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Amateur Radio

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COMMUNICATIONS & TECHNOLOGY

NOVEMBER 2007

CQ

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On the Cover: Rod Linkous, W7OM, enjoys DXing and contesting from his station in Seattle, Washington. Details on page 96. Inset: DARPA Director Dr. Tony Tether, K2TGE.

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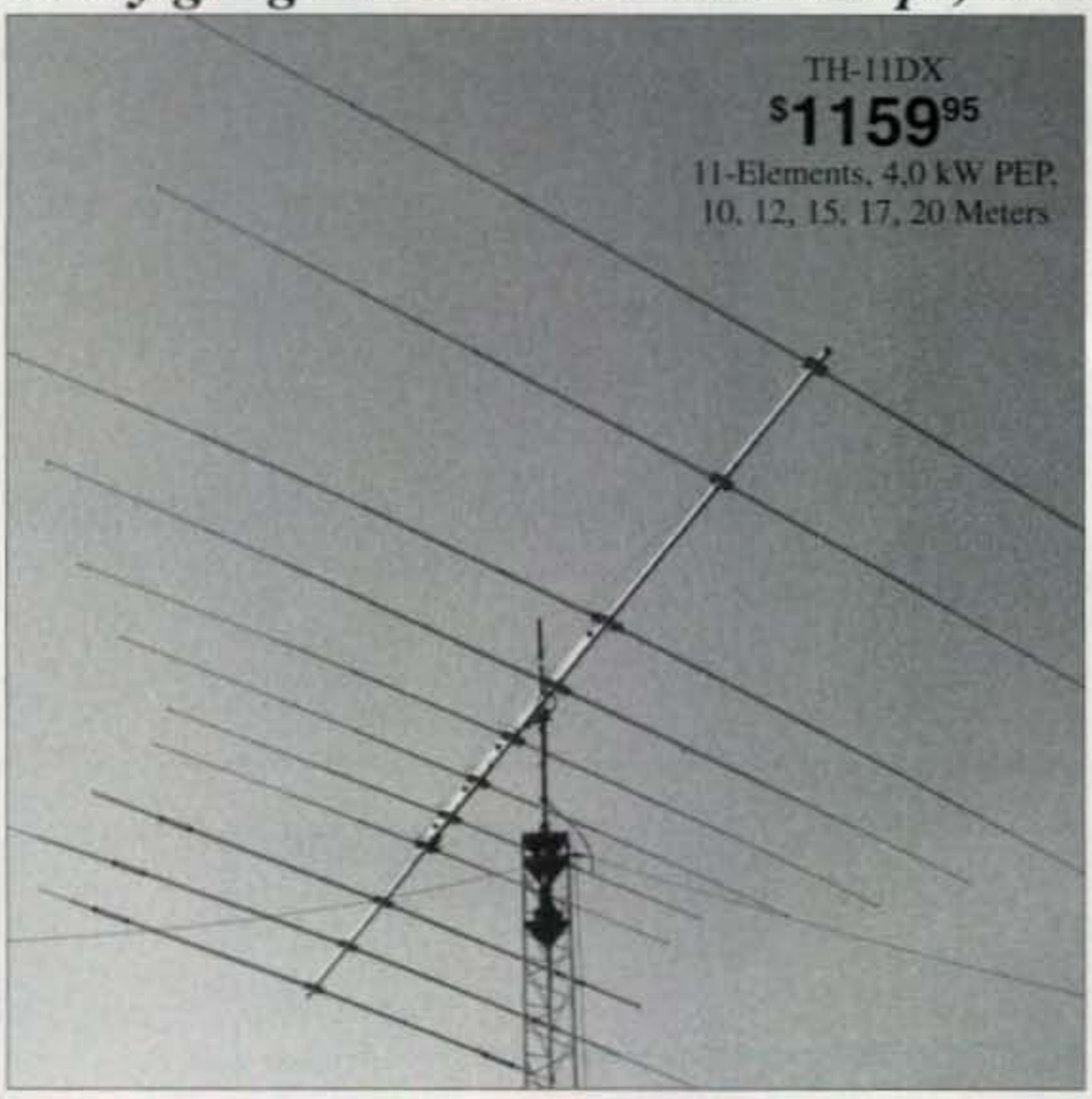

TH-11DX, $1159.95. 11-element, 4.0 kW PEP, 10,12,15,17,20M

The choice of top DXers.

With 11-elements, excellent gain and 5-bands, the super rugged TH-11DX is *the "Big Daddy" of all HF beams!*

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Includes *Hy-Gain's* diecast aluminum, rugged boom-to-mast clamp, heavy gauge element-to-boom brackets, BN-86 balun. For high power, upgrade to BN-4000.

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The broadband *five element* TH5-MK2 gives you outstanding gain.

Separate air dielectric *Hy-Q* traps let you adjust for maximum F/B ratio on each band.

Also standard is *Hy-Gain's* exclusive *BetaMATCH™*, stainless steel hardware and compression clamps and BN-86 balun.

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The super popular TH-3MK4 gives you the *most gain for your money* in a full-power, full-size durable Hy-Gain tri-bander!

You get an impressive average gain and a whopping average front-to-back ratio. Handles a full 1500 Watts PEP. 95 MPH wind survival.

Fits on average size lot with room to spare -- turning radius is just 15.3 feet. Four piece boom is ideal for DXpeditions. Rotates with CD-45II or HAM-IV rotator.

Features *Hy-Gain BetaMatch™* for DC ground, full power *Hy-Q™* traps, rugged boom-to-mast bracket and mounts on standard 2"O.D. mast. Stainless steel hardware. BN-86 balun recommended.

TH-2MK3, $369.95. 2-element, 1.5 kW PEP, 10,15,20 Meters

The 2-element TH-2MK3 is Hy-Gain's *most economical* full power (1.5kW PEP) full size tri-bander.

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Ruggedly constructed, top-performing, compact 6 foot boom, tight 14.3 foot turning radius. Installs almost anywhere. Rotate with CD-45II or HAM-IV. BN-86 balun recommened.

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Revolutionary 4-element compact tri-bander *lets you add 40 or 30 Meters!* Has 14 foot boom and tight 17.25 feet turning radius. Fits on roof tri-pod, mast or medium duty tower.

Hy-Gain's *patented* broadbanding *Para Sleeve* gives you less than 2:1 VSWR. 1.5kW PEP.

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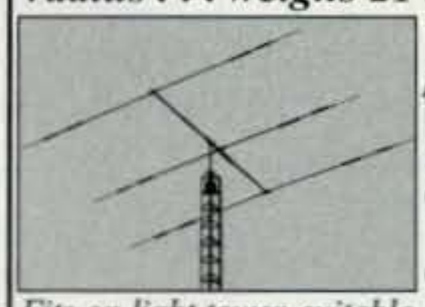

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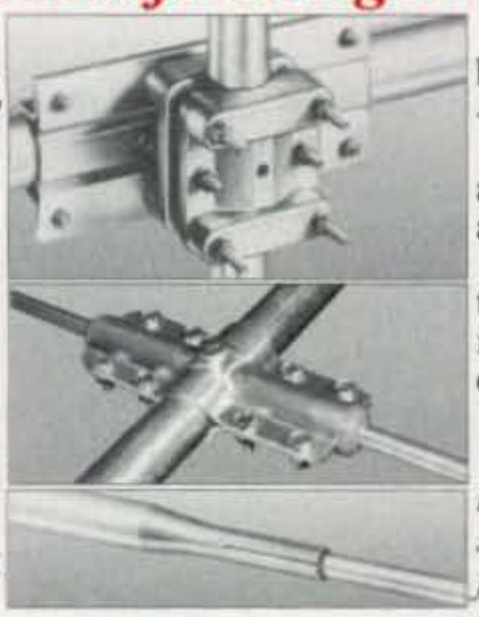
Model No.	No. of elements	avg gain dBd	avg F/B dB	MaxPwr watts PEP	Bands Covered	Wind sq.ft. area	Wind (mph) Survival	boom feet	Longest Elem. (ft)	Turning radius(ft)	Weight (lbs.)	Mast dia O.D.(in.)	Recom. Rotator	Sugg. Retail
TH-11DX	11	*For Gain and F/B ratio--See...* • www.hy-gain.com • Hy-Gain catalog • Call toll-free 800-973-6572		4000	10,12,15,17,20	12.5	100	24	37	22	88	1.9-2.5	T2X	$1159.95
TH-7DX	7			**1500**	**10, 15, 20**	**9.4**	**100**	**24**	**31**	**20**	**75**	**1.5-2.5**	**HAM-IV**	**$869.95**
TH-5MK2	5			1500	10, 15, 20	7.4	100	19	31.5	18.42	57	1.5-2.5	HAM-IV	$759.95
TH-3MK4	3			**1500**	**10, 15, 20**	**4.6**	**95**	**14**	**27.42**	**15.33**	**35**	**1.9-2.5**	**CD-45II**	**$469.95**
TH-3JRS	3			600	10, 15, 20	3.35	80	12	27.25	14.75	21	1.25-2.0	CD-45II	$359.95
TH-2MK3	2			**1500**	**10, 15, 20**	**3.25**	**80**	**6**	**27.3**	**14.25**	**20**	**1.9-2.5**	**CD-45II**	**$369.95**
EXP-14	4			1500	10,15,20 (30/40)	7.5	100	14	31.5	17.25	45	1.9-2.5	HAM IV	$599.95

Tooled Manufacturing . . . Highest Quality Materials



1. Hy-Gain's famous super strong *tooled* die cast *Boom-to-Mast Clamp*

2. *Tooled* *Boom-to-Element Clamp*

3. Thick-wall *swaged* aluminum tubing

***Tooled** manufacturing* is the difference between Hy-Gain antennas and the others -- they just don't have it (it's expensive!).

Die-cast aluminum boom-to-mast bracket and element-to-boom compression clamps are made with specially *tooled* machinery.

Hy-Gain antennas feature *tooled* swaged tubing that is easily and securedly clamped in place. All tubing is deburred and cleaned for smooth and easy assembly.

Durable precision injection molded parts.

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Kenwood APRS® Radio

Bob Bruninga, WB4APR

APRS® was designed to be a data channel for the rapid exchange of local information of immediate interest between users in the local area. Not only does this include the locations of other mobiles, but also Weather data, Direction finding information and numerous objects of local interest such as IRLP, EchoLink® or WinLINK nodes and even local voice repeaters so that mobile travelers are aware of the local ham radio assets surrounding them.

The new TM-D710A will not only display the full details of APRS® information that has been displayed for years on the TH-D7A and TM-D700A radios, but now also the voice operating frequency of any other TM-D710A APRS® radio or of any APRS® station that has entered his frequency information in his position packets. On receipt of this data, even the present TM-D700A and TM-D7A models will flash the information to the front panel screen:

But the new TM-D710A can display these frequencies on its station list and then TUNE to each such station by simply pressing the TUNE button as shown below. On transmit, the TM-D710A can automatically insert its Band-B operating voice frequency in each position packet, so that others can contact the operator no matter where he is tuned. In example A, the mobile station WB4APR-3 shows that the Band-B frequency of his TM-D710A is presently tuned to 147.510 MHz.

This can work for IRLP and EchoLink® objects on APRS® as well, so that a mobile operator in a new area, can see, and instantly tune to the local node in an area. *[See Example A]*

Example A

When the station is selected, then the full information is displayed including the direction and distance to the station or object as shown below. *[See Example B]*

Example B

The national APRS® network also encourages the automatic transmission of recommended voice repeater frequency objects for travelers. These objects show up not as a repeater callsign, but as the actual frequency itself. This way, it is easy to see in the station list, the recommended frequency for an area. Again, a simple push of the TUNE button will make the traveler instantly monitor that locally recommended frequency. *[See Example C]*

Example C

Not only do all other APRS® stations show up on an attached GPS, but the location of these Frequency objects also show up on the map to help the operator understand how close he might be to one of these assets. *[See Example D)*

Example D - AvMap G5

In addition to the Band-A APRS® data channel and Band-B voice channel in the TM-D710A, there is a third communications back-channel for operator to operator voice contact when in simplex range. This capability called "Voice Alert" is built into every Kenwood APRS® radio so that independent of what is happening on the APRS® channel and even without knowledge as to what frequency a mobile is currently monitoring on his Band-B, he can still be contacted by a voice call via this Voice Alert channel from anyone in simplex range.

Kenwood is dedicated to helping ham radio operators communicate with other ham radio operators. Using the features of APRS® embedded in the new TM-D710A APRS® radio, mobile travelers and emergency responders can quickly find each other and rapidly establish communications! Meanwhile this information is also available globally via the APRS®-Internet and various display systems.

APRS® is a registered trademark of Bob Bruninga.
EchoLink® is a registered trademark of Synergenics, LLC.

NATO Cites Potential BPL Problems

Researchers from NATO (the North Atlantic Treaty Organization) have issued a report on Broadband over Power Lines (BPL), also known in Europe as Power Line Communications (PLC), in which they cite potential interference threats to military communications. The report, from the Research Task Group on HF Interference, Procedures and Tools, concludes that if BPL technology comes into widespread operation, then "existing HF background noise possibly may be increased via ground wave and/or sky wave propagation." The report continues that a higher "noise floor" on HF "will bring up problems for Military Radio Users as well as for HF Communication Intelligence (COMINT) in all NATO countries," adding, "The signal-to-noise ratio thus may be reduced for tactical and strategic HF radio as well as for fixed sensitive COMINT sites." The report further concluded that there is "(a) High probability that PLT would cause increased noise levels at sensitive receiver sites given the projected market penetration; and (b) The percentages are highly influenced by assumptions on transmitter EIRP, PLT market penetration, and duty cycle." The group recommended that, at a minimum, "regulatory limits on PLT emissions be harmonised throughout the NATO countries..." A complete copy of the report is available online at <http://ftp.rta.nato.int/public//PubFullText/RTO/TR/RTO-TR-IST-050/$$TR-IST-050-ALL.pdf>.

DirecTV Enters BPL Arena

Satellite TV provider DirecTV reportedly is going into the BPL business, partnering with the Current Group to offer customers high-speed internet and phone service over power lines, to better compete with cable and phone company package offers. According to "Newsline," the ARRL is not too concerned with this development, noting that Current Technologies is one of the BPL goodguys, and that there have been no significant interference problems is the company's BPL installations in Cincinnati, Ohio or Dallas, Texas. DirecTV may begin to offer this service by the end of this year.

FCC Issues Citations in Decade-Old Power Line Interference Case

A ham in Lubbock, Texas, has been suffering power line interference problems for more than a decade, and the FCC has been involved in the matter since 1994. Now, the Commission has finally issued citations to two power companies—Lubbock Power & Light and Xcel Energy—after an investigation in May of this year reportedly showed that the two utilities had "caused harmful interference to the reception of amateur communications to amateur licensee W5KFT."

The *ARRL Letter* reports that Xcel Energy responded by hiring interference detective Mike Martin, K3RFI, to track down the specific source of the problem. The company said it tried to get Lubbock Power & Light to join the effort, but it declined. Lubbock Power & Light, meanwhile, denied any rules violation in its response to the FCC citation.

Reduced Vanity Fees Now in Effect

The cost of applying for or renewing a custom, or vanity, amateur radio callsign has gone down to its lowest point ever. As of September 17, the FCC lowered the fee for the 10-year license from $20.80 to $11.70. The amount of the fee is subject to adjustment every year, and according to the *ARRL Letter,* fees have ranged from $12 to $50 since the vanity call program began in 1996.

