You can be sure that the areas composed of farming towns will be hard to get, but many will be easy. Remember, the first two digits of the French postal code is the numeric identifier for the Department number.

Many hams who has been collecting QSLs for a quite some time have French QSLs in their collection. In addition, the national society, REF, sponsors a contest that identifies each Department of France. France as a country is divided into 22 provinces, similar to a U.S. state. Each of the provinces is divided into one or more Departments.

General Requirements:

All awards are available for both amateur radio operators and SWLs. Send GCR list with statement from the applicant's national DX Award Manager that the QSLs are in the possession of the applicant. Apply to: REF-Union, Service des Diplomes, 32 Rue de Suede, B.P. 77429, F-37074 Tours Cedex 2, France.

DDFM and DPF fees:

Application fee = 16 IRCs or 12.50 Euros

7 IRCs or 5 Euros for each endorsement.

E-mail: <f5gsd@ref-union.org>

Internet: <http://ddfm.free.fr/>

Diplome of the Provinces of France. This award may be claimed for having contacted/heard French amateurs in different provinces. CW or Phone or HF/VHF. On HF, 22 provinces are needed; on VHF, 16 are required.

Contacts after 1 January 1951, except 1 January 1982 for WARC bands. All QSOs for French stations must have been made from the same province and all others must have been from the same country. (See Table I.) QSOs on 10 MHz count only if made on CW.

Diplome des Departements Francais de la Metropole (DDFM). Contact French Departments after 30 Jun 1957, and 1 January 1982 for the WARC bands. SWL OK. Contacts on HF or VHF, CW, phone, or other mode endorsements.

French stations on HF, 50 departments are required; on VHF, 30.

All others 40 departments on HF, and 20 on VHF.

Endorsements each added 10 departments.

A special sticker "Excellence" will be given for all 96 departments. No use of repeaters or satellite contacts allowed. All QSOs must have been made from the same QTH. QSOs on 10 MHz valid only if made using CW mode. Internet: <http://ddfm.free.fr>

The Hungarian Cities Award. Many contesters

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e-mail: <k1bv@cq-amateur-radio.com>

The Diplome of the Provinces of France award is given for having contacted/heard French amateurs in different provinces.

The Hungarian Cities Award is a very handsome certificate offered for contacting the country's largest cities.

should have a plentiful pile of QSLs from Hungary. A very handsome award is offered for contacting the country's largest cities.

This award may be obtained by all licensed ham radio operators and SWLs who meet the award conditions. Contacts/SWL reports on or after 1 January 1968 are valid. The current total number of Hungarian cities is 297. There are no band or mode restrictions.

Europeans must contact at least 100 different cities, and all others need just 50. The award application form and the list of cities available for download are found on the website: <http://www.ha8fw.eoldal.hu>.

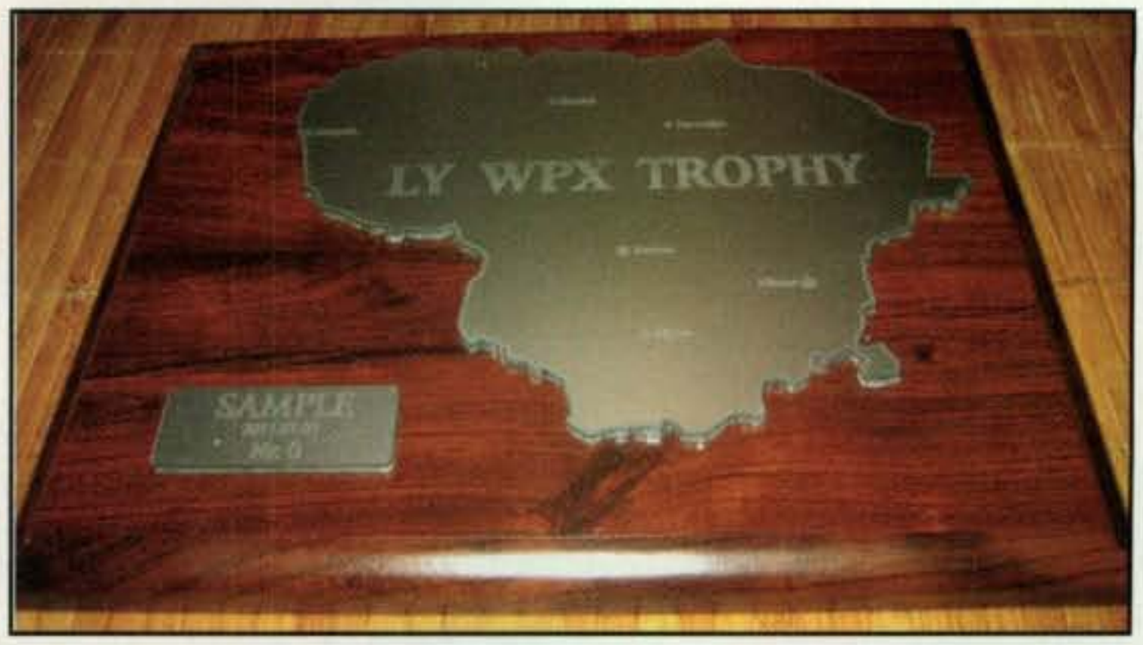
Send the application and fee of 5 Euros or $US7 to Award Manager: Gracin Marko, HA8FT, Tisza L. Krt. 39., Szeged H-6721, Hungary. Internet: <http:// www.mrasz.hu/english/diplomak/hca.htm>.

Lithuania LY WPX Trophy Plaques. Work LY prefixes on all bands (HF or VHF) using all modes to earn either of the listed handsome plaques. SWL OK. You must have confirmation by regular QSL, eQSL, or LoTW.

LY WPX Trophy Plaque. LY stations need 50 points, other Europeans 30, and all others 15. Fee for LY is 60LT, and for EU and others is 30 Euros, $US40, or 30 IRCs.

Number	Province	Includes these Department Code numbers
1	Alsace	67, 68
2	Aquitaine	24, 33, 40, 47, 64
3	Auvergne	03, 15, 43, 63
4	Basse-Normandie	14, 50, 61
5	Bourgogne	21, 58, 71, 89
6	Bretagne	22, 29, 35, 56
7	Centre	18, 28, 36, 37, 41, 45
8	Champagne	08, 10, 51, 52
9	Corse	2A, 2B
10	Franche-Comte	25, 39, 70, 90
11	Haute-Normandie	27, 76
12	Languedoc-Roussilon	11, 30, 34, 48, 66
13	Limousin	19, 23, 87
14	Lorraine	54, 55, 57, 88
15	Midi-Pyrenees	09, 12, 31, 32, 46, 65, 81, 82
16	Nord	59, 62
17	Pays-de-Loire	44, 49, 53, 72, 85
18	Picardie	02, 60, 80
19	Poitou-Charentes	16, 17, 79, 86
20	Provence-Cote D'Az\	04, 05, 06, 13, 83, 84
21	Ile de France	75, 77, 78, 91, 92, 93, 94, 95
22	Rhone-Alpes	01, 07, 26, 38, 42, 69, 73, 74

Table I– DPF Provinces and Department Code Numbers.



To earn the LY WPX Trophy plaque, Lithuanian stations need 50 points, other Europeans 30, and all others 15.

LY WPX Trophy Honor Roll Plaque. LY stations need 100 points and 20 different prefixes, Europeans need 50 points and 10 different prefixes, and all others 30 points and 10 different prefixes. Fee for LY is 90L,T and for EU and others is 40 Euros, $US50, or 45 IRCs.

Point example: You work station LY5W on 9 bands, which equals 9 points. If you then work another LY prefix on 2 bands, you now have 11 points toward the award. Only LY prefixes count for the award, not U2, UP2, UK RP (Soviet occupation period). All contacts must be confirmed. The sponsor reserves the right to ask for the cards for any contact.

Send GCR list and proper fee. Send application to Saulius Zalnerauskas LY5W, P.O. Box 1081, Kaunas, LT-49005 Lithuania. E-mail: <ly5w.sam@gmail.com>; Internet: <http://rk.vdu.lt/ly-wpx-trophy-honor-roll/176-qly-wpx-trophy-honor-rollq-slygos?lang=lt>.

(Note: The LY WPX Trophy is not affiliated with CQ's WPX Award or contest programs.—ed.)

Worked U.S. Territories Award

I recently received the rules and image of an award that will get hard-core DXers (as well as many others) racing to their card collection. I'm surprised the idea was never thought of before, but to the best of my knowledge, an award requiring contacts with U.S. possessions has never been offered.

Sponsored by the METRO DX Club, the Worked U.S. Territories (WUST) Award is given for proof of contact with a minimum of 14 of the current 16 IARU-recognized U.S. territories (as of 1 January 2011)

Jim Fenstermaker, K9JF
USA-CA All Counties #1216
May 31, 2011

Jim Fenstermaker, K9JF, USA-CA All Counties #1216

"You're doing *what*?" My friends asked me in amazement and disbelief when I told them I decided to work towards the CQ USA-CA Counties Award. After all, I have been a confirmed DXer and contester for most of my "amateur Radio career" since my initial license was issued in 1959. But you have to understand that in 2004, I searched through a pile of USA QSL cards and found that I qualified for the initial USA-CA 500 county level and that working the remaining counties couldn't be that hard! After all, they were "local contacts" rather than DX, and thus this goal was begun. So, my Type "A" personality type latched on to a new goal!

I received my first license (KN9TZH) in Fort Wayne, IN. The General class license soon followed, and my interest in DXing was whetted by achieving DXCC in 1962 while still in high school. College and the US Army kept me busy for the next 10 years, but I tried to remain active on the bands and won some contests using my DL5JF call while in Germany. Marriage and family followed, as well as pursuing additional college work, which also limited my available time. Following a few years of working in Wisconsin, our family traveled to the Pacific Northwest and we fell in love with this area. Tektronix was astute enough to hire me and move us to southern Washington nearly 30 years ago.

During this time, I was active with my DX pursuits and ultimately received the DXCC #1 Honor Roll award. Contesting from superb contest locations as a "hired gun" and from overseas locations honed my skills, but I didn't operate much from my home location due to the time away from the operating location as noted below. In the meantime, I was president of the Greater Milwaukee DX Association, Willamette Valley DX Club, and Clark County (WA) Amateur Radio Club.

I discovered the various state QSO parties which allowed me to satisfy my competitive needs in a minimal period of operating time. These operating events both allowed me to hone my operating skills and work more counties! Soon I discovered the county hunter's organization (MARAC) and county hunter's nets and my count continued to grow. A transfer to Seattle in a career change kept me only marginally active for nearly ten years, as the station was 180 miles away in Vancouver, WA. Whenever we drove to the shack location, I sandwiched in county hunting with my real reasons for the trip—yard and antenna maintenance!

It was about this time when I was appointed to the vice-director position for the Northwestern Division of the ARRL. I served in this position for six years and then became director, a position that I currently hold. The director position plus committee chairmanship assignments have kept me quite busy during the past few years.

However, my county totals slowly grew, and I reached the 1000 then 2000 and finally the 3000 county level. I knew that the 3077 goal was obtainable, and retirement hastened my desire to work the final counties. My focus on DX was replaced by counties, and my DX and contest friends became tired of hearing of my county exploits.

Jim, N9JF, put out the next to last county on for me. I was almost there! When learning that I needed only one county for the "whole ball of wax," Mike, NFØN, drove nearly 250 miles round-trip to activate Miner County, SD—my last one! During this time, my XYL Shirley, W7SAF, put up with my county obsession with an occasional smile, especially when I worked #3077! Thanks also to Phil and Barbara Yasson (AB7RW and AC7UH, respectively) for checking all the cards. What a task!

We met a number of county hunters at the Dayton Hamvention® County Hunters forums and on our travels around the USA. Occasionally, someone passes through Clark County, WA and stops by for coffee and ice cream. A highlight of our amateur radio experience is meeting folks from all over the world, and we look forward to meeting additional folks at a MARAC National Convention as the 2012 gathering is planned for Vancouver, WA

This has been a remarkable journey and one of the highlights of this ongoing trip. For me, amateur radio is not just a hobby…it is a way of life.

—73, Jim, K9JF

Congratulations to the METRO DX Club for designing and offering this beautiful certificate. (Note, however, that 10 of the territories are on the 100 Most Wanted DXCC List.)