Reducing Interference to PAVE PAWS

The ARRL says it is continuing to work with the Defense Department and UHF repeater owners in California and Massachusetts to eliminate interference to an Air Force radar system known as PAVE PAWS. After meeting with defense officials, the ARRL sent letters to specifically identified repeater owners, asking them to reduce their signal levels by anywhere from 7 dB to 56 dB. Suggestions for methods to accomplish this were included in the letters, including reducing power output and shifting from omnidirectional to directional antennas. Repeaters that continue to interfere may be ordered shut down by the FCC. PAVE PAWS helps detect water-launched missiles and is in constant use on the 440-MHz band. The military is the primary occupant of the 70-cm band. Amateur radio's allocation there is secondary.

FCC Launches Disaster Information Reporting System

The FCC's Public Safety and Homeland Security Bureau has started up a web-based, automated Disaster Information Reporting System. According to *Government Technology* magazine, "DIRS is a voluntary, efficient, web-based system that communications companies, including wireless, wireline, broadcast, and cable providers, can use to report communications infrastructure status and situational awareness information during times of crisis." More information is available at <http://www.govtech.com/gt/articles/142319>.

GAREC Recommends HF Disaster Frequencies

The Global Amateur Radio Emergency Communications (GAREC) conference has recommended worldwide adoption of emergency communications "Centre of Activity" frequencies in five HF bands, to better promote international response to major disasters. The recommended frequencies, already adopted by Region I of the International Amateur Radio Union (IARU), which covers Europe, the Middle East and Africa, are: 21,360 kHz, 18,160 kHz, 14,300 kHz, 7,060 kHz and 3,760 kHz. The recommendations were released at the GAREC conference held in August in Huntsville, Alabama. See this month's "Public Service" column on page 46 for additional information on the conference.

Cronkite Honored by Radio Club of America

Former CBS News anchor Walter Cronkite, KB2GSD, will receive a dual honor this month from the Radio Club of America, the world's oldest radio communications society. According to a news release, Cronkite and fellow ham Jack Belrose, VE2CV, will be presented with the club's Armstrong Medal at its annual dinner on November 16. In addition, Cronkite will become only the 26th person in the club's 98-year history to be granted honorary membership in the organization.

"GridFinder" Feature Added on QRZ.com

VHF DXers and HF operators pursuing CQ's DX Field Award will be pleased to know that the QRZ.com website has added a new feature. According to "Newsline," the "GridFinder" will let hams find the Maidenhead grid locator for just about any point on the planet. More information is available at <http://www.qrz.com/gridfinder>.

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:

A Thank You to W8FX

The following letter was sent to now-retired "What's New" editor Karl Thurber, W8FX:

Dear Karl,

Just a short note to say thanks for all those great columns, suggestions, and insights over the years, Karl. There are, I'm sure, lots of us out here who read your column faithfully over the years and regrettably, never let you know just how much we valued your contributions to the radio art. I hope you and Millie now can find some time to do the things you *both* want to do.

Ted Cohen, N4XX
Langhorne, PA

The Olden Days

Editor, *CQ*:

You're right (regarding comparative prices of gear in the "olden days," August "Zero Bias"), but that's why, when I got started in 1946–47, I acquired pre-WW II stuff (SW-3 receiver and 6L6 transmitter) until I got into surplus gear. My folks gave me an original S-38 but the SW-3 was a far better receiver on CW.

I couldn't afford the better commercial stuff then, and I still can't—in those days because I didn't have the money, and in these days because I hate to buy things using capital. But there is satisfaction in doing more with less.

Dave Wiesen, K2VX
Reston, VA

Common Sense from the FCC

The following letter was in response to our publication in August of the complete remarks at Dayton of FCC Special Counsel for Amateur Radio Riley Hollingsworth, K4ZDH:

Editor, *CQ*:

I am floored and amazed to see such common sense coming from a government official, from the FCC no less! Riley Hollingsworth's speech at Dayton should be required reading of every licensed ham in the U.S. Many thanks for printing it. I was at Dayton, but did not attend his speech probably due to ingesting some of the bad "hamfest hot dogs" that he mentions! Now where do I go to nominate K4ZDH for president? This is an office that is surely begging for even a small amount of common sense and reason!

Will Roberts, AA4NC
Raleigh, NC

DX QSL Manager Article

Editor, *CQ*:

Thank you for printing Ed Steeble's wonderful article "A First-Time DX QSL Manager" in your August 2007 issue. It was well written, logically presented, and most informative, and hit home because I have been both at the receiving end of the QSL process and at the sending process.

Receiving: I have both the 5BDXCC (gathered 500 QSL cards) and 5BWAS (gathered 250 cards), as well as numerous other operating awards.

Sending: During my time in the US Air Force I had many overseas postings, which gave me the opportunity to be DX. While in the Azores I was CT2BC and my QSL manager was Roger Burt, N4ZC, the well-known DXer who taught me the ropes of DX. I also spent a year on Johnston Island as KJ6DL, where my QSL manager was Floyd Gerald, N5FG, who is now the WAZ Award manager for *CQ* magazine. Over the years, both of these outstanding QSL managers showed me the principles detailed in Mr. Steeble's article.

Articles like this make me happy that I am a lifetime subscriber to *CQ* magazine

Marv Feldman, K4KEW
Jacksonville, FL

Imagine the Future of the Mobile Radio ...
It's Now All Yours ! ... YAESU FTM-10SR

2 m/70 cm Band
FM Dual Band Transceiver
(2 m 10 W/ 70 cm 7 W)
FTM-10SR

IP57
Submersible
3 feet for 30 min
Body/Front panel

Great New Features to Support Outdoor Motor Sports Activities
Mobile Transceiver... Great Appearance ...Easy to Operate

2 m/70 cm Band
FM Dual Band Transceiver
(2 m 50 W/ 70 cm 40 W)
FTM-10R

IP57
Submersible
3 feet for 30 min
Front panel

2 m Band
50 W 2 m Ultra Rugged
VHF FM Mobile
FT-1802M

2 m Band
65 W 2 m Rugged FM Mobile
FT-2800M

50 W 10 m/6 m/2 m/70 cm*
Quad Band FM Mobile
FT-8900R
*70 cm 35 W

50 W 2 m/70 cm*
Dual Band FM Mobile
FT-8800R
*70 cm 35 W

50 W 2 m/70 cm*
Dual Band FM Mobile
FT-7800R
*70 cm 35 W

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YAESU NOW PRESENTS THE THIRD GENERATION ULTRA-COMPACT HAND-HELD FM TRANSCEIVER

The Third Generation Ultra-compact Handheld, VX-3R, is loaded with more new convenient and enjoyable features — "AA" Battery Operation*, FM Stereo Broadcast Reception, Internal Bar Antenna for the AM Broadcast Band. Yaesu again leads the world of Compact Hand Held Transceivers!! The supplied High-Capacity Lithium-ion Battery (FNB-82LI) is compatible with the VX-2R. Handy to upgrade!

* Optional 3 x "AA" Cell Battery Case FBA-37 (Batteries not supplied)

ULTRA COMPACT 2 m/70 cm
DUAL BAND FM HANDHELD

VX-3R

- Ultra-Compact (1.9" x 3.2" x 0.9") and Light Weight! (4.6 oz)
- Rugged Aluminum Die-cast Chassis
- 1.5 W Output w/Internal Battery (70 cm : 1 W)
  3W Output w/External DC (70 cm : 2 W)
- High-Capacity Super-thin Tiny Lithium-ion Battery with Charger (supplied)
- The Optional FBA-37 Permits Convenient Operation with AA Batteries ("AA" x 3)
- Special Memory Banks :
  WX Broadcast, VHF Marine, Short-wave Broadcast Stations
- Huge 1286-channel Memory Capacity
  24 Memory Banks x 100 ch
- Wide-band Receiver Coverage (Cellular-band Blocked)

- Internal Bar Antenna for AM Broadcast Band
- Separate Broadcast Band Earphone Jack for a Stereo Headset or Earphone
- AF Dual (Sub RX) Function : Listen to Your Favorite AM or FM Stereo Broadcast Station and Monitor the Amateur Band at the Same Time
- New Mechanical Dial Lock Function
- CW Learning and Training Feature
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Specifications subject to change without notice. Some accessories and/or options may not be available in all areas. Frequency coverage may differ in some countries. Check with your local Yaesu dealer for specific details.

zero bias – a CQ editorial

BY RICH MOSESON,* W2VU

Where is Everybody?

I recently installed a new VHF/UHF FM mobile rig in my car. My old 2-meter-only rig bit the dust a couple of years ago and I've basically been off the air while mobile since then, except for operating D-Star locally in the metro New York area. Before heading off on vacation, though, I decided the time had come to have a radio in the car again. I got a dual-bander with a remote head, making it possible for the first time in a very long time for me to leave the radio in the car full-time and just remove the head and mic when I feel I'm in a less-than-secure area. It's been eye-opening.

First, on my trip to Maine, I was reminded of one of the "hidden benefits" of ham radio that's often overlooked in promoting emergency communications and the fun of DXing: Ham radio is a great way to find good places to eat while traveling! Face it, we hams like to eat as much as we like to talk. Whenever I'm in a new place and get on a local repeater asking for a good place to eat, I can almost be guaranteed of getting a response, and I have yet to be disappointed in a recommendation. In this case, I was approaching Bangor when I asked about a place to get lunch, and a half dozen hams popped on with recommendations … all for the same truck stop right off the interstate! With references like that, how could we possibly go wrong? We couldn't. It was just as promised. I've often regretted not keeping track of the restaurants I've been directed to by hams, since there'd be a great guidebook in there somewhere. (This one, by the way, was Dysart's, apparently something of a legend in central Maine. If you're in the neighborhood, it's "ham-recommended"—not to be confused with gourmet fare, just good-sized portions of well-cooked food.)

Something else I encountered on my trip was a lot of silence. My new rig has 1000 memory channels and I filled up about 150 of them with repeaters along my route (courtesy of the ARRL's "Travel Plus for Repeaters" software, which, along with a copy of the ARRL *Repeater Directory,* should be considered essential equipment for anyone taking ham radio along on a trip). There were two problems, though. First, a lot of the repeaters listed do not seem to be on the air, or have access codes that are different from what was provided to the League for its databases. Secondly, there wasn't very much activity, even on those repeaters that I could access.

To me, it appeared that activity was inversely proportional to the number of available repeaters; the more repeaters there were in a given area, the fewer people I could find on any of them. I've continued to have the rig in my car since getting home, and have been doing a lot more driving than usual in the New York metro area. It seems that there are two or three repeaters where I have about a 50-50 chance of getting a contact when I get on, but the rest of the dozens of "machines" around here seem to sit silent most of the time. Maybe I've been on at the wrong times and I'm just missing all the periods of high activity. To see if my experience is unusual, or shared by many of you, our reader survey this month asks about your times of activity on repeaters and your perceptions of activity levels. If there really is less activity, my question is why? Our surveys consistently show that nearly as many of you are active on VHF as on HF, that mobiling is your second-most-popular activity after DXing, and that a large number of you are retired, so many of you should have the time and the means to be on the air, especially while driving. So where are you? Back to the plus side, I've been enjoying some really great contacts with some really nice hams, and that, of course, is what it's all about.

Speaking of great contacts and nice hams, be sure to check out N4JDU's excellent article this month (p. 32) about his experiences with meeting and operating with hams in China—yet more evidence of the fact that, governments aside, the vast majority of just-plain-folks in the world are much more similar to each other than different, and of the power of ham radio to bring people together. Also this month (speaking of governments), we continue our series of interviews with senior U.S. government officials who credit ham radio with providing the foundation for their careers. This month, we talk (p. 13) with Dr. Tony Tether, K2TGE, Director of the Defense Advanced Research Projects Agency, or DARPA. These are the folks who invented stealth aircraft and the internet. We also continue sharing your recollections of the launch of Sputnik 50 years ago, and some related stories. I continue to be amazed at the impact this one event had on so many of today's hams.

And speaking of hams as person-to-person ambassadors, be sure to read WA3PZO's "Public Service" column this month. Its main focus is on international cooperation in emergency communications, both in terms of actual response to hurricanes in the Caribbean and planning for more formalized links discussed at August's Global Amateur Radio Emergency Communications (GAREC) conference in Huntsville, Alabama. I had been planning to attend both GAREC and the Huntsville Hamfest (which this year hosted the ARRL National Convention), where the annual Newsline Young Ham of the Year presentation is made. *CQ* is a co-sponsor of the award and I always like to be there, but events conspired against me this year. Nonetheless, Bob did a great job of covering GAREC from afar, and *CQ* Ad Manager Don Allen, W9CW, did a great job of covering for me at the YHOTY presentation. Thanks to both of you, and congratulations again to this year's Young Ham of the Year winner, Grant Morine, W4GHM, of Wilmington, North Carolina.

Finally, Thanksgiving is approaching (at least here in the United States, where it generally ushers in the CQ WW DX CW Contest weekend), and we all have a variety of things for which to be thankful, from our ham radio friends to family and friends. Best wishes from all of us to each of you for a Happy Thanksgiving and a great holiday season to follow.

73, W2VU

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

TOKYO HY-POWER

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HL-1.5KFX

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Auto Band Set

This compact and lightweight 1kW desktop HF/50MHz linear power amplifier has a maximum input power of 1.75kW. Our solid-state broadband power amp technology makes it **the smallest and lightest self-contained amplifier in the industry**.

Typical output power is 1kW PEP/SSB on HF and 650W on 6m band with the drive power of 85-90W. Bands set automatically with the **built-in band decoder**. You can forget about the band setting when the amplifier is connected to your modern radio through **supplied band data cables for ICOM CI-V, DC voltage (ICOM, Yaesu), and RS-232C (Kenwood)**. Manual band setting selectable as well.

All these data cables are included with the amplifier.

More Fine Products from TOKYO HY-POWER

HL-1.2KFX
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HF 1.5KW Auto Tuner

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Watch for Our NEWEST and MOST POWERFUL full legal Limit. HL-2.5Kfx available early Fall!

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Features

- Lightest and most compact 1kW HF amplifier in the industry.
- The amplifier's decoder changes bands automatically with most ICOM, Kenwood, Yaesu.
- The amp utilizes an advanced 16 bit MPU (microprocessor) to run the various high speed protection circuits such as overdrive, high antenna SWR, DC overvoltage, band miss-set etc.
- Built in power supply.
- AC (200/220/235/240V) and (100/110/115/120V) selectable.
- Equipped with a control cable connection socket, for the HC-1.5KAT, auto antenna tuner by Tokyo Hy-Power Labs.
- Two antenna ports selectable from front panel.
- Great for desktop or DXpedition!

Specifications

Frequency:
1.8 ~ 28MHz all amateur bands including WARC bands and 50MHz

Mode:
SSB, CW, RTTY

RF Drive:
85W typ. (100W max.)

Output Power:
HF 1kW PEP max.
50MHz 650W PEP max.

Matching Transceivers for Auto Band Decoder:
Most modern ICOM, Yaesu, Kenwood

Drain Voltage:
53V (when no RF drive)

Drain Current:
40A max.

Input Impedance:
50 OHM (unbalanced)

Output Impedance:
50 OHM (unbalanced)

Final Transistor:
SD2933 x 4 (MOS FET by ST micro)

Circuit:
Class AB parallel push-pull

Cooling Method:
Forced Air Cooling

MPU:
PIC 18F452 x 2

Multi-Meter:
Output Power – Pf 1Kw
Drain Voltage – Vd 60V
Drain Current – Id 50A

Input/Output Connectors:
UHF SO-239

AC Power:
AC 240V default (200/220/235) – 10 A max.
AC 120V (100/110/115) – 20 A max.

AC Consumption:
1.9kVA max. when TX

Dimension:
10.7 x 5.6 x 14.3 inches (WxHxD)/272 x 142 x 363 mm

Weight:
Approx. 20kgs. or 45.5lbs.