The WUST award is given for proof of contact with a minimum of 14 of the current 16 IARU-recognized U.S. territories (as of 1 January 2011).

The sixteen WUST territories are:

KG4 (Guantanamo Bay)
KHØ (Mariana Islands)
KH1 (Baker & Howland Islands)
KH2 (Guam)
KH3 (Johnston Island)
KH4 (Midway Island)
KH5 (Palmyra & Jarvis Islands)
KH5K (Kingman Reef)
KH7K (Kure Island)
KH8 (American Samoa)
KH8S (Swains Island)
KH9 (Wake Island)
KP1 (Navassa Island)
KP2 (US Virgin Islands)
KP4 (Puerto Rico)
KP5 (Desecheo Island)

Following receipt of the original award for a minimum of 14 territories, endorsements for contact #15 or contact #16 available for US$3.00 or 2 valid IRCs.

Mixed bands and modes OK. No date restriction. Send a GCR list certified by two licensed amateurs showing the callsign of the station worked, date, time, frequency/band, and mode. The sponsor requests that you use the application found on its website. Photocopies of QSL cards are OK. SWL OK. Send GCR list or QSL photocopies and fee of US$8 or 4 valid IRCs to METRO DX Club, 3810 N. Chamlin Drive, Morris, IL 60450. E-mail: <awards@metrodxclub. com>; Internet: http://www.metrodxclub.com>. Award application/sample log extract: <http://www.metrodxclub.com/log_extract.htm>.

We're always on the hunt for new awards to feature on these pages. Please send your information to the address shown on the first page of this column. 73, Ted, K1BV

propagation

BY TOMAS HOOD,* NW7US

Fair Conditions Predicted for CQ WW DX SSB Contest 2011

A Quick Look at Current Cycle 24 Conditions

(Data rounded to nearest whole number)

Sunspots
Observed Monthly, July 2011: 44
Twelve-month smoothed, January 2011: 31

10.7 cm Flux
Observed Monthly, July 2011: 94
Twelve-month smoothed, January 2011: 91

***Ap* Index**
Observed Monthly, July 2011: 9
Twelve-month smoothed, January 2011: 7

One Year Ago: A Quick Look at Solar Cycle Conditions

(Data rounded to nearest whole number)

Sunspots
Observed Monthly, July 2010: 16
Twelve-month smoothed, January 2010: 9

10.7 cm Flux
Observed Monthly, July 2010: 80
Twelve-month smoothed, January 2010: 76

***Ap* Index**
Observed Monthly, July 2010: 6
Twelve-month smoothed, January 2010: 5

LAST-MINUTE FORECAST

Day-to-Day Conditions Expected for October 2011

	Expected Signal Quality			
Propagation Index.....	(4)	(3)	(2)	(1)
Above Normal: 5-7, 14, 16-19, 23-25	A	A	B	C
High Normal: 1-4, 8, 12-13, 21-22, 28-31	A	B	C	C-D
Low Normal: 11, 15, 20	B	C-B	C-D	D-E
Below Normal: 9-10	C	C-D	D-E	E
Disturbed: 26-27	C-D	D	E	E

Where expected signal quality is:
A—Excellent opening, exceptionally strong, steady signals greater than S9.
B—Good opening, moderately strong signals varying between S6 and S9, with little fading or noise.
C—Fair opening, signals between moderately strong and weak, varying between S3 and S6, with some fading and noise.
D—Poor opening, with weak signals varying between S1 and S3, with considerable fading and noise.
E—No opening expected.

HOW TO USE THIS FORECAST

1. Find the *propagation index* associated with the particular path opening from the Propagation Charts appearing in *The New Shortwave Propagation Handbook* by George Jacobs, W3ASK; Theodore J. Cohen, N4XX; and Robert B. Rose, K6GKU.

2. With the *propagation index*, use the above table to find the expected signal quality associated with the path opening for any given day of the month. For example, an opening shown in the Propagation Charts with a *propagation index* of 2 will be fair (C) on Oct. 1st through the 4th, good (B) on the 5th through the 7th, fair (C) on the 8th, poor (D) to completely closed with no propagation (no opening expected) on the 9th and 10th, etc.

3. As an alternative, the Last-Minute Forecast may be used as a general guide to space weather and geomagnetic conditions through the month. When conditions are Above Normal, for example, the geomagnetic field should be quiet and space weather should be mild. On the other hand, days marked as Disturbed will be riddled with geomagnetic storms. Propagation of radio signals in the HF spectrum will be affected by these conditions. In general, when conditions are High Normal to Above Normal, signals will be *more* reliable on a given path, when the path is ionospherically supported.

High-frequency (HF) radio enthusiasts celebrate the arrival of the winter DX season. From October through November 2011 we will see a steady improvement on the DX bands. During the CQ WW contests taking place in both months, we should experience fairly good success.

The 2011 CQ WW DX SSB Contest (http://www.cqww.com/> and <www.cq-amateurradio.com>) will start at 0000 UTC, Saturday, October 29, and run through 2359 UTC Sunday, October 30. Looking at the 27-day rotation of the Sun, taking into consideration the current solar activity at the time of writing this column (mid-August), propagation should be fair on both days.

Predictions for one 27-day rotational period are far more accurate than for three 27-day rotational periods. Be sure to carefully check conditions on October 2 and 3, since this would be one rotational period before the SSB contest weekend. There is better than a 90-percent chance that conditions observed on those days will recur during the October contest weekend.

See the "Last-Minute Forecast" for expected day-to-day conditions for the entire month of October. An updated day-to-day forecast for the SSB contest weekend will appear as a bulletin at the beginning of next month's column. November's issue should reach most subscribers before the SSB contest begins. You can also see an up-to-the-day "Last-Minute Forecast" on my propagation resource center at <http://sunspotwatch.com/>.

Table I shows the smoothed sunspot count during previous WW DX Contest periods since 2000, and what's predicted for the 2011 contest. Contest conditions could be somewhat like those of last year, but perhaps greatly improved if the expected increase in solar activity over last year occurs (a high probability). Low- to middle-latitude propagation paths should be good on the lower HF bands (160, 80, 40 meters). There is a moderate chance that reasonably long windows of propagation on the higher HF bands above 20 meters will occur for paths spanning lower latitudes over sunlit and gray-line termination regions. However, it is expected that the higher bands will have a lot of fluctuation in performance. The lower frequency bands will be quiet, much like last year.

*e-mail: <nw7us@nw7us.us>

Even if you are not a dedicated contester, you should give the CQ WW a try. If you are trying for your DXCC or other "wallpaper," this is the contest of choice, especially during more active solar years. Conditions are beginning to take a turn for the better, and while there are still challenges on higher frequencies, the improvement of propagation on lower HF bands such as 40 and 20 meters provides a lot of opportunity to make a good score.

Try out propagation modeling and forecasting software programs to optimize your efforts. Play around with the contest-specific conditions and station-based parameters such as your antenna properties, geographical location, power levels, and operating times. A program I have reviewed in past columns is ACE-HF Pro. Using such a program you can work out an operational plan using tools such as ACE-HF's Animated Coverage Maps, or the ACE-HF Pro's band opening charts for the various propagation paths you wish to target to get those extra contest points. (See <http://hfradio.org/ace-hf/> for reviews.)

October Propagation

The following is a band-by-band summary of DX propagation conditions expected from mid-October through mid-December and centered on the two CQ WW contest weekends (SSB October 29–30; CW November 26–27). Next month's column will update this summary.

160 Meters: As usual, this slice of radio spectrum begins to turn attractive for DXing, as well as every-day use, now with the considerably decreased static levels. However, now we're seeing more solar activity, and with that the geomagnetic field has become somewhat more active. This will make the "top band" somewhat more variable than a year ago during this season. The longer hours of darkness in the northern latitudes should provide a number of DX openings on this band. These openings will often be weak due to the relatively high signal absorption, since we are not yet into the longest periods of daily darkness. However, give this band a try, as some fairly good openings should be possible toward Europe and the south from the eastern half of the United States, and toward the south, the Far East, Australasia, and the South Pacific from the western half of the country. Other DX openings might also be possible. The best propagation aid for this band (and for 80 and 40 meters as well) is a set of sunrise and sunset curves, since DX signals tend to peak when it is local sunrise at the easterly end of the path. A good internet website featuring a gray-line map display is at <http://www.fourmilab.ch/earthview/>. Follow the link "map of the Earth" showing the day and night regions.

80 Meters: This is the work-horse night-time band for those with a well-designed antenna system. This band provides great DX openings to many areas of the world during the hours of darkness and into the sunrise period. The band should peak toward Europe and in a generally easterly direction around midnight. For openings in a generally western direction, expect a peak just after sunrise. The band should remain open toward the south throughout most of the night. Propagation on this band is quite similar to that expected on 40 meters, except that signals will be somewhat weaker on the average, noise levels will be a bit higher, and the period for band openings in a particular direction will be a bit shorter.

40 Meters: This should be the hottest DX band during hours of darkness, as the seasonal static levels are lower than they were during the summer. The band should be open first for DX toward Europe and the east during the late afternoon. Signals should increase in intensity as darkness approaches. During the hours of darkness expect good DX openings to most areas of the world. Signals should peak from an easterly direction about midnight, and from a westerly direction just after sunrise. Excellent openings toward the south should be possible throughout most of the nighttime period.

20 Meters: DX openings should be possible on this band both day and night. Conditions should peak from about an hour or two after sunrise and again during the late afternoon and early evening hours. Expect to work into some areas of the world between sunrise and sunset, when conditions are a mix of low geomagnetic activity and an increase in solar activity. Good openings should be possible to many areas of the world during the dusk and dawn periods, following the gray-line. When

	2000	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11
October	115	114	91	58	36	26	14	6	2	7	23	*64
November	113	116	85	57	35	25	13	6	2	8	27	*67

**Predicted values expected during the 2011 contests.*

Table I– Smoothed sunspot numbers recorded during CQ World-Wide DX Contests since 2000 (October SSB, November CW).

Fig. 1– The Sun as seen by the Solar Dynamics Observatory's Helioseismic and Magnetic Imager on August 1, 2011. Four sunspot regions, three of which are large and active, contributed to the series of x-ray flares that created stormy geomagnetic conditions during the first part of August. The combined energy pushed the 10.7-cm flux well above 100, welcomed by high-frequency amateur radio operators looking for DX. By August 9, 2011, the largest X-ray flare yet of sunspot Cycle 24 erupted from the middle sunspot region. It measured X6.9 (see the movie at <http://nw7us.us/x69f1.html>). (Source: Solar Dynamics Observatory [SDO]/Helioseismic and Magnetic Imager [HMI])

conditions are above normal, expect 20 meters to offer a few surprise worldwide DX openings during the night. Look for long-path openings for about an hour or so after sunrise and again for an hour or so before local sunset. Signal levels are expected to be exceptionally strong during the October contest period.

15 Meters: This year, 15 meters will play more often as a DX band. During the daylight hours 15 should see some significant action, better than the last few years. Fair to good conditions are expected from shortly after sunrise through the early evening hours. The band could remain open into the evening toward southern and tropical areas.

10 Meters: For those in low- and middle-latitude locations, this band could yield a number of daytime contacts during the contest weekends, especially between the points in the Southern Hemisphere, and along paths crossing the equator. Last year, it was predicted that this year should yield sig-