Accessories Included:
AC Power Cord
Band Decoder Cables included for Kenwood, ICOM and Yaesu
Spare Fuses and Plugs
User Manual

Optional Items:
Auto Antenna Tuner (HC-1.5KAT)
External Cooling Fan (HXT-1.5KF for high duty cycle RTTY)

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announcements

Neighborhood Emergency Watch Service – A few groups of hams on Staten island, NY have been getting prepared for any possible emergency situation. Over the past couple of years there has been a major push at the Wm. H. Pouch Boy Scout Camp and Amateur Radio Station, W2WHP, under the direction of Rich Cariello, AA2MF, to set up a network to provide emergency communications for Staten Island citizens. The second phase of the operation is under way, getting the word out to local hams and potential hams, looking for local volunteers to be at home with a battery-powered radio to be of help in communicating information. For more information, go to <http://www.neighborhoodemergencywatchservice.org/> or call Rich Cariello, AA2MF, at 1-718-980-1104.

Kentucky QSO Party – Hosted by the Western Kentucky DX Association, this event will take place from 1400Z Nov. 10 to 0600Z Nov. 11. For details go to <www.wkdxa.com>.

• The following Special Events stations will be on the air:

N2UL, from "CQ Veteran's Day," Nutley, NJ; Robert D. Grant United lLabor ARA; 1200–2400Z Nov. 11 on 14.260, 28.420, and 449.975 MHz. For certificate send QSL and SASE to RDGULARA, c/o WA2VJA, 112 Prospect St., Nutley, NJ 07110-0716.

W3KWH, from celebration of Steel City ARC's 50 years in its "new" shack; 1400–2300Z Nov. 25 & 25 on 3.850, 7.250, 14.250, and 21.350 MHz. For certificate send QSL (no SASE) to Steel City ARC, P.O. Box 281, Carnegie, PA 15106. <www.w3kwh.com>

W5G, from Oklahoma Territorial Capital for Oklahoma's 100th Statehood Day, Guthrie, OK; Edmond ARS; 1400–2300Z Nov. 10 & 1400–2000Z Nov. 17 on 7.260, 14.260, 21.260 MHz. For certificate send QSL and SASE to EARS, P.O. Box 48, Edmond, OK 73083.

N8F & K8F, from "Remembering the Edmund Fitzgerald," Whitefish Point, MI; Stu Rockafellow ARS; 1700Z Nov. 1 to 1700Z Nov. 5 on 3.860, 7.260, 14.260, 18.160 MHz. For certificate send QSL and 9×12 SASE to Richard Barker, W8VS, 264 N. East St., Brighton, MI 48116. <http://www.qsl.net/w8njh>

W8USA, Veteran's Day Event, Grand Rapids Home for Veterans, Grand Rapids, MI; Michigan Amateur Radio Alliance; 1300–1940Z Nov. 11 on 7.275–7.045, 14.290–14.045, 18.140, 21.280–21.045. For QSL send QSL and SASE ($2.00 for certificate) to MARA, P.O. Box 670, Comstock Park, MI 49321-0670. <www.W8USA.org>

CQ4IPY, celebrating the 4th International Polar Year 2007/2008, Portugal. Work CQ4IPY on at least three different bands or two different modes. For award send log with fee to cover postage to CQ4IPY, Manuel Alberto Marques, P.O. Box 41, 2780-901 Oeiras, Portugal. For details go to: <http://cq4ipy.bravehost.com>.

TM8CRI & TM8IRC, in honor of Hiram Maxim Percy and 80th anniversary of the 1927 International Radiotelegraph Convention in Washington; Association des Radioamateurs de Paris, ARP Radio-Club de Paris; TM8CRI will be on SSB and CW Nov. 10–25, and TM8IRC Nov. 24 to Dec. 9, including the CQ WW CW Contest from downtown Paris. QSO or SWL report with one or both of these stations will qualify you for an award for 10 Euros, US$15, or 20 IRCs: QSL to: ARP Radio-Club de Paris, Association des Radioamateurs de Paris, 66 Avenue de la Republique, 75011 Paris, France. <http://arp75.free.fr>

• The following hamfests, etc., are scheduled for November:

Nov. 1, **Marple-Newtown ARC Info-Fest,** Gauntlet Center, West Chester Pike & Media Line Road, Delaware County, PA. For details go to: <www.mnarc.org>. (Talk-in 147.195 PL100)

Nov. 3, **Enid Hamfest,** Garfield County Fairgrounds Hoover Building, Enid, OK. For details go to <http://www.enidhamfest.com/bbs> (Talk-in 147.375 +.600 MHz; exams 1 PM)

Nov. 10, **Montgomery ARC Hamfest,** Garrett Coliseum, South Alabama State Fairgrounds, Montgomery, AL. Contact Rik Doll, KU4PY, e-mail <ku4py@arrl.net, phone 334-277-0864. <www.hamfest.w4ap.org>

Nov. 10, **Central Kentucky Hamfest,** Madison County Fraternal Order of Police Lodge #47, Richmond, KY. Contact Mike Rogers, KE4ISW, e-mail <ke4isw@arrl.net>, phone 859-624-9156. <www.qsl.net/ckars/hamfest/> (Talk-in 145.370 –, PL 192.8; exams)

Nov. 11, **Central Illinois/St. Louis Area ATV Club Banquet,** Ariston Restaurant, Litchfield, IL. Contact Scott Millick, K9SM, e-mail <smillick@wamusa.com>, phone 217-324-2412.

Nov. 17–18, **Fort Wayne Hamfest & Computer Expo,** Allen County War Memorial Coliseum, Fort Wayne, IN. For details leave message at 260-579-2196; <http://www.fortwaynehamfest.com>. (Talk-in 146.88 –; exams Saturday)

A publication of

CQ Communications, Inc.
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Hicksville, NY 11801 USA.

Offices: 25 Newbridge Rd., Hicksville, NY 11801, Telephone 516-681-2922; Fax 516-681-2926. E-mail: cq@cq-amateur-radio.com. Web site: www.cq-amateur-radio.com. CQ (ISSN 0007-893X) is published monthly by CQ Communications, Inc. Periodical postage paid at Hicksville, NY 11801 and additional offices. Subscription prices (all in U.S. dollars): Domestic-one year $36.95, two years $66.95, three years $96.95; Canada/Mexico-one year $49.95, two years $92.95, three years $135.95; Foreign Air Post-one year $61.95, two years $116.95, three years $171.95. U.S. Government Agencies: Subscriptions to CQ are available to agencies of the United States government including military services, only on a cash with order basis. Requests for quotations, bids, contracts, etc., will be refused and will not be returned or processed.

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HAM IV and HAM V Rotator Specifications	
Wind Load capacity (inside tower)	15 square feet
Wind Load (w/mast adapter)	**7.5 square feet**
Turning Power	800 in.-lbs.
Brake Power	**5000 in.-lbs.**
Brake Construction	Electric Wedge
Bearing Assembly	**dual race/96 ball bearings**
Mounting Hardware	Clamp plate/steel U-bolts
Control Cable Conductors	**8**
Shipping Weight	26 lbs.
Effective Moment (in tower)	**2800 ft.-lbs.**

TAILTWISTER SERIES II

T-2X
$699.95

T-2XD
$1079.95
with DCU-1

For large medium antenna arrays up to 20 sq. ft. wind load. Available with *DCU-1 Pathfinder* digital control (T2XD) or standard analog control box (T2X) with *new* 5-second brake delay and *new* Test/Calibrate function. Low temperature grease, alloy ring gear, indicator potentiometer, ferrite beads on potentiometer wires, *new* weatherproof AMP connectors plus 8-pin plug at control box, triple bearing race with 138 ball bearings for large load bearing strength, electric locking steel wedge brake, North or South center of rotation scale on meter, low voltage control, $2^{1}/_{16}$ inch max. mast.

TAILTWISTER Rotator Specifications	
Wind load capacity (inside tower)	20 square feet
Wind Load (w/ mast adapter)	**10 square feet**
Turning Power	1000 in.-lbs.
Brake Power	**9000** in.-lbs.
Brake Construction	Electric Wedge
Bearing Assembly	**Triple race/138 ball brngs**
Mounting Hardware	Clamp plate/steel U-bolts
Control Cable Conductors	**8**
Shipping Weight	31 lbs.
Effective Moment (in tower)	**3400 ft.-lbs.**

CD-45II

CD-45II
$389.95

For antenna arrays up to 8.5 sq. feet mounted inside tower or 5 sq. ft. with mast adapter. Low temperature grease good to -30 F degrees. *New* Test/Calibrate function. Bell rotator design gives total weather protection, dual 58 ball bearing race gives proven support. Die-cast ring gear, stamped steel gear drive, heavy duty, trouble free gear train, North center scale, lighted directional indicator, 8-pin plug/socket on control unit, snap-action control switches, low voltage control, safe operation, takes maximum mast size to $2^{1}/_{16}$ inches. MSLD light duty lower mast support included.

CD-45II Rotator Specifications	
Wind load capacity (inside tower)	8.5 square feet
Wind Load (w/ mast adapter)	**5.0 square feet**
Turning Power	600 in.-lbs.
Brake Power	**800 in.-lbs.**
Brake Construction	Disc Brake
Bearing Assembly	**Dual race/48 ball brings**
Mounting Hardware	Clamp plate/steel U-bolts
Control Cable Conductors	**8**
Shipping Weight	22 lbs.
Effective Moment (in tower)	**1200 ft.-lbs.**

HAM-V

HAM-V
$999.95
with DCU-1

For medium antenna arrays up to 15 square feet wind load area. Similar to the HAM IV, but includes *DCU-1 Pathfinder* digital control unit with gas plasma display. Provides automatic operation of brake and rotor, compatible with many logging/contest programs, 6 presets for beam headings, 1 degree accuracy, auto 8-second brake delay, 360 degree choice for center location, *more!*

ROTATOR OPTIONS

MSHD, $99.95. Heavy duty mast support for T2X, HAM-IV and HAM-V.
MSLD, $39.95. Light duty mast support for CD-45II and AR-40.
TSP-1, $34.95. Lower spacer plate for HAM-IV and HAM-V.

AR-40

AR-40
$289.95

For compact antenna arrays and large FM/TV up to 3.0 square feet wind load area. Dual 12 ball bearing race. Automatic position sensor never needs resetting. Fully automatic control -- just dial and touch for any desired location. Solid state, low voltage control, safe and silent operation. $2^{1}/_{16}$ inch maximum mast size. MSLD light duty lower mast support included.

AR-40 Rotator Specifications	
Wind load capacity (inside tower)	3.0 square feet
Wind Load (w/ mast adapter)	**1.5 square feet**
Turning Power	350 in.-lbs.
Brake Power	**450 in.-lbs.**
Brake Construction	Disc Brake
Bearing Assembly	**Dual race/12 ball bearings**
Mounting Hardware	Clamp plate/steel bolts
Control Cable Conductors	**5**
Shipping Weight	14 lbs.
Effective Moment (in tower)	**300 ft.-lbs.**

HDR-300A

HDR-300A
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For ***king-sized*** antenna arrays up to 25 sq.ft. wind load area. Control cable connector, *new* hardened stainless steel output shaft, *new* North or South centered calibration, *new* ferrite beads on potentiometer wires reduce RF susceptibility, *new* longer output shaft keyway adds reliability. Heavy-duty self-centering steel clamp and hardware. Display accurate to 1°. Machined steel output.

HDR-300A Rotator Specifications	
Wind load capacity (inside tower)	25 square feet
Wind Load (w/ mast adapter)	**not applicable**
Turning Power	5000 in.-lbs.
Brake Power	**7500 in.-lbs.**
Brake Construction	solenoid operated locking
Bearing Assembly	**bronze sleeve w/rollers**
Mounting Hardware	stainless steel bolts
Control Cable Conductors	**7**
Shipping Weight	61 lbs.
Effective Moment (in tower)	**5000 ft.-lbs.**

Digital Automatic Controller

DCU-1
$699.95

Automatically controls T2X, HAM-IV, V rotators. 6 presets for favorite headings, 1° accuracy, 8-sec. brake delay, choice for center of rotation, crisp *plasma* display. Computer controlled with many logging/contest programs.

AR-35 Rotator/Controller

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For UHF, VHF, 6-Meter, TV/FM antennas. Includes automatic controller, rotator, mounting clamps, mounting hardware. 110 VAC. One Year Warranty.

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IC-7000

- 160-10M/6M/2M/70CM • 2x DSP • Digital IF filters • Digital voice recorder • 2.5" color TFT display

IC-718 HF Transceiver

- 160-10M* @ 100W • 12V Operation • Simple to Use • CW Keyer Built-in • One Touch Band Switching • Direct frequency input • VOX Built-in • Band stacking register • IF shift • 101 memories

IC-V8000 2M Mobile Transceiver

- 75 watts • Dynamic Memory Scan (DMS) • CTCSS/DCS encode/decode w/tone scan • Weather alert • Weather channel scan • 200 alphanumeric memories

ID-800H Digital Dual Band Mobile

- 55 watt VHF/50 watt UHF • Wide RX: 118-173, 230-549, 810-999 MHz (cellular blocked on US versions) • Analog/Digital Voice & Data • Callsign Squelch • CTCSS & DTCS Encode/Decode w/tone scan

IC-7800 All Mode Transceiver

- 160-6M @ 200W • Four 32 bit IF-DSPs+ 24 bit AD/DA converters • Two completely independent receivers • +40dBm 3rd order intercept point

IC-756PROIII All Mode Transceiver

- 160-6M • 100W • Adjustable SSB TX bandwidth • Digital voice recorder • Auto antenna tuner • RX: 30 kHz to 60 MHz • Quiet, triple-conversion receiver • 32 bit IF-DSP • Low IMD roofing filter • 8 Channel RTTY TX memory • Digital twin passband tuning • Auto or manual-adjust notch with 70 dB attenuation

IC-7700 Transceiver. The Contester's Rig

- HF + 6m operation • +40dBm ultra high intercept point • IF DSP, user defined filters • 200W output power full duty cycle • Digital voice recorder

This device has not been approved by the Federal Communications Commission. This device may not be sold or leased, or be offered for sale or lease, until approval of the FCC has been obtained.

IC-2200H 2M Mobile Transceiver

- 65W Output • Optional D-STAR format digital operation & NEMA Compatible GPS interface • CTCSS/DTCS encode/decode w/tone scan • 207 Alphanumeric Memories • Weather Alert

IC-746PRO All Mode 160M-2M

- 160-2M* @ 100W • 32 bit IF-DSP+ 24 bit AD/DA converter • Selectable IF filter shapes for SSB & CW • Enhanced Rx performance

IC-2820H Dual Band FM Transceiver

- D-STAR & GPS upgradeable 2M/70CM • 50/15/5W RF Output Levels • RX: 118-173.995, 375-549.995, 810-999.99 MHz** • Analog/Digital Voice with GPS (optional UT-123) • 500 Alphanumeric Memories

IC-T90A Triple Band Transceiver

- 6M/2M/70CM @ 5W • Wide band RX 495kHz - 999.999MHz** • 500 alphanumeric memories • Dynamic Memory Scan (DMS) • Backlit keypad & display • CTCSS/DTCS encode/decode w/tone scan • Weather Alert

IC-91AD Digital Dual Band Transceiver

- 2M & 70CM @ 5W • 1304 Memory channels • Independent (dual watch) wide band RX 495kHz - 999.999MHz** • Full dot matrix LCD • New "duplex scan" • D-STAR digital voice • Compliments the ID-800H mobile

IC-V82 2M Transceiver

- 2M @ 7W • Optional D-STAR format digital operation features include callsign calling, up to 20 character text message, & position exchange*3 • CTCSS/DTCS encode/decode w/tone scan • Also available in a sport version and a 70CM version (IC-U82)

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He heads what is arguably the highest hi-tech research and development agency on the planet ... and he credits ham radio with getting him there. Dr. Tony Tether, K2TGE, recently talked with CQ Editor Rich Moseson, W2VU, for this exclusive CQ interview.

CQ Interviews:

Dr. Tony Tether, K2TGE Director, Defense Advanced Research Projects Agency (DARPA)

BY RICH MOSESON,* W2VU

What do stealth aircraft, the Saturn rocket, the Global Positioning System, and the internet have in common? They all got their start as projects of DARPA, the Defense Advanced Research Projects Agency, which is currently working on designing a driverless car. DARPA's Director, Dr. Tony Tether, K2TGE, credits the "life-changing" impact of ham radio with getting him started on the career that has led him to his current position.

"It's hard to totally tell you specifically the impact ham radio has had on my life," Tether told *CQ* in an exclusive interview, "but I can tell you it was really major ... it's probably what got me to go into college and become an electrical engineer."

"A Really Loud Voice"

Tether recalls discovering ham radio while growing up in Middletown, New York. "I was in the eighth grade, and my grandfather had an old shortwave radio in his room. At lunchtime, I'd come home from school ... this was back when kids came home for lunch ... and I'd play with his radio. He didn't want me playing with his radio, so that made it all the more exciting. I'd tune around and one day I heard a really loud voice, and a man saying he was in Middletown, New York. What I had stumbled onto was the ham bands and a ham in my hometown. He also gave his name, so I knew how to find him—"Doc" Masi, King-Two-Able-Sugar-Dog. It's amazing what you can remember. He was a heart doctor. I'm sure he's long gone by now.

"I got really fascinated and went down to the store and probably picked up a *CQ* or a *QST*. I got one of those 78-rpm records you used to learn the code, I studied, and Doc Masi gave me my Novice test. I was issued KN2TGE. That was back in 1955 or so. I still have the call today—it's now K2TGE—and it's more than 50 years old."

Tether says his ham radio interests have "ranged all over the place," and that, like many of us, his level of ham activity has fluctuated through the years. Still, he's never lost touch with the hobby. "I was a typical ham," he notes. "I have

Dr. Tony Tether, K2TGE, Director of the Defense Advanced Research Projects Agency. (Photo courtesy DARPA)

Worked All States, DXCC, got heavily into contests. I've been on and off in activity. The last time I was very active was in the '80s. I loved contests, came in sixth one time in one of the major contests. I'm not currently active, but some of my friends who are keep telling me about what's going on, that you can get a little transceiver today that you can literally load into a garbage can lid. I keep meaning to go buy myself one of those. That's what the kids today are learning, though. That transceiver is amazing, because it's all computer-controlled."

Ham Radio + Sputnik =

Tether says the combination of ham radio and the launch of Sputnik 50 years ago set him on his career path. "I just can't

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

tell you how much (ham radio) influenced me. I learned electronics I never would have learned otherwise; I learned about the ionosphere, or what we thought we knew about the ionosphere at that time. Remember, this was before satellites, we didn't know about the Van Allen belts, and it was all still pretty mysterious at that time. It just influenced me tremendously."

Then, he noted, "Sputnik was launched on October 4, 1957. What a big shock that was for our country. The word went out for hams to listen when it passed overhead and to report on signals received. I did ... it was an experience I never would have had if I wasn't a ham and didn't have a receiver that could tune to 20 MHz to listen for beeps. That showed me a whole new area and sparked my interest in the military and in satellites. ... It's true, your experiences really define your future."

For Tony Tether, those experiences led him toward a career in electrical engineering.

Dr. Tether describes being a ham radio operator as a "life-changing experience" that had "a really major impact" on his decision to become an electrical engineer and to pursue interests that led to his current position as Director of DARPA. (Photo courtesy DARPA)

About DARPA

The Defense Advanced Research Projects Agency, or DARPA, was formed in 1958 in response to the launch of Sputnik by the Soviet Union in 1957. Today, according to Congressional testimony given earlier this year by Director Tony Tether[1], its original goals continue and have expanded.

"DARPA's original mission, inspired by the Soviet Union beating the United States into space with Sputnik 50 years ago, was to prevent technological surprise. This mission has evolved over time. Today, DARPA's mission is to prevent technological surprise for us *and* to create technological surprise for our adversaries. Stealth is one example of how DARPA created technological surprise ... DARPA is the Department of Defense's only research agency not tied to a specific operational mission: DARPA supplies technological options for the entire Department and is designed to be a specialized 'technological engine' for transforming DoD."

Stealth technology is among DARPA's many success stories. Other major technological developments that got their start as DARPA projects include the internet (originally ARPANet), unmanned aircraft such as Predator drones, and even the Global Positioning System (GPS), which according to the agency was preceded by a DARPA system called TRANSIT. Current projects include developing a vehicle that can drive itself to reduce exposure of U.S. forces to roadside bombs in Iraq (see "Drive Time," elsewhere in this article), a computer game called "DARWARS Ambush!" which is being used to train U.S. troops in urban combat skills, and communication networks that can form and fix themselves as needed and that are interoperable with any number of different input devices.

Self-Forming, Interoperable Networks

According to Dr. Tether's congressional testimony earlier this year, these networks "must distribute huge amounts of data quickly and precisely across a battlefield, a theater, or the globe, delivering the right information to the right place at the right time." They cannot, he said, rely on people to establish, manage or administer them, but rather "must be able to form, manage, defend, and heal themselves so they always function at the enormously high speeds that provide their advantages." In addition, Tether said one feature of the "Future Combat Systems—Communications" network is that

The F-117 fighter was the first operational aircraft to use stealth technology. The stealth aircraft program began at DARPA. (U.S. Air Force photo)

"interoperability is built into the network itself, rather than having to build it into each radio, so any radio can now be interoperable with any other."

The system is currently being evaluated and put into use by the U.S. Special Operations Command. If a version of this system eventually makes its way outside the military to public safety and emergency response agencies, it has the potential to radically alter some of the major shortcomings those agencies currently face in responding to large-scale emergencies and disasters, as well as the role played by amateur radio in trying to overcome some of these shortcomings on an ad-hoc basis.

Note

1. Testimony by Dr. Tony Tether to the House Armed Services Committee's Subcommittee on Terrorism, Unconventional Threats and Capabilities, March 21, 2007.

OMNI-VII

"I was struck by how clean, natural and quiet the receiver sounded in comparison to some DSP based radios. I found the Omni-VII a real pleasure to listen to – in any mode." – W1ZR, in the ARRL Product Review, QST July 2007

"What a neat little package! I'm having more fun with this thing!" – K1SA

"In 40+ years and many receivers, the Omni-VII is the most sensitive, most QRM proof and most pleasant to operate I have enjoyed. The noise blanker and noise reduction systems really help me in dealing my sometimes noisy location." – K6LE

"High quality manufacturing... overall a very impressive transceiver" – W9AC

"As an avid CW operator, it is like listening to your favorite music while operating." – N1SW

"Close-in dynamic range unsurpassed by any other general coverage radio." – Radio Society of Great Britain RadCom review, September 2007

"Once again, Ten-Tec has produced a superb transceiver, with great SSB audio and their infamous QSK." – K4SQR

"I can say that in my 30+ years of operating I've never enjoyed a rig more than the Omni-VII. The audio is superb as is the QSK, ergonomics, receiver characteristics and on and on." – W7TEA

"My Dad, KB2LAU, in Florida has become active again using my Omni-VII in Vermont. He is enjoying daily contacts [via Internet remote control]. Being a ham with limited to no antenna options, this has been a great opportunity." – W1ZN

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TEN-TEC

"After high school, I went to a community college in Middletown, New York," he recalls. "After two years there, I finished my bachelor's degree at Rensselaer Polytechnic Institute in Troy, New York. Then I got my masters and my doctorate at Stanford University in California.

"My background is in control theory—using techniques to evaluate the state of a system and then developing means of controlling it. I basically believed you could build a loop around something and develop ways to use that loop to control how it works. Because of ham radio, my bent was already in the direction of the military and satellites. We were just beginning to get into real-time decision-making (with computers). How do you 'close the loop' around satellites that might be used to collect information?

"After college, some of my friends and I started our own company (called Systems Control, Inc.). We figured the worst thing that would happen was that we'd have to get real jobs if the company didn't work out, and we helped both commercial and government clients use control theory to solve problems.

"Then I went into government. I was Director of National Intelligence from 1978 to 1982. ... I went to DARPA in 1982 and spent four years there (as Director of the agency's Strategic Technology Office), and then went into industry. I worked for Ford Motor Company and that was a fantastically interesting job. The company was going through a major transformation. Henry Ford—he was still alive and involved—realized that we were moving toward manufacturing chassis built around computers and that the company needed to change to keep up. I was heavily involved in making those changes. It gave me a great opportunity to see how big business, and particularly the auto industry, works."

Tether's work at Ford never took him far from his roots in satellite technology. His job, as Vice President for Technology and Advanced Development, was actually within Ford's aerospace division, which was sold to the Loral Corporation during his tenure there. In the early 1990s, Tether moved to California, where he worked in two execu-

Drive Time

One of DARPA's top priorities today is a car that drives itself. Designing an "autonomous ground vehicle" is the subject of the third DARPA Grand Challenge competition—the DARPA Urban Challenge, whose final competition is scheduled for November 3 in Victorville, California. Universities, corporations, and experimenters from all over the country are designing driverless cars that can maneuver through traffic and other urban obstacles. The primary goal of the competition is to develop vehicles that can negotiate the dangerous roads of Iraq without subjecting military personnel to danger from roadside bombs, which the military calls "improvised explosive devices," or IEDs.

CQ Digital Editor Don Rotolo, N2IRZ, passed along this question for Dr. Tether:

We technology folks really enjoy the DARPA Challenge competitions. Are any of the technology advances from these kinds of quasi-public programs expected to trickle down into civilian systems? I sure would like a self-driving car.

Tether's reply went beyond the specifics of the current competition to the broader role he believes DARPA plays in society:

"I think it absolutely will (trickle down to civilian systems). We're doing it to save people's lives. Rather than having convoys driven by people getting blown up by IEDs, we want to build vehicles that can drive themselves through dangerous areas. But the commercial potential is also huge. Our highways are nearing capacity. We're all taught to keep a certain number of car lengths between our vehicle and the one in front of us, but imagine if we didn't have to do that, if the cars could maintain their own safe separation distances that are much closer than what we can do on our own. We've shown it can be done.

"That's what DARPA really does. We don't finish anything. We show people what can be done. Then they come out of the woodwork to take the technology further. I can best compare it to running the four-minute mile. Before anyone did it, we had doctors who'd written reports saying it was impossible for humans to run a mile in less than four minutes, that they couldn't get enough air, that the blood flow couldn't keep up and so on. But once the first person did run a four-minute mile, three more people did it in the next few months. They knew it could be done, so they did it, too.

On November 3rd ... we're going to show that autonomous vehicles can make their way through traffic. Tests so far have been around fixed obstacles, but convoys will have to avoid moving obstacles. We're going to show on November 3rd that it can be done, and we will just eliminate all the doubts and all the questions."

The public is invited to view the competition, which will be held at the Army's urban military training facility at the former George Air Force Base in Victorville, California. According to DARPA, the site was chosen because "its network of urban roads best simulate(s) the type of terrain American forces operate in when deployed overseas." In addition, it's in a secured area that could be (and was) closed off between the time the location was announced and the beginning of competition. For more information on the DARPA Urban Challenge, visit <http://www.darpa.mil/grandchallenge/index.asp>.

DARPA Urban Challenge semifinalist. Stanford University's "Junior" is a 2006 VW Passat wagon whose steering, throttle, and brakes all have been modified by engineers at the Volkswagen of America Electronics Research Lab in Palo Alto, California, to be completely computer-controllable. Junior's predecessor, "Stanley," won the DARPA Challenge competition in 2005. (Photo courtesy The Stanford Racing Team)

tive positions with Science Applications International Corporation (SAIC) and served as Chief Executive Officer for Dynamics Technology, Inc. In 1996, he started The Sequoia Group, a consulting firm that, as he explained it, helped troubled companies get turned around. Tether returned to government service as Director of DARPA in 2001. In our interview, he joked that "it sounds like I can't keep a job..."

Technology Yesterday and Today

We also talked about how technology has changed over the past half century, and whether those changes have made any difference in how relevant amateur radio may be to young people starting out in science and technology today.

"The equipment then was really big compared with today, including the components," Tether recalled. "There were tubes, capacitors ... you could really get your hands into it. We built our own gear back then. I built my first transmitter, a Heathkit AT-1. I also built my first receiver, a Heathkit AR-3, but it never worked. It was full of cold solder joints. The transmitters then were much more tolerant of cold solder joints. You could build things, really get involved in the technology."

We noted that the experience of working with discrete components and "getting your hands into it" isn't readily available today, and asked Tether if he feels ham radio is still relevant to young people.

"I think so," he replied. "It's obviously different. I grew up with 6L6s. Today kids are getting different kinds of experience. They're learning to use computer control to do some of the same things I did by hand. It's like back in the days of slide rules, and I spent plenty of time with them. You basically had to figure out how big the number was going to be before you could start doing the calculations on the slide rule. Today, you just plug the numbers into a calculator or computer. Did we get a better understanding of technology than kids today? I don't think so. They get a *different* experience.

"I do know that kids are still excited about ham radio," he continued. "I read about Field Day and that a lot of kids are attracted."

We closed the interview by asking Tether what message he would give to kids today about ham radio.

"It's a life-changing experience," he replied. "You will learn more than you would naturally learn about a whole lot of things, and on top of that, you'll have a tremendous amount of fun."

The response last month to our request for first-person stories relating to the October 1957 launch of Sputnik 1 was so great that we couldn't fit it all in one article. So we continue this month, the 50th anniversary of Sputnik 2, with more stories. Thank you to all of our readers for sharing your memories with us.

"A Few Simple Beeps" – Part II

BY CQ STAFF

Last month we shared with you selected recollections by hams of the October 1957, launch of Sputnik 1, the Soviet satellite that ushered in the Space Age. We continue this month—50 years after the launch of Sputnik 2, which carried the first space passenger, a dog named Laika (who survived the launch but died in orbit)—with additional recollections of how individuals' lives were affected by Sputnik as well as some "side stories" related not only to Sputnik 1 and 2, but later launches as well. We'll start, though, with a little irony: how one ham capitalized on the Communists' triumph for capitalist gain!

Will Haas, W6DOM: I was mobiling about 20 miles from my home QTH when I heard about the first Sputnik pass while on 40 meters (I was W3QCU then). I rushed home and haywired a surplus IFF receiver to my radio and reel-to-reel tape recorder. On its second orbit I was able to pick up the faint beep-beep-beep of Sputnik 1 and recorded it. I used the recording as part of an advertisement on the local radio station for my TV business. In conjunction with that, we developed a wild plan to drop thousands of silver "Sputniks" over the county while flying my Aeronca two-seater. We also dropped one gold "Sputnik," which entitled the finder to a free TV set. A teenage girl found it and won the free TV!

This incident and the following space race whetted my appetite for the engineering field, so I sold my business in February 1959 and moved to California, with my wife and four kids to attend the University of California at Berkeley. This resulted in a 28-year career with IBM San Jose and a comfortable retirement! Those were great days!

Sputnik's influence on careers sometimes extended beyond the traditional realms of science and technology, as related by **Doug Millar, K6JEY:**

I had just received my Novice license six months prior. When I heard about Sputnik, I listened … and did hear it several times. It did not affect my career choice, but I have used ham radio and satellite communications in the careers I did have.