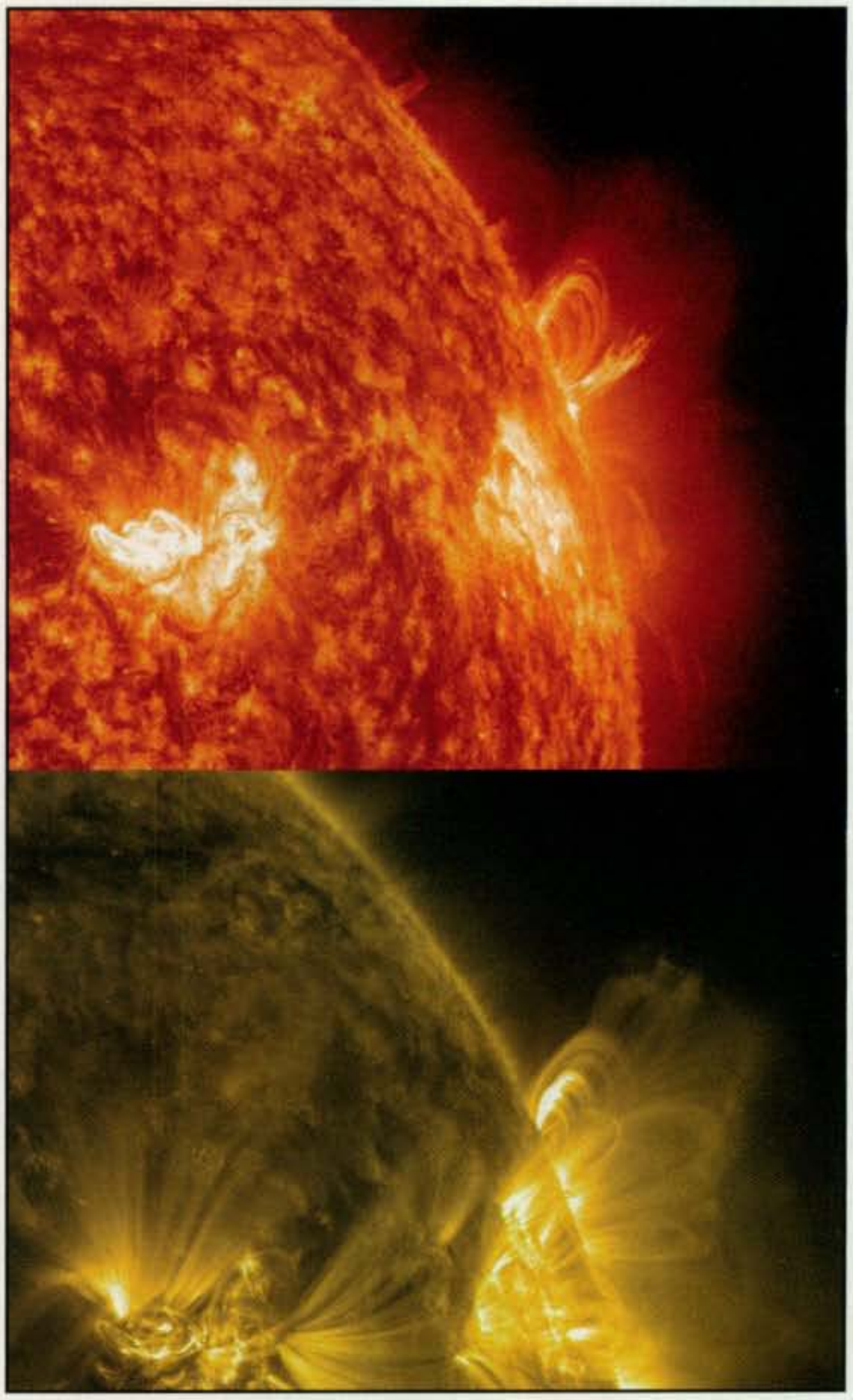


Fig. 2– The complex sunspot regions that had been rotating across the solar disc since the last week in July finally rotated away from view by August 6, 2011. Seen at the 304- and 171-Angstrom wavelengths, the play of solar plasma above these three large active sunspot regions is stunning. (Source:Solar Dynamics Observatory [SDO]/Atmospheric Imaging Assembly [AIA])

nificant DX on this band by this season. This forecast is tentative, with the caveat that the sunspots must be present. If we see the 10.7-cm flux rise above 125, expect this band to be a major source for great DX! With the continued rise in solar activity, t10 meters comes alive. Those in the Caribbean and other tropical regions will find 10 meters a more usable band this year.

VHF Conditions

Watch for possible tropospheric ducting conditions during October because of the changing weather patterns. Two meters is the best band to watch for this.

There is a moderate to strong chance to work meteor-scatter VHF propagation off this year's *Draconids* meteor shower, active between October 6 and 10. This shower is expected to produce a possible storm-level "show" this year, with two possible peaks—on the UTC night of October 8 or around 1040 UTC on October 9. The shower is expected to be moderate, with those two dates predicted to produce a possible storm number of meteors this year. The best time to check for radio propagation would be from about midnight onward until dawn, locally.

Draconid meteors are exceptionally slow moving, a characteristic that helps separate genuine shower meteors. This shower could produce meteor-scatter mode (Ms) propagation openings on VHF and UHF. Predictions are indicating that the only interaction with these meteors will be from a thin wispy trail of debris that will intersect Earth's orbit, this time around.

Check out <http://www.imo.net/calendar/2011> for a complete calendar of meteor showers in 2011.

Don't forget to check out *CQ VHF* magazine for more details on VHF propagation and conditions. If you use Twitter.com, you can follow @hfradio-spacewx for hourly updates that include the *K*-index numbers. You can also check the numbers at <http://sunspotwatch.com>.