I was a Lutheran Minister in North Dakota in the late '70s and wrote a proposal to NASA to use their ATS 1 satellite for teleconferencing with missionaries. It turned out to be a 10-year project with many successes. I also invented a small briefcase-size base unit that replaced the two-file-drawer size Motorola unit they had been using.

I was also active on the OSCAR satellites and almost worked WAC (Worked All Continents) before I moved. … I was asked by the All Lutheran Youth Gathering committee in 1976 to do an OSCAR demo and an ATS-1 demo. The ATS didn't work out very well, but the ham radio booth and OSCAR effort did. I had a group of about 10 teenagers who spent most of their time at the convention talking via OSCAR mode B, … So I'd have to say that satellites and satellite communications have been a big part of my life and ham radio activities.

Military Memories

Several readers recalled being in the military at the time of the Sputnik launch (generally in communications) and being called in on an emergency basis for a highly classified assignment … which happened to be the main topic of many very public discussions on the ham bands.

Leland Hubbell, K8MZH: I was in the Air Force, stationed at Ellington AFB, near Houston, Texas, working in the base MARS (Military Affiliate Radio System) radio station in 1957. The launch of Sputnik was broadly discussed on the ham bands, and many amateurs made the effort to listen for it.

I received a telephone call from the Base Comm. office, requesting my presence at the station on Saturday evening; they would tell me the reason when I got there. My assignment, of course, was to listen for Sputnik. The operation was classified, I was told, and I was to talk to no one except

Who's Number One?

Who was the "first" to hear Sputnik's beeps? It appears the answer to that question may never be known with certainty. We've received at least three claims to the title so far. Last month we reported on **ZS1LVH**'s claim to having been among a group of students in South Africa who tuned it in on one of its first orbits ("The launch was over the North Pole, then over the Pacific and Antarctica, so I think we were possibly the first to hear that bleep."). **Steve Waterman, K4CJX**, said he was told by federal authorities when he phoned in his reception report that he was the first civilian to hear the satellite. And **Dave Russell, WA8VMI**, reports from Atlanta that a local ham there (now a Silent Key) "is credited with being the first person outside the Soviet Union to hear the Sputnik signal." He says **Carl Wilson,** then **W4IUD**, worked at the FCC monitoring station in the Atlanta area at the time of the launch and monitored the satellite from the FCC facility there.

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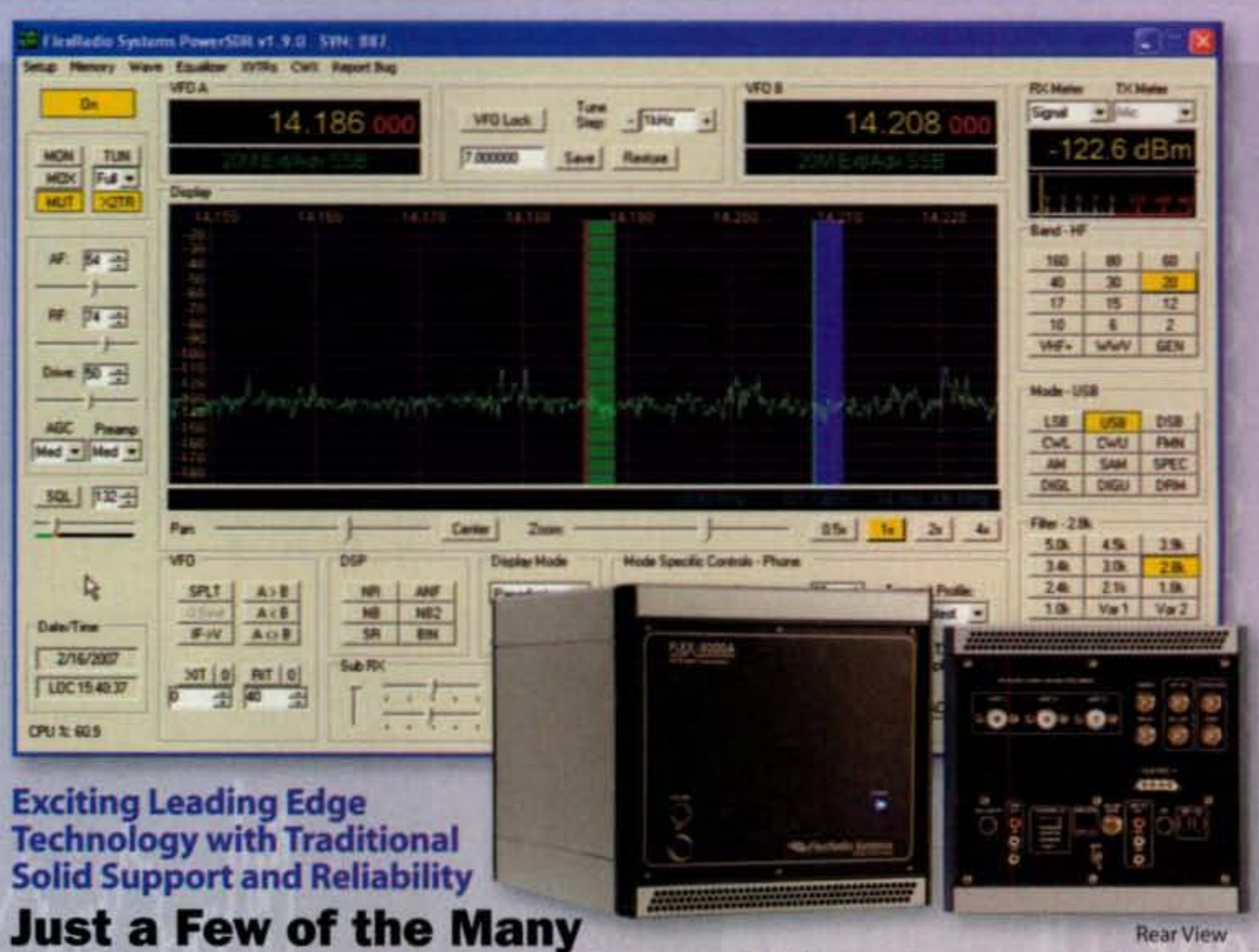
Mike, KM0T – I had always dreamed about a radio and interface like this; but never thought it would ever happen. I sometimes catch myself staring at the screen showing the microwave band frequencies thinking "Man this is awesome!" Seems every time I turn around, there is something new coming down the pipe to make the whole setup better.



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the Base Cryptographic Office about what I was doing, or what, if anything, I might hear. ... Sitting there in the semi-darkened station listening for something "out there" had an eerie feel, and I could almost imagine someone furtively trying to peek in the windows.

Several hours passed as I sat there, slowly rocking the dial near the suggested frequency—close to 20 MHz, as I recall. It was near midnight when I heard a slight change in the background hiss, and I zeroed in, hoping this wasn't just another spurious signal from some area radio equipment. The signal quickly built in strength, and came in with the beep-beep-beep I was listening for! I noted the frequency, and the period of the beeps, the time of acquisition, and the time the signal peaked, and faded once more into the background hiss. I phoned my report to the Base Crypto office, and went back to listening. I never personally heard Sputnik again. ... The monitoring operation was eventually declassified.

It was especially interesting that the US Vanguard rocket project was planning on using frequencies near the high FM broadcasting or low aviation VHF bands. Word was that they were caught with very little equipment that could tune in the Sputnik frequencies. That seems

St. Joseph High School Radio Club Remembers Sputnik
Group Featured in January 1958 *CQ*

By Robert A. Leskovec, K8DTS

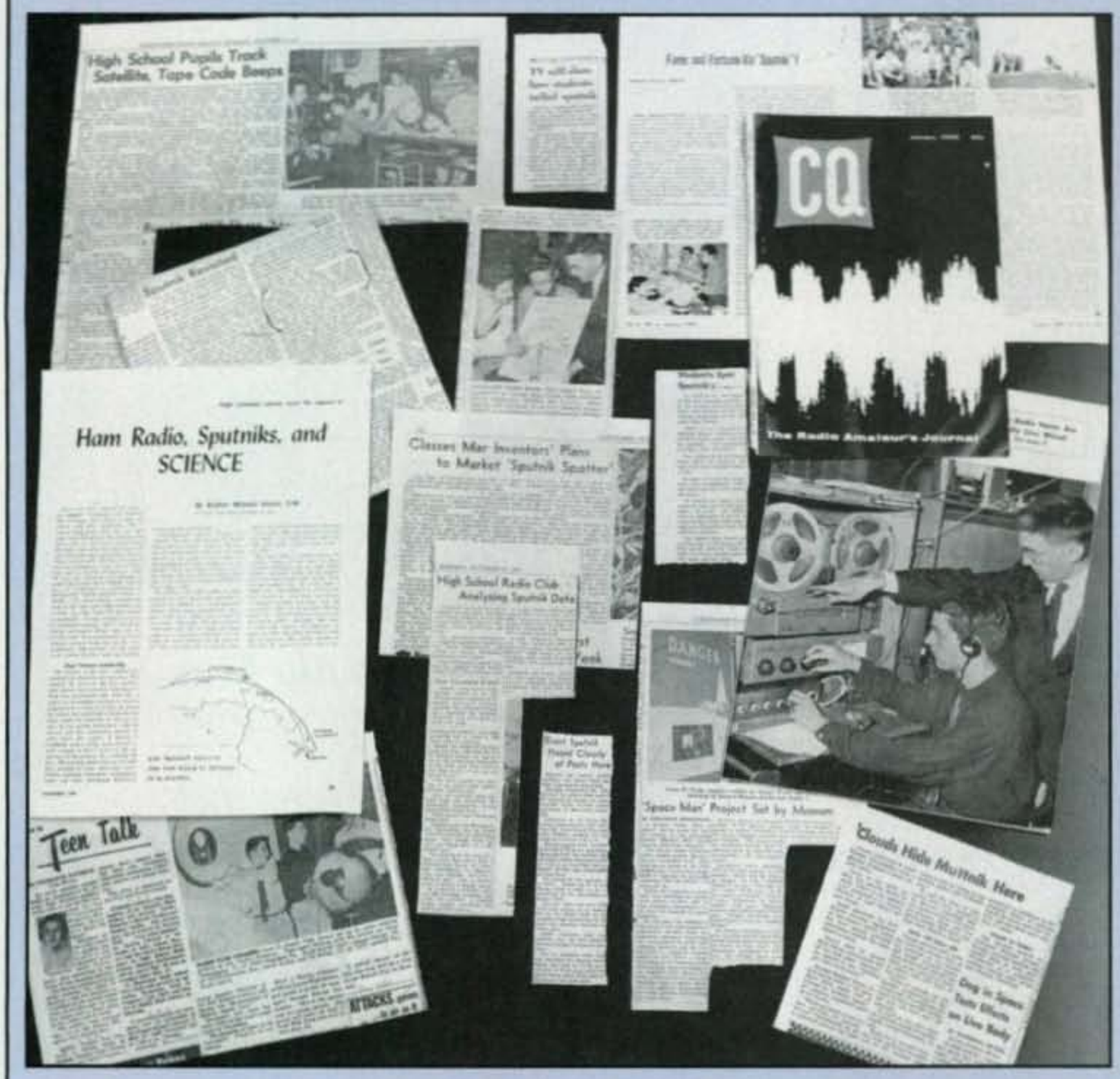

Photo A– The St. Joseph High School Radio Club in Cleveland, Ohio, monitored and recorded transmissions from Sputnik 1 and 2, garnering news coverage in print and on radio and TV. (Photos courtesy of SJHRC)

Photo B– An oscilloscope photo of the Sputnik "beeps" recorded on tape by our club made the cover for our feature story in January 1958 CQ *magazine.*

Many magazine and news articles covered the adventures of the St. Joseph High School Radio Club gang in Cleveland, Ohio, immediately tracking the very first space satellites, Sputnik 1 and Sputnik 2, launched by the Russians in the fall of 1957 (see photo A). An oscilloscope photo of the Sputnik "beeps" recorded on tape by our club made the cover for our feature story in January, 1958 *CQ* magazine (photo B).

In all, the St. Joe's Radio Club had gotten onto seven TV shows and was covered in more than 30 radio news stories and 20 newspaper articles. We literally got our "15 minutes of fame" by relating our adventures "live on 5" on WEWS TV-5 in Cleveland during a full half-hour presentation, as well as doing several news shows, all "live," of course.

When the Russians jump-started the "Space Race" by launching Sputnik, the first space satellite, on October 4, 1957, we had immediately started recording the signal (photo C). The tracking stations for the "official" planned U.S. satellite launch program were equipped with dedicated fix-tuned receivers and special antennas set for 108 MHz and *not* the "common" 20.005 MHz and 40.002 MHz frequencies the Russians blatantly had chosen for their worldwide public-relations shocker!

But for us "hams" it was no big deal to just swing the beams around and tune it in. It was easy to find on our HRO-60 because of WWV transmitting on 20.000 MHz.

Luckily, I had just gotten my new NC-109, which happened to tune all the way to 40 MHz, and we calibrated that by using harmonics of a signal generator that we zero beat with WWV.

By the time the U.S. government stations changed over, they had lost four days. Sputnik was battery-powered, and the signal died out in just eight days, and by then we were very tired! We had recorded over 20,000 feet of tape, and it wasn't long before the FBI heard about us on the news

unlikely, but it provided me with a unique opportunity to participate in an event that truly changed the world.

Spence Miner, K4PEP, recalled that on the morning of Oct 5th, he was at home doing chores when he received an emergency phone call from the Roanoke Rapids Air Force Station, where he worked. He was told to come in immediately, to not even bother changing clothes, "as long as you will not be stopped for indecent exposure." As he approached the main gate, he recalled, "I saw the Air Police out in the middle of the road near the gate house, flagging me through from a half mile away." He reported to the MARS station, the only HF radio facility on the base, and was briefed and told to listen and record whatever he heard. He copied the first pass very weakly and got a borrowed tape recorder up and running. "Every day for about four days I taped every pass," he said, noting that he "was sorta walking in a daze when I was finally told to shut it down. Every day the tapes were picked up and sent by courier to (Washington) D.C."

Bob Brodkin, WA6TBH, said he was a young Navy Radioman aboard the attack aircraft carrier *USS Kearsage* on

Photo C– Students at the St. Joseph High School Radio Club calculate orbital information while monitoring and recording the beeps from Sputnik 1. The FBI eventually took all the tapes!