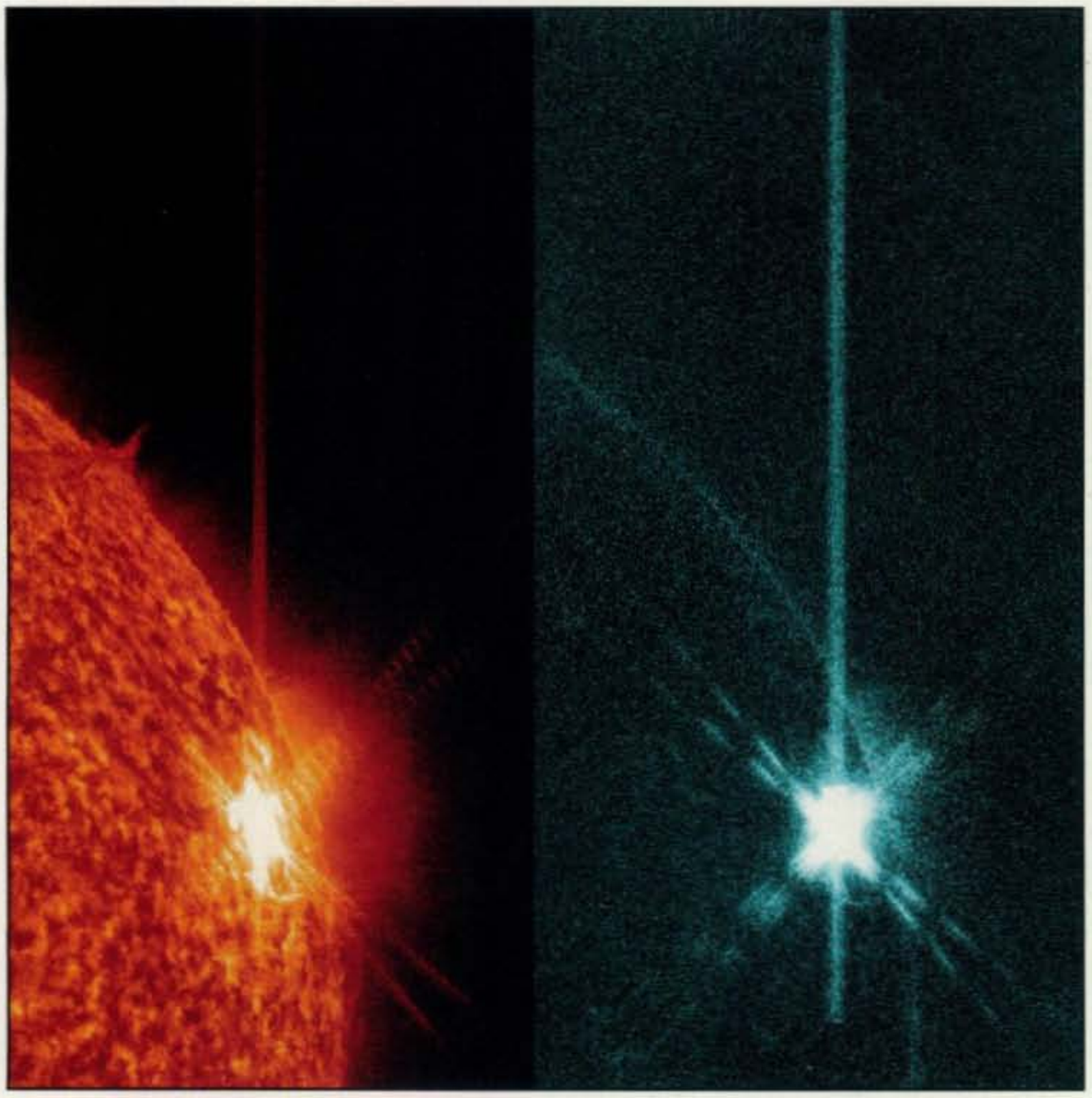


Fig. 3– The huge magnitude X6.9 X-ray flare seen at the 304-Angstrom (left) and 131-Angstrom (right) wavelengths by SDO AIA on August 9, 2011. This flare, the most powerful yet in sunspot Cycle 24, caused a level R3 (moderately strong) radio blackout (a sudden ionospheric disturbance) on the sunlit side of Earth. This means that propagation of radio signals throughout most of the shortwave radio spectrum over paths spanning the side of the Earth facing the Sun, and facing the flare, were effectively "cut-off." This happens eight minutes after the flare, at the speed of light. The blackout lasted about an hour. (Source: SDO/AIA)

Current Solar Cycle Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for July 2011 is 43.9, up from June's 37.0 and May's 41.6. The lowest daily sunspot value of 20 was recorded on July 25. The highest daily sunspot count was 78 on July 18. The 12-month running smoothed sunspot number centered on January 2011 is 31.0. A smoothed sunspot count of 64, give or take about 9 points. is expected for October 2011.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 94.2 for July. The 12-month smoothed 10.7-cm flux centered on January 2011 is 91.2. The predicted smoothed 10.7-cm solar flux for October 2011 is 118, give or take about 9 points.

The observed monthly mean planetary *A*-index (*Ap*) for July 2011 is 9. These figures remain fairly quiet, overall. The 12-month smoothed *Ap* index centered on January 2011 is 6.7. Expect the overall geomagnetic activity to vary greatly between quiet to moderate storm levels during October, since the increased sunspot activity also includes flares and related space weather. Refer to the "Last"Minute Forecast" for the outlook on conditions during this month. You can find the online version of this outlook at <http://sunspotwatch.com>.

I welcome your thoughts, questions, and experiences regarding this fascinating science of propagation. You may e-mail me, write me a letter, or catch me on the HF amateur bands. Please come and participate in my online propagation discussion forum at <http:// forums. hfradio.org/>. If you are on Facebook, check out <http://www.facebook.com/spacewx.hfradio> and <http://www.facebook.com/NW7US>. Speaking of Facebook, check out the CQ Amateur Radio Magazine fan page at <http://www.facebook.com/CQMag>.

Now that the new solar cycle is active, I'll be keeping my ears to the radio, hoping to hear you on the air. Happy DX!

73, Tomas, NW7US

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Looking Ahead in CQ

Here are some of the articles we're working on for upcoming issues of *CQ*:

• Hi-Tech Special in November, including…

Radio Ubuntu, by AD1C

An iPad to ICOM Interface, by WAØSPM

The ON4WW Ultimate Beverage Switchbox, by ON5UK

Updates from AMSAT, TAPR, and other hi-tech ham groups

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ham radio news

(from page 2)

the HF amateur bands. The first involved "swishing" sounds heard on the 60-meter (5 MHz) band, first assumed to be signals from the primary users of the band (hams have a secondary allocation there and must accept interference from primary users). However, a joint effort by ARRL Official Observers and researchers at Rutgers University in New Jersey determined that the signals actually were coming from Coastal Ocean Dynamics Applications Radar (CODAR) systems and did not belong on 60 meters. CODAR is an HF radar system used by researchers to study ocean waves and currents. According to the *ARRL Letter*, the effort led to a frequency change by CODAR, ending the QRM on 60 meters.

In a follow-up action on the west coast, what appeared to be CODAR activity that was causing interference on the 12-meter band was tracked down and the local ARRL OO Coordinator helped resolve the issue.

Finally, *Newsline* reports that hams around the world worked together in a global hidden transmitter hunt to triangulate the location of the source of a stream of Morse code dits that was heard worldwide for more than a week. It seems that a station in northern California (whose name and call have not been released) accidentally pushed a keyboard against his keyer and unknowingly activated it. The signals stopped immediately after he was contacted by the ARRL.