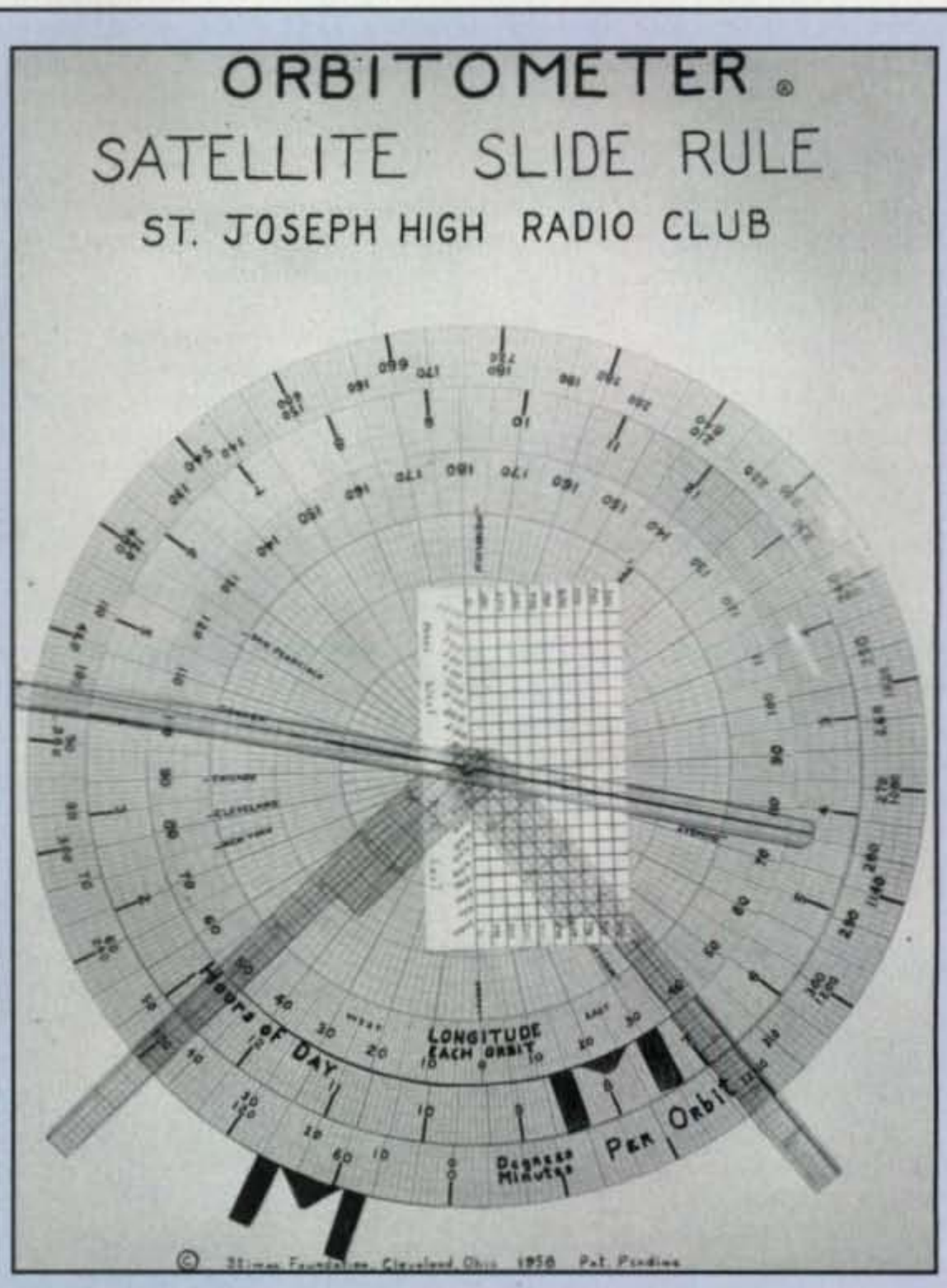

Photo D– The SJHRC "Orbitometer," invented by the students, predicted the location of Sputnik.

and took all of it! One thing obvious to us was the Doppler shift in radio frequency as the satellite moved through. It's trivial now, but don't forget that was the first time in history that we could make such observations!

On November 3rd, when the Russians launched Sputnik 2, we discovered it was repeatedly sending "di-dah-di-dit"—the Morse code "L," probably for the initial of "Laika," the name of the dog on board! But by that point we had even invented the "Orbitometer," a circular slide rule, to predict with great accuracy the location of the satellite at any time, and that saved us a lot of manual calculating (photo D).

50th Anniversary Website

For this 50th anniversary we have built a website located at <http://www.sjhrc.org/> and are working on other ways to help find our old members for a big reunion in 2008. Each person we find contributes a little more material, and we will continue to add that to the website.

In the end, the SJHRC endured from 1951 to 1975. During that time, more than 150 students learned Morse Code, got licenses, built and repaired transmitters and receivers, and performed public-service work, such as providing communications for special events, conducting Halloween vandal patrols, participating in Civil Defense drills and RACES, the Radio Amateur Civil Emergency Service.

Besides ham licenses, we all worked on getting our FCC commercial licenses, so many of us were able to immediately get jobs in communications and broadcasting that helped us pay for college. Perhaps fittingly, one even ended up in a lifelong career as Engineering Manager for the same TV station that interviewed us, WEWS.

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NEW! AT-1000Pro

New!

Building on the success of the AT-1000, LDG Electronics has refined and expanded its 1KW tuner. The AT-1000Pro has an Auto mode that automatically starts a tuning cycle when the SWR exceeds a limit you set. Other features include:

- Operates at any power level between 5 and 1,000 watts peak. RFRelay protection software prevents tuning at greater than 125 watts
- 2 Antenna connections
- Tunes from 1.8 to 54.0 MHz (including 6 meters)
- Tuning time usually under 4 seconds, transmitting near a frequency with stored tuning parameters, under 0.2 seconds. 2000 memories.

LDG Now Includes All Cables Ready to go!

All cables included. **Suggested Price $599**

AT-200Pro

"As far as bang for the buck for a limited budget shack, this was money well spent!"

The AT-200 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 MH **(including 6 meters)**. Rugged and easy-to-read LED bar graphs show power and SWR, and a function key on the front panel allows you to access data such as mode and status. All cables included.
Suggested Price $249

AT-7000

"It works perfect and FAST. Comes with needed cables. And powers from rig. I think it's priced right. What more can I say."

The AT-7000 is the ideal tuner for IC-7000 & other ICOM Radios: Covers all frequencies from 1.8–54 MHz **(including 6 meters),** and will automatically match your antenna in a flash. Requires just 0.1 W for operation, but will handle up to 125 W (100 W on 6 m), making it suitable for everything from QRP (IC- 703Plus) to a typical 100 W ICOM transceiver.

All cables included.

Suggested Price $169

Z-100

"I really like it, its fast and will tune almost anything."

Designed from the ground up to provide the 100 watt power handling you asked for, in a small, lightweight package, perfect for portable as well as sitting on your desk in your shack!

The Z-100 will tune with 0.1 to 125 watts (50 watts on 6 meters), making it an excellent choice for almost any radio or operating style. Backpackers and QRP operators will appreciate the latching relays. Power can be removed from the tuner once you have tuned. Additionally, when the tuner is not tuning, it draws nearly zero amps.

Suggested Price $149

AT-100Pro

"For the money and the features it doesn't get any easier than this."

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, allowing you to switch instantly between two antennas. The AT-100Pro requires just 1 watt for operation, but will handle up to 125 watts. All cables included.

Suggested Price $219

LDG Two-Year Warranty

Visit your favorite dealer to purchase LDG products.
Visit www.ldgelectronics.com for a list of distributors.

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1445 Parran Road,
St. Leonard, MD 20685
Phone: 410-586-2177
Fax: 410-586-8475

FREE Balun with Any Autotuner Purchase

AT-897 for the Yaesu FT-897

"If you want a tuner for the FT-897, this is definitely the one to go with."

If you own a Yaesu FT-897 and want a broad range automatic antenna tuner, look no further! The AT-897 Autotuner mounts on the side of your FT-897 just like the original equipment. We even added the ability to mount the "feet" on the side of the tuner so when you are transporting your rig by the handle, you can safely set it down and not worry about scratching the case. The AT-897 takes power directly from the CAT port of the FT-897 and provides a second CAT port on the back of the tuner so if you are using another CAT device, hooking it up couldn't be easier. **Suggested Price $199**

AT-200PC

The First Automatic Tuner Designed Specifically for PC Rig Control

Now you can have a state-of-the-art, high performance automatic tuner and still run your whole station right from your keyboard and mouse.

LDG's AT-200PC is a special version of the popular AT-200Pro, designed for PC control. All of its functions are controlled entirely by a program running on your PC. The tuner itself can be installed out of the way, on the floor or even in another room, interfacing to your PC via a serial or USB cable. All cables included.
Suggested Price $259

New FT Meter

"Just what the doctor ordered for tired eyes. That backlight is a perfect addition"

LDG's new version of its popular FT-Meter presents a lush, highly readable 2.5" meter face with calibrated scales for signal strength and discriminator reading on receive, and power output, SWR, modulation, ALC action and supply voltage on transmit. Each function is selectable from the radio's menu.On/Off switch for the light

- LED back-illuminated in cool, high-visibility blue
- Calibration adjustment on the back of the unit; no need to take apart to calibrate
- Backlight brightness adjustment on the back so you can set the backlight to your desired level

The FT-Meter comes fully assembled and ready to go; just plug it into the radio and you're in the picture like never before.
Still Only $49

The DTS Series Antenna Switches

"Now all the cables are out of sight and its easy to tell which radio is going to which antenna"

Instantly switch your rig between 4 or 6 antennas with the press of a button. Auto-grounding when you shut your rig down. Purchase the additional remote control and put the DTS Series switch anywhere indoors and operate it from your desk. They handle up to 1500 watts of RF power on HF (250W on 6M), and can be used with any coax-fed antenna.

Suggested Price:
DTS-4 $79, remote $39
DTS-6 $99, remote, $49

Your Cable Problems—Solved!

RCA-14 is a breakout box for the accessory jacks on most popular transceivers. It comes with cables with the right DIN plugs, and all the outputs are RCA jacks. You simply plug the RCA-14 into your radio's accessory jacks, and all your ports are right there at your fingertips; just plug and play, one function or all of them, makes no difference.

The RCA-14 is compatible with: Icom 703, 706, 718, 746, 756, 7000 and 7800, Yaesu 817, 857, 897 and 840, Kenwood 480, 570, 2000 Ten Tec Orion and many more.

Suggested Price $59

LDG ELECTRONICS Two-Year Warranty

The "Talking" Watt Meter

"Excellent unit for the price, level of accessibility and the simplicity of operation."

The TW-1 Talking Wattmeter provides an oral spoken indication of power and SWR using a digitally recorded voice. It is ideal for the vision-impaired, for those of us in the "bi-focal set", or just for those times when you need to be looking somewhere else. At the press of a button, the TW-1 speaks the forward power, reverse power or SWR. Three languages are available: English, Spanish and German. It includes its own internal speaker; no external audio hookups are needed. Also available TW-2 UHF/VHF. **Suggested Price $149**

IC-7800 Owners – Your Eye-Strain Problems Solved

Your beautiful IC-7800 deserves the best; add LDG's new DM-7800 dual meter system, and you're in the picture like never before.
The DM-7800 is made exclusively for the IC-7800; order yours today.
List Price $179.

Baluns, etc.

RBA-4:1 Remote 4:1 Balun **$30**
RBA-1:1 Remote 1:1 Balun **$30**
Multi-DC 12 Volt DC Distribution Box **$49**

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Visit www.ldgelectronics.com for your rebate form or write to: 1445 Parran Rd. St. Leonard, MD 20685 USA. Limit one rebate per address.

Sputnik's Wisconsin Connection

Mark Heller, WB9WRT, passed along this little-known story about Sputnik 4, launched in May 1960. Sputnik 4 was reportedly a test flight of the Vostok spacecraft later used for human spaceflight. It was supposed to re-enter the atmosphere after just four days in orbit, but a programming error resulted in its retro-rockets firing it into a higher orbit, where it remained until September 1962. WB9WRT picks up the story here:

Sputnik (4) came back to Earth in a molten clump of mess, landing in an intersection of a major street in Manitowoc, Wisconsin. The City Fathers have erected a monument (tombstone plaque) to the event (photo E), and installed a brass "circle" in the middle of the street, marking the point of impact (photo F).

Also, quietly, the U.S. government gave the Russians back their clump of molten metal, although the Rahr-West Museum in Manitowoc still displays a replica of the burnt object in its collection. Strange but true!

Mark, by the way, is President and General Manager of WGBW Radio in nearby Two Rivers, Wisconsin.

Photo E– A plaque in Manitowoc, Wisconsin, memorializes the crash-landing there of fragments from the Sputnik 4 spacecraft in 1962. (Photos E and F courtesy of WB9WRT)

Photo F– In addition to the plaque, the city fathers of Manitowoc have installed this otherwise unmarked brass circle in the middle of the street, showing Sputnik 4's point of impact.

October 4, 1957. "I was on watch in 'Radio 1,'" he recalled, when he first picked up the beep-beep-beep of Sputnik 1's signal. "I was awestruck and enthralled when I learned that the signal was coming from the first spacecraft actually orbiting the Earth," he continued. "I read everything I could find about the fledgling U.S. space program and hoped someday I could be a part of it.

My chance came in 1964 when I accepted employment at Cal Tech's Jet Propulsion Laboratory as an Instrumentation Operator. JPL was involved in unmanned space exploration and already (12/14/62) had managed the first flyby of another planet (Mariner 2 Venus Mission).

I am pleased to say that since my beginnings at JPL in January of '64, I have been involved with every major United States (and some foreign partners) unmanned space mission in one capacity or another, as a team member of JPL's Deep Space Network." WA6TBH, who is now a Senior Sequence Engineer at JPL, notes that in January 2009, "I will be celebrating both the (Deep Space Network's) and my 45th anniversary in space, in some part thanks to Sputnik."

Ham Radio's Major Influence

Many of our correspondents reported that ham radio had an equal or greater influence than Sputnik on their lives and careers (see our interview elsewhere in this issue with DARPA Director Dr. Tony Tether, K2TGE).

Gary Hamm, W8WGR: I was a freshman in high school and had been a ham for three years when Sputnik went into orbit. I had my radio shack packed with all the neighborhood kids listening to the signals that day. ... I went on to become a high school physics and chemistry teacher and remember another event similar to the Sputnik. I tuned in the first Chinese satellite for one of my classes and we listened to the satellite play the little jingle called "The East is Red." Over the 32 years that I taught, I had a ham station in the class. I licensed over 200 of my students during those years and can testify that having a student get a ham ticket was the most life-altering event that happened to them in high school. Most of them went on to careers in electronics and engineering.

I can't say that listening to Sputnik had an impact on determining my career in teaching, but I can say that ham radio certainly did!!

Dick Newsome, WØHXL, recalls being a newly licensed Novice in 1957 and copying Sputnik on his National NC-88 receiver. "Being new to amateur radio," he said, "Sputnik added even more excitement to the hobby. I earned my General ticket in 1958 and could not get enough of communications." After graduating from high school, he enlisted in the Air Force, where he worked in communications.

"I would have to say that amateur radio and the 'Sputnik experience' were driving forces in my career choices with the military and in civilian life. I served at highly classified listening sites overseas while in the military and had an excellent technical career with the Xerox Corporation after returning to civilian life. It has been 50 years since amateur radio and Sputnik entered my life and I will never forget either experience!"

Tony Tyson, KQ2I, was 17 at the time of the launch and recalls recording Sputnik's signals and having the tape played on a Los Angeles radio station. Perhaps presaging his career, he notes that "I recall estimating the velocity from the Doppler effect on the carrier." Looking back more broadly, Tyson, today a physics professor at the University of California at Davis, says the "excitement of that event and the support of U.S. science that followed (were) responsible for careers in science for many kids."

David Bower, K4PZT: As a teenager in the mid-1950s, astronomy and electronics were my two main hobbies. I had built a 6-inch reflecting telescope at the age of 13, and had ground my own mirror for the telescope. A short while later, I got interested in electronics and built a "Dick Tracy" wrist-type transistor radio from an article appearing in an electronics magazine. I built several other radios using vacuum tubes, and obtained my ham license. About that period of time, Russia launched Sputnik 1. ... With my interest in astronomy, I followed the nightly passes of Sputnik 1 from my home in east Tennessee and even followed it, briefly, with my telescope. And, on the electronics side, I listened for the "beep-beep" signal from the 184-pound satellite high above with my shortwave receiver. ...

I had originally planned to pursue a career in astronomy in college, but instead enrolled in electrical engineering at the University of Tennessee because of my fascination with electronics (and ham radio), "fired in part" by the excitement of Sputnik 1 and the space-age events that followed. I obtained my degree in electrical engineering and spent 35 years in telecommunications and broadcasting. Now retired, I enjoy "chasing DX" and reflecting back on the early years of electronics.

Mike Bosch ZS2FM: After completing my 108-MHz converter, I waited in vain for the launch of the U.S. satellite Vanguard. Unexpectedly, we heard that Russia had launched the first artificial earth satellite, Sputnik. This was indeed a great surprise to us, as we never thought that Russia had the know-how. I was also equipped with a converter that could monitor the beeps from Sputnik on ... 40 MHz, and visually observed it on occasion. About three weeks later I heard the sputtering of the keyed signals when the batteries started to run flat. I sent in reception reports to Moscow and received a beautiful QSL card. As an amateur astronomer, Sputnik meant to me that at last the long-awaited space age had dawned.

Art McBride, KC6UQH: I was one of three students in my school who actually heard Sputnik directly. The rest of the students were not very interested. I felt disappointed, as all it did was beep. No observable telemetry and done with vacuum tubes. Sort of a crude device designed to intimidate. I just could not imagine why someone would spend that amount of effort and not send some useful information back. ... A year later the

Vanguard series was launched (by the United States). It had telemetry, the Atlas missile (after several disappointments) did work, and I built my first superhet AM broadcast receiver with transistors.

This was but one experience of many that launched me into a lifetime of electronics both as a vocation and a hobby.

Dave Ingram, K4TWJ: I vividly remember copying the (beeps) from Sputnik on my S-38 receiver. ... I recall inviting a couple of friends into my room to hear it. Then we all went outside to determine if we could see the sun glinting off Sputnik as it passed over. I was hooked and have been involved in satellites ever since that time.

Joe Hargis: I was in the second grade when Sputnik went into orbit. ... My friend Luke's dad had a shortwave radio back then. I went to their house after school one evening in the fall of '57 and listened to the signal from Sputnik on their radio. It changed my life. It became my goal to own a shortwave receiver. In 1962 I got my first real-live summer job—I learned all about withholding and income tax. I had enough money left over after buying clothes and stuff for school to purchase my first shortwave receiver, a Hallicrafters S-108. My dad and I got it set up with a longwire antenna just in time for the Cuban Missle Crisis. ... Soon afterwards, I got my Novice license (WN5PZY) and then my Technician class license (WA5UTZ). I let my license expire when I was in college in the '70's and have always regretted it. I found this site because I got on the internet to see what it would take to get another ham license. I am stoked again! Guess I'm gonna have to subscribe to *CQ*!

Everett Curry, W6ABM: I was in high school when the Russians amazed the world with their Sputnik launch. Licensed the previous summer, anything new on the bands was worthy of my attempts to copy it ... and I stayed up all night listening for the Sputnik signal. Success! Little did I realize at the time that this achievement would lead to a revolutionary change in science and technology. It captured more than my 15-year-old imagination and awakened America to the importance of math and science all over again! ... We need another awakening.

And on a lighter note...

Garth Laaks, ZS2HB, recalls: Sputnik had just been launched and everyone was agog at the idea of a man-made satellite sending out a radio signal. I was on holiday at the

Remembering Sputnik 40 Years Later

Ten years ago, cosmonauts aboard the Mir space station commemorated the 40th anniversary of the launch of Sputnik 1 in a very special way—by hand-launching a scale model of the satellite. Transmitting this time on the amateur bands, it was variously known as Sputnik 40 and RS-17. Another scale model, RS-18, was hand-launched in 1998. Recollections and photos were provided by both Farrell Winder, W8ZCF, and Miles Mann, WF1F.

W8ZCF recalls: There was much intrigue when Sputnik was announced and I ... first received "beeps" on my SX-28. I recorded the audio on a "Dictaphone" and recall discussing this excitement with associated engineers at my workplace.

Yes, this opened up a new source of adventure which I most enjoyed many years later with the advent of Amateur Radio OSCARs (Orbiting Satellites Carrying Amateur Radio; OSCAR-1 was launched in 1961).

In 1997, along with Dick Goode, W8RVH, I listened again to "beeps," this time from Sputnik 40 (RS-17), which was hand-launched from the Mir Space Station for the 40th anniversary of Sputnik. These "beeps" contained coded information and were recorded each day to determine this Sputnik's temperature.

I have been communicating worldwide via satellites with both voice and SSTV over the last several years. The original Sputnik most certainly initiated the beginning of this new technology. Many satellites now open to amateur radio are orbiting in some of the same "Outer Space" territory as the first Sputnik.

WF1F is too young to recall the 1957 Sputnik launch, but he was heavily involved with getting ham gear up to and operating on the Mir space station. He has spent a lot of time in Russia as a result, including a week in 1998 during which he stayed with Russian ham and satellite enthusiast Sergei Samburov, RV3DR. According to Miles, Sergei is responsible for getting more amateur radio equipment into space than any other individual. Sergei is also the great-grandson of Konstantin Tsiolkovsky, the father of the Russian space program, which may explain a lot!

Photo G– Slow-scan TV photo of the launch of Sputnik- 40/RS-17 by hand from the Mir space station in 1997, captured by W8ZCF. (Courtesy of W8ZCF)

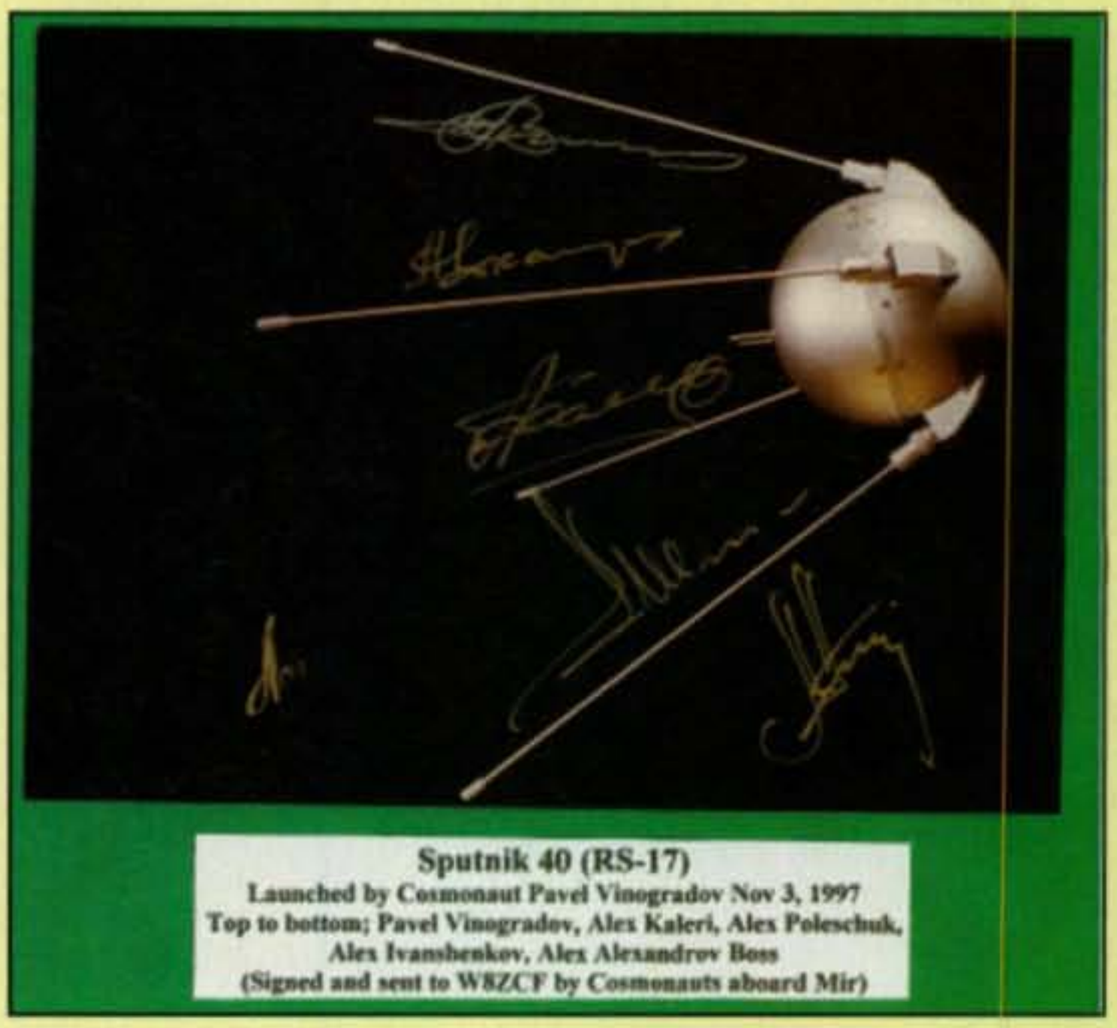

Photo H. Photo of RS-17/Sputnik 40 signed by crew members. (Courtesy of W8ZCF)

time and travelling around the country from my home in East London, South Africa in my 500-cc Fiat Cub—a very tiny vehicle of about 10 feet in length. Being a radio amateur, I had a mobile two-way high-frequency radio on board, and this required a decent aerial. On the back bumper, therefore, I had mounted a 12-foot vertical antenna.

The hood *(top, in American—ed.)* was down and my friend and I were enjoying the sunshine in the streets of Durban when a red light stopped our traffic. While I was waiting for "green," a little lad strolling with his mother on the sidewalk pointed to the 12-foot antenna at the back end of the 10-foot car and asked her what that thing was.

"That," she stated, "is what they monitor Sputnik's radio signals on!"

A few recollections come from readers who were much younger at the time…

Cliff Andree, KA9NCO: I wasn't quite five years old when I was carried out in my pajamas to watch Sputnik pass over my home town of Matteson, Illinois. Even at an early age it was quite an event, as I remember all the neighbors out watching and discussing the happening event. I was especially thrilled to be up past my bed time. Sputnik is an event I will never forget and often talk about from time to time.

Ward Silver, NØAX: Well, I was only two, (but) what impresses me to this day is being carried out into the street in my jammies by my parents and looking for Sputnik. I couldn't see it, but my parents did. And not only my parents. All of the other families nearby were out in the street, too, exclaiming as Sputnik went over. Today many people have never even seen the Space Station go over, as bright as it is, and satellites in the night sky are just a ho-hum thing. That we no longer consider these things noteworthy is a sign of both technical achievement and the drift of the public away from a feeling of pride and wonder in things scientific. What will be this era's Sputnik?

I sense the pendulum at least slowing in its swing away from an appreciation of science and engineering. Maybe the next decade will bring a return of the interest by the common man in our civilization's ability to understand and explore the workings of the world. We shall see.

An Icy Response

Most of us who have followed the space program know that the United States

responded to the launch of Sputnik with its own space launch within a year, but according to **Don Keith, N4KC**, there was another response from the U.S. government, and it went down instead of up:

Sputnik led directly to a major historical achievement by the U.S. With the world convinced by that satellite that the Russians had surpassed the U.S. in the technology race—and the military one as well—President Dwight Eisenhower decided we had to do something spectacular to recapture the lead in the eyes of the world, friends and enemies alike. Our own rockets were exploding on the launch pad, each a more spectacular failure than the last. Then the President heard about an under-Arctic-ice mission by the *USS Nautilus*, the world's first—and at that time the only—nuclear submarine. Ike's naval aide summoned Bill Anderson, the captain of the *Nautilus* at that time, to the White House and asked him what he could do with his ship that would help take attention away from Sputnik and convince the world that the U.S. had not fallen hopelessly behind. That led to the daring and historic transit by *Nautilus* from the Pacific to the Atlantic, beneath the polar ice pack, and via the North Pole in August 1958. That mission became headline news the world over and was recently declared to be one of mankind's greatest adventures by Life Books.

I just had the pleasure of writing a book about that adventure with Captain Anderson. Titled *The Ice Diaries*, it will be out next summer. We are attempting to get together a ham radio operating event to commemorate the 50th anniversary of the transit, hopefully to include operating from Historic Ship *Nautilus* and the Submarine Museum in New London, CT.

Anyone interested in helping with this activity may contact us here at *CQ* <cq@cq-amateur-radio.com> and we'll forward your info to Don.

Full Circle...

Finally, we heard from a gentleman who was introduced to ham radio through Sputnik and now, 50 years later, is ready to return the favor.

Patrick Story, KE4HLR: I remember in 1957 when I was a boy 8 years old, my parents and I were visiting friends one evening. A gentleman who was a neighbor of our friends came over and asked us to visit his radio shack. He had something special he wanted us to hear. We all gathered in, what seemed to me, a room full of radios and electronics. Through one of the receivers we could hear a beep tone at regular intervals coming through. The gentleman explained that what we were hearing was Sputnik as it orbited overhead. I was in awe. As if the room full of equipment wasn't enough to wow a young man, I was also hearing a satellite in space transmitting a signal to Earth! That was my very first experience with ham radio.

I have never forgotten how eager that gentleman was to share this experience with us. I never knew his name or ever had contact with him again, but the impact of the experience has been with me throughout the many years since. Now I am an amateur radio operator. I just passed my Extra Class license test yesterday. It is my greatest hope that I will have the opportunity to share the wonder of this great hobby with some young man or girl and make a positive impact on them the way that gentleman did for me that evening in 1957.

MFJ *Speech Intelligibility* Enhancer

. . . makes barely understandable speech highly understandable!

MFJ-616
$189.95

"What did you say?" Can you hear but . . . just can't always understand everything people are saying?

As we get older, high frequency hearing loss reduces our ability to understand speech. Here's why . . .

Research shows that nearly *half* the speech intelligibility is contained in 1000 to 4000 Hz range, but contains a miniscule 4% of total speech energy.

On the other hand, the low frequencies, 125 to 500 Hz have most of the speech energy (55%) but contribute very little to intelligibility -- only 4%.

To dramatically improve your ability to understand speech, you must:

First, drastically increase the speech energy above 500 Hz, where 83% of the speech intelligibility is concentrated.

Second, drastically reduce speech energy below 500 Hz where only 4% of speech intelligibility lies.

The MFJ-616 splits the audio speech band into four overlapping octave ranges centered at 300, 600, 1200 and 2400 Hz. You can boost or cut each range by nearly 20 dB.

A balance control and separate 2½ Watt amplifiers let you equalize perceived loudness to each ear so both ears help.

By boosting high and cutting low frequencies and adjusting the balanced control, speech that you can barely understand become highly understandable!

Even if you *don't* have high frequency hearing loss, you'll dramatically improve your ability to understand speech. You'll get an edge in contesting and DXing and enjoy ragchewing more.

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.

MFJ-72, $69.80. *All-in-one MFJ-616 Accessory Pack.* Includes MFJ-392 headphones, two MFJ-281 speakers and MFJ-1316 power supply. ***Save $7!***

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MFJ Contest Voice Keyer

Transformer-coupled -- No RFI, hum or feedback . . . 75 seconds total, 5-messages . . . Records received audio . . .

MFJ-434B
$199.95

Let this *new* microprocessor controlled MFJ *Contest Voice Keyer*™ call CQ, send your call and do contest exchanges for you in your own natural voice!

Store frequently used phrases like "CQ Contest this is AA5MT", "You're 59" . . . "Qth is Mississippi" . . . Contest by pressing a few buttons and save your voice.

Record and playback 5 natural sounding messages in a total of 75 seconds. Uses *eeprom* -- no battery backup needed. Use your mic or its built-in mic for recording.

You can repeat messages continuously and vary the repeat delay from 3 to 500 seconds. Makes a great voice beacon and calling CQ is *so* easy.

You can also record and play back off-the-air signals -- great help if you didn't get it right the first time! No more "*Please repeat*".

A playing message can be halted by the *Stop Button*, your microphone's PTT/VOX, remote control or computer.

Has jack for remote or computer control (using CT, NA or other program). Lets you select, play and cancel messages.

Your mic's audio characteristics do not change when your MFJ-434B is installed.