FCC Considers Petition for Lifetime Exam Credit

The FCC is considering a petition by the Anchorage Volunteer Examiner Coordinator (VEC) to grant lifetime credit for exam elements passed in earning licenses that subsequently expired and were not renewed during the two-year grace period. According to Newsline, the petition asks that the FCC permit volunteer examiners to give former holders of Technician, General, Advanced and Extra Class licenses appropriate element credit so that they can obtain new licenses without retaking the examinations. The Anchorage VEC says this is in the public interest because it would result in the immediate expansion of the pool of experienced operators who would be available in times of emergency. Currently, FCC rules permit lifetime credit for Element 3 (the General exam) only to holders of Technician licenses that expired prior to March 21, 1987. The comment period on the petition closed on August 19.

FCC Dismisses Petition to Bar All Felons from Ham Bands

The FCC has said no to a petition asking for a rules change to automatically bar all convicted felons from ever holding an amateur license. *Newsline* reports that the request was filed this past May by Bernard Parker, K5BP, of Dallas, Texas. In dismissing the petition, the FCC said such matters are dealt with on a case-by-case basis in order to take into account any mitigating factors or subsequent rehabilitation. It also said Parker had not provided a compelling argument for the Commission to revisit its current policy, especially since it already has an established process in effect for determining whether a felony conviction is grounds for denial of an amateur radio license.

Additional and updated news is available on the Ham Radio News page of the CQ website at <http://www.cq-amateur-radio.com>. For breaking news stories, plus info on additional items of interest, sign up for CQ's free online newsletter service. Just click on "CQ Newsletter" on the home page of our website.

our readers say...

Oh, Those Cover Photos...

Editor, *CQ*:

I know your gonna get a lot of negative feedback on this one, but your August 2011 cover picture of a ham "looking" like he is, or is about climb a telescoping tower, (Tri Ex, US Towers or any other brand) is an absolute no-no. It is implicitly stated in all literature to NEVER climb an extended telescoping tower FOR ANY REASON!! The way N3ZS is looped around his tower with the belt, if the 3/16 inch cable snaps and the innermost section goes down, it will snap him to the tower, break his back and suffocate him., and any part of his body that gets pulled inside the triangle will be sheared off. And yes, I do own a 72-foot US Towers telescoping tower, with accessory to lay the tower down and do antenna work on good old terra firma. Safety first!!!!

Al Pepping, KV8X

Editor, *CQ*:

I pulled the August 2011 (issue) from the mailbox today. As I was getting out of the car to go into the house I was so angry I could spit. How in the world could you let such a dangerous undertaking appear on the cover? Every ham with a crank up should know that one never ever climbs or even sticks their hands or feet into that tower unless it is totally retracted and blocked off. Shame on CQ!!!!!!! You have put tower safety back several decades with that photo. You all should be ashamed of yourselves. 73

Bob Finger, W9GE

W2VU responds: You are both correct on the facts, of course. But our cover photos are intended to look nice and to showcase the people of ham radio. They are not intended to be tutorials. James also is not wearing a hard hat, as anyone working on a tower must. But if he was, we wouldn't be able to see his face very well. For the record, one should never climb on an extended crank-up tower and one should always wear a hard hat and other appropriate safety gear.

Response to Joplin Response Article

Editor, *CQ*:

I had lunch with Dee Smith last week; she is the Division Director of Emergency Disaster Services for The Salvation Army. I showed her the article in your magazine about SATERN ("Public Service," August 2011 issue) and she would like to share with all of her "upper management" [other division leadership and territory leadership].

Dee was very pleased about this article and is always looking for ways to brag about our work to the territorial leaders. In my 12 years as Division SATERN Coordinator, this is by far the best article ever written about SATERN and what we do. Thank you so much for publishing this article.

June Jeffers, KB0WEQ

Adding a Callsign to a Hall of Fame Inductee

Editor, *CQ*:

Regarding the article on page 36 of July 2011 CQ Magazine, I'm probably not the first one to mention that Ted McElroy had an amateur radio callsign, W1JYN, probably issued in 1936 or 37... I verified Ted's callsign via ARRL HQ, where they maintain a set of old callbooks.

Take care & 73,
Art Goddard, W6XD

W2VU responds: Thank you, Art. We'd searched but were unable to find his call. And yes, you were the first (and so far only) person to point this out. Thank you also to ARRL Field & Regulatory Correspondent Chuck Skolaut, KØBOG, for researching the old callbooks.