All audio lines are RF filtered to eliminate RFI, audio feedback and distortion. An audio isolation transformer totally eliminates hum and distortion caused by ground loops.

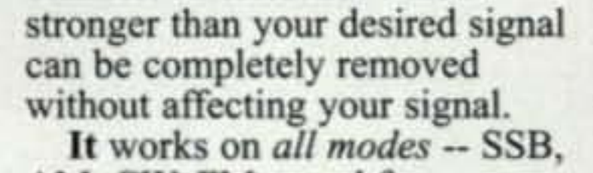
New! **It's** easy to use -- just plug in your 8 pin round or modular mic plug, set the internal jumpers for your transceiver and plug in the appropriate (included) cable for your rig.

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.

MFJ-73, $34.95. MFJ-434B Remote Control with cable.

60 dB Null *wipes out* noise and interference

MFJ-1026
$199.95



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

Eliminate all types of noise -- severe power line noise from arcing transformers and insulators, fluorescent lamps, light dimmers, touch controlled lamps, computers, TV birdies, lightning crashes from distant thunderstorms, electric drills, motors, industrial processes . . .

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

It works on *all modes* -- SSB, AM, CW, FM -- and frequences from BCB to lower VHF.

You can null out strong QRM on top of weak rare DX and then work him! You can null out a strong local ham or AM broadcast station to prevent your receiver from overloading.

Use the MFJ-1026 as an *adjustable phasing network.* You can combine two antennas to give you various directional patterns. Null out a strong interfering signal or peak a weak signal at a push of a button.

Easy-to-use! Plugs between transmitting antenna and transceiver. To null, adjust amplitude and phase controls for minimum S-meter reading or lowest noise. To peak, push reverse button. Use built-in active antenna or an external one. MFJ's exclusive *Constant Amplitude Phase Control*™ makes nulling easy.

RF sense T/R switch automatically bypasses your transceiver when you transmit. Adjustable delay time. Uses 12 VDC or 110 VAC with MFJ-1312D, $15.95. 6½x1½x6¼ in.

MFJ-1025, $179.95. Like MFJ-1026 less built-in active antenna, use external noise antenna.

MFJ *tunable* Super DSP filter

MFJ-784B
$279.95

Only MFJ gives you *tunable* and *programmable* "brick wall" DSP filters.

You can continuously *tune* low pass, high pass, notch and bandpass filters and continuously *vary* bandwidth to pinpoint and eliminate interference.

Only MFJ gives you 5 factory pre-set and 10 programmable pre-set filters you can customize. **Automatic** notch filter searches for and eliminates multiple heterodynes. Advanced adaptive noise reduction silences background noise and QRM.

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Dear Readers,
I am requesting your help in building a bridge between a young boy with cancer and his silent-key ham grandfather.

Dick Ross, K2MGA

A Shoebox Search Mission

It's funny how things happen . . .

This story began one morning back in July. I was in a waiting room at Memorial Sloan-Kettering Cancer Center in New York City, waiting for my fiancée Joan to complete some testing at their Radio Surgery Department. She would undergo some rather serious cancer surgery later that morning. Seated next to me was a fellow several years younger than I am. As I stared off into space, wondering about what the next hours, weeks, and months held in store for Joan and for me, the fellow asked if I'd like to read one of the two newspapers he had bought on the way in. I thanked him and selected that day's Wall Street Journal, I guess to see what some other folks do with their money. Mine's kind of tied up in bills – not of the "Treasury" variety, if you get what I mean.

After a few minutes of silence, he asked why I was there, and of course, I asked the same question of him. It was one of those moments that puts your life in perspective. He replied that he was there with his seven-year old son. Seems that Bryce has stage 4 neuroblastoma, which has less than a 20% survival rate. He was diagnosed at the age of three and has undergone every treatment they could throw at him, from five rounds of high-dose chemo, 28 days of radiation, major surgery to remove a baseball-size tumor, stem cell transplant, monoclonal antibodies, and other drug treatments besides chemo. The treatments extended over two years of his young life, but he's doing well right now, thankfully.

The gentleman's story put Joan's situation into better focus. She'll be fine. We can only pray that we'll be able to say the same about Bryce.

So how does this tie into Amateur Radio? The story continues.

Bryce Faber at age three, when he was first treated for cancer. (Photos courtesy Barton Faber)

The Ham Connection

After digesting what I had just been told, I sat quietly for a while, not really knowing what more to say. My seatmate, Barton Faber, broke the silence with another question: "What do you do?" I told him that I publish a few small special-interest magazines, and he asked what they were about. When I said Amateur Radio, his eyes lit up. It seems that his father, Leon (Lee) Faber, had been W9DAX and W9EH in Sandwich, Illinois, and later, W7EH in Phoenix, Arizona, until his death in 1997!

Barton asked if I thought there might be any way of getting hold of a few of his father's old QSL cards. You see, Bryce never met his grandfather. Barton felt that perhaps if there was a way of locating a few of his dad's QSLs, it would be a way that young Bryce could somehow learn a little more about his grandfather's ham radio career—which dated back to 1912! That connection of touching and holding something that his grandfather had actually touched and written would be very special.

Of course, I volunteered to do whatever I could to help locate some QSLs from W9DAX, W9EH, or W7EH[1], through the pages of CQ. So that's what I'm asking, dear readers. We're all pack rats in our own way, and most of you are probably pretty similar to me in that I have every QSL card I've ever received. You probably do, too. And some of

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e-mail: <k2mga@cq-amateur-radio.com>

Bryce's grandfather, Leon (Lee) Faber, held the calls W9DAX, W9EH, and W7EH during a ham career that stretched over 85 years!

Bryce with his parents, Beth and Barton, in a 2006 photo.

Lee (wearing headphones) got an early start in the radio hobby, as seen in this 1913 photo of him and a friend operating a spark-gap transmitter.

you undoubtedly worked Lee Faber at various times over the years, using his various calls.

I seldom ask our readers to go out of their way to do something like this, but it would be time well spent if some of the old-timers out there were to spend an hour or two rummaging through those old, dusty shoeboxes of pasteboards to see if they can help Bryce "touch" his grandfather through the magic of Amateur Radio.

If you're able to come up with one, please send it to me, Dick Ross, K2MGA, care of CQ, and I'll make sure it finds its way to Bryce.

By the way, as of this writing in early September, Bryce is doing well. His dad describes him as "a terrific kid and a fighter." I've seen him in action at Sloan, and I couldn't agree more.

PS: Joan is doing amazingly well. Thank you, Memorial Sloan-Kettering!

Note

1. Two of Lee Faber's former calls have been reassigned under the vanity call program. W9EH is currently held by Robert Burgermeister of Kenosha, Wisconsin; and W7EH is held by the Kachina Amateur Radio Club of Show Low, Arizona. W9DAX is not currently assigned.

"A terrific kid and a fighter."

Today at age seven, Bryce continues to get the most out of life, even while continuing cancer testing.

Special Note

Even if you never received a QSL from Lee Faber under any of his calls, please consider sending Bryce one of your own QSL's wishing him well. Who knows, we just might kindle enough interest in Ham Radio to turn him into a Ham himself!—K2MGA

When N4JDU met the chairman of the Beijing Radio Sports Association, they spoke in the only language both of them knew—Morse code! The visit was an eye-opening experience.

"Dah-Dit-Dah-Dit Dah-Dah-Dit-Dah"

A Visit to China's "Ham Radio Headquarters"

BY JEFFERSON DREW,* N4JDU

Want a fulfilling experience? Want to see how they administer, teach, and manage radio education in China? Visit the Beijing Radio Sports Association (BJRSA) in Beijing. There you will find one of the world's most complete electronics education facilities, the Chinese Institute of Radio Electronics (CIRE). In December 2006, I had the pleasure of spending two full days in the company of Mr. Huang, chairman of the BJRSA, and his staff.

Throw away any pre-conceived notions of what you envision Chinese amateur radio to be. Do not discard your Morse code study books until you have finished reading this article! Hands-on experience is the best possible experience. I saw it for myself and was amazed.

At 3:00 PM on December 22, 2006, I met Chairman Huang and was moved by his grace and generosity. He met me at the school and we sat down for hot tea. We first laughed at the language barrier and spoke in Morse code. "Dah Dit Dah Dit Dah Dah Dit Dah," we first said to each other (CQ for non-Morse hams). Later, a number of teachers joined us. Some of them spoke English well and acted as interpreters, but the knowledge of Morse code was the door opener. Mr. Huang told our interpreters that Morse is a universal language and that he was comfortable communicating with me in code alone. The Chinese Institute of Radio Electronics does not teach CW and the teachers did not understand. They were amazed at how well we communicated without the use of any other language.

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e-mail: <jeffdu1@earthlink.net>

The first meeting of the author (right), Chairman Huang (center), and a faculty member of the Chinese Institute of Electronics (CIRE). (Photos by Anping Drew)

I was taken to the radio transmitter room next door, where I found a vintage Kenwood 440, an Ameritron 811-H amplifier, and a power supply. A Mosley beam is perched on the building's rooftop. The setup is sparse in comparison to many U.S. shacks, but it is a working HF station and not at all modest by Chinese standards. The radio was donated by the Boeing Company. We scanned the bands but heard only an African CW station on the lower part of 20 meters.

Daylight was growing short, so Mr. Huang invited me back to BJRSA headquarters on Sunday to view the class rooms, the BJRSA office, equipment store, and campus. I eagerly accepted. Sunday could not arrive soon enough, and early that morning the phone rang. Mr. Huang and another ham were outside ready to take me to BJRSA. Beijing traffic makes driving in New York City look like a quiet walk in the park, but the 15-mile trip from my location in the Fengtai District to BJRSA headquarters in downtown Beijing was uneventful. During our drive, I noticed very few ham antennas dotting the capital city's skyline and concluded that ham activity was limited. Wrong! The squelch on the 2-meter/70-cm HT in the car remained open for nearly the entire duration of our journey. I expressed surprise at the high

(Left to right) Jeff, N4JDU, with Mr. Yu, the translator and a TV producer, and a faculty member in the parking lot of the Beijing Radio Sports Association (BJRSA) and CIRE.

level of activity and was told that the 440-MHz band is very popular among locals.

We turned into the parking lot of what appeared to be a medium-size department store. Many people were standing around, but because I was unable to read Chinese characters, I could not tell that we had arrived at the BJRSA headquarters. Once inside the building we walked past three large classrooms. About 80 students filled the main classroom to capacity, and an equal number overflowed into two adjacent rooms. A public-address system carried the instructor's voice from the main classroom to the rooms next door.

"What is going on here?" I asked. I was told that Level 4 (the entry level in the Chinese licensing system) ham classes were being taught twice a day with sessions in both the morning and afternoon. A student who passes the exam given upon completion of the

Mr. Wu Jing Yi, the vice chairman of CIRE, shows the author radio-control kits assembled by students at CIRE.

An instructor prepares station BY1BJ for operation.

course can get his or her license immediately without even leaving the premises. The BJRSA office downstairs is set up to make photographs for the picture-ID-type license, which is then printed right on the spot! I was totally amazed and finally beginning to understand their intensity of interest in ham radio. The considerable attention given to education in radio electronics was impressive, indeed.

Vice Chairman Mr. Wu Jing Yi is in charge of the radio electronics school. Some of the students are as young as 9 years old! Circuit diagrams of transmitters line the hallways, and radio-controlled vehicle test tracks also sit in the hallway. Further investigation revealed 60 electronic test stations where students build and test radios and all sorts of RF equipment. They presented me with a sample kit of their "radio build" project. Every aspect of radio education is available. I saw a microwave transmitter and antenna undergoing tests on one of the benches.

I expressed the opinion that many at home in the U.S. believe amateur radio is suppressed in China. We have no idea of the interest and education taking place, nor do we realize the high level of commitment the government (which sponsors the BJRSA along with its programs and school) has towards amateur radio and related electronics. My concept of amateur radio in China was permanently changed that day. I met and spoke to 150 students (via interpreter) during the morning session. I welcomed them all to ham radio, stating the world will be a safer and a happier place because of their commitment to this important hobby. The temperature in Beijing did not reach 40° F during my three-week visit. None of the public buildings had yet turned on the heat, and the students were studying with their coats on. The students applauded and welcomed me as if I were a celebrity.

Seeing that I was sufficiently overwhelmed, the chairman, vice chairman, and several of the instructors took me and my host, Zhang Anping (now my wife), to lunch. This very special lunch was served in a private room and featured a large variety of delicious food and further education for me.

After lunch we returned to the BJRSA headquarters office where many hams were present tuning up the station and making contacts. They invited me to use the station, so there I was at the club station ready to use my new callsign, N4JDU/BY1. I made contacts inside China as well as with Taiwan and Siberia! I enjoyed QSOs with BD1KOK, BV4FH, and BG1KCM, all on 20 meters. Additional contacts were made on the 440-MHz band. Fortunately for me, I had acquired enough of the language before leaving the U.S. to enable me to ask the local stations to speak in English, which they graciously did. The BJRSA also issued me an honorary radio license, which I will cherish forever.

I took a break from operating and went to see the electronics store and talk with still more hams. They appeared delighted to see and meet a ham from the other side of the world, but I was the one who was truly elated. These are good-hearted, courteous, and caring people. The genuine love in this community and in the country may have been overlooked by the western world, but ham radio can be instrumental in changing that. Their modest standard of living in no way diminishes their good character and sense of fairness. In China, intelligence is power; their intense desire to learn about radio and electronics reflects that. In the course of my visit, I came to greatly admire the Chinese people and their ham radio community.

Today's China is a classic place where the very old (540 BC) meets new western civilization. The people have a distinct choice—to live solely in the traditional lifestyle or incorporate elements of western culture. The ham community largely embraces western development. One drawback to making that embrace a closer one is that international radio manufacturers seem to have overlooked the growing Chinese ham market. The Pucxing company manufactures a 2-meter/440-MHz handheld in China, but

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Field Day in China?

I happened to be in Beijing the last week of March 2007 when I got a call from some friends at the Beijing Radio Sports Association about joining them on their trip to the Balisa Mountains in the interior of China. I had never seen that part of China and I love the outback, so I decided to give it a try. My own 4-wheel drive experience in the U.S. had taught me how much fun you can have with a few people with radios out in the wilderness. The radios also present a safety factor that reduces the risk if anything unfortunate should happen, which in turn increases the enjoyment level. My friend and BJRSA Chairman Mr. Huang told my wife Anping and me to be ready at 7 AM on Saturday.

Anping and I had no idea what we were getting ourselves into or where we would be going with this hearty group. The pick-up convoy arrived with the 2-meter rigs. I could not help but notice that there seemed to be dozens of stations all over the 440-MHz band coordinating pick-ups and directions.

We embarked on a 4-hour, approximately 100-km, journey southwest of Beijing. It took us an hour just to get through the traffic in Beijing. As signs of the metropolis began to fade, I noticed radio-equipped vehicles at major points, and never just one, but three or four. Apparently, they were waiting for others to arrive so they could point the way. I found out later that our destination could not have been found alone, with detours, bridges out, dirt roads squeezing through small hamlets, and then going under bridges under construction. Mobile ham radio took on a greater meaning as the city life faded and the wilderness began.

We then saw taxis joining us along the route and thought this was no place for taxis. I learned that some taxi drivers in China had decided to get their ham licenses in order to assist other hams in Beijing with directions. My BJRSA friends told me that they willingly joined forces with the BJRSA 626 ham club on this day so they could have driving and parking competitions at our destination. Awards would be given at an evening ceremony.

Setting up the "Field Day" station on Balisa Mountain.

It became apparent that this event was taking on major proportions. Traveling up into these mountains would be a sports car lover's dream, with tight turns, high cliffs, etc