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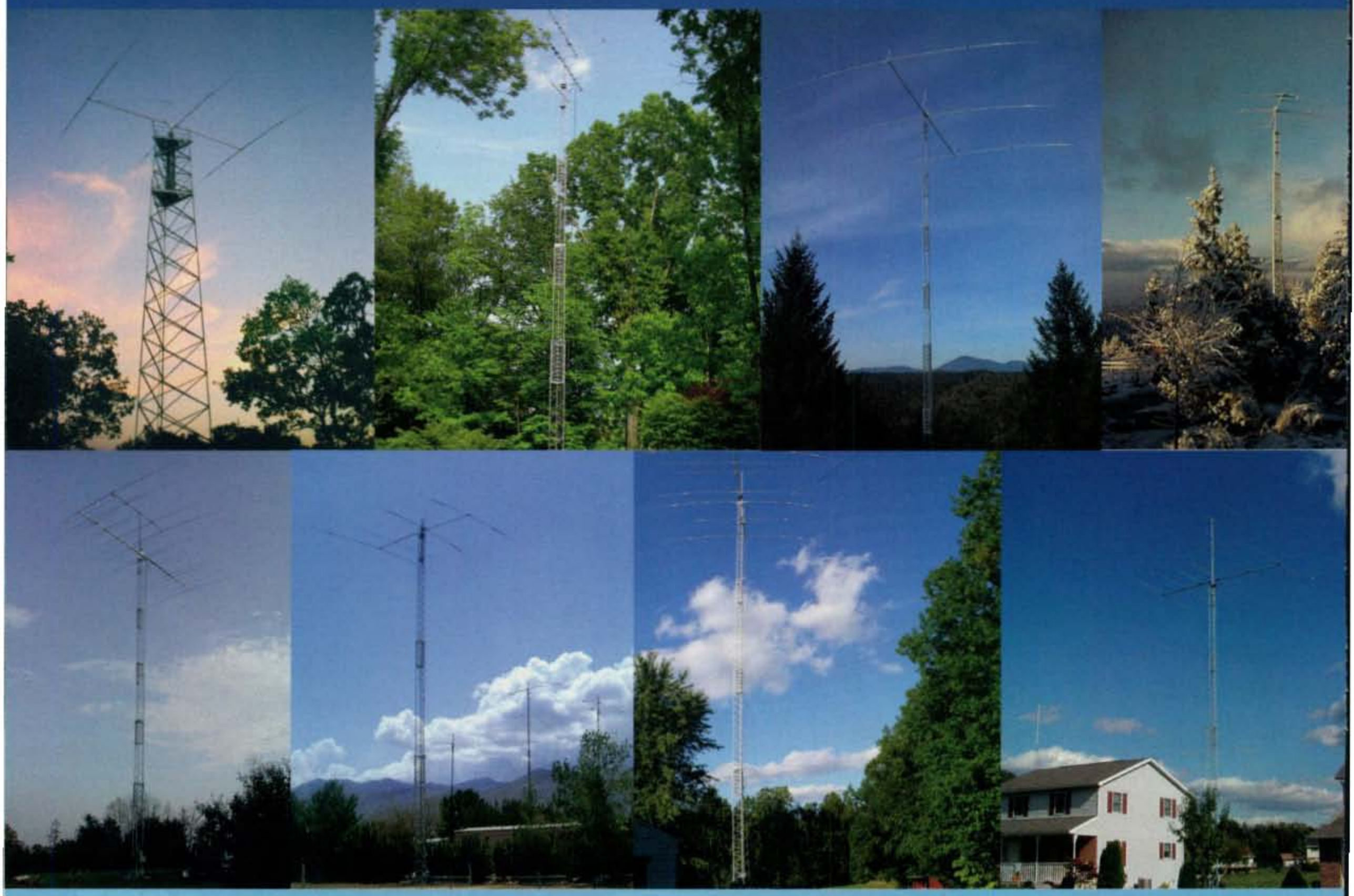

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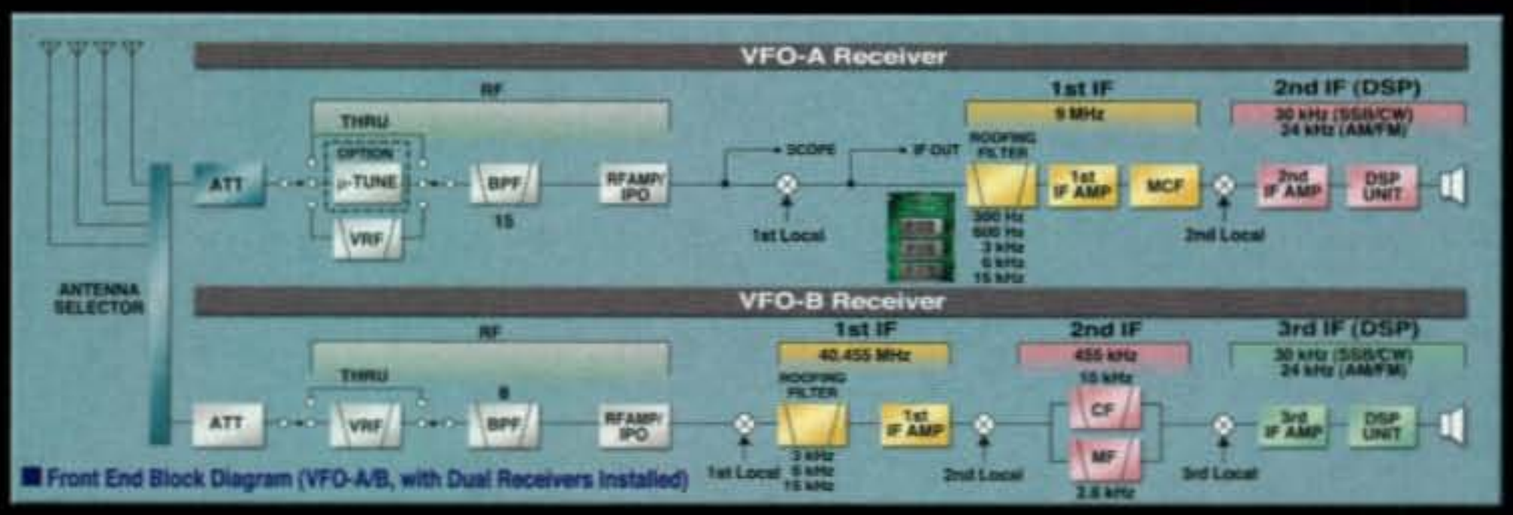

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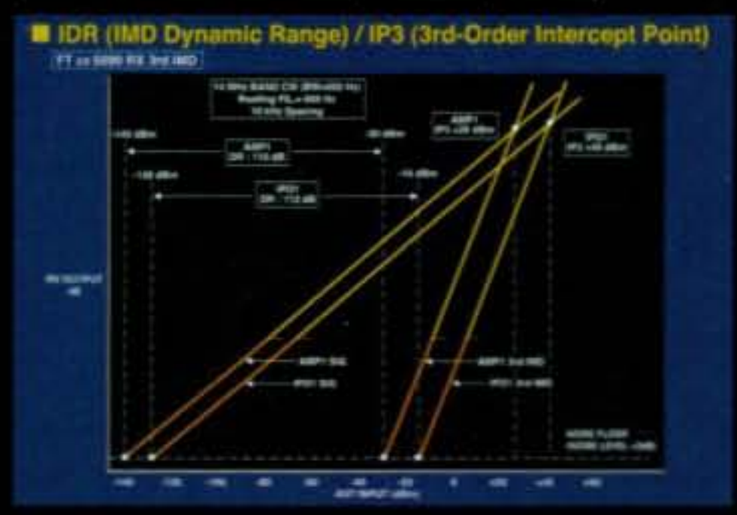

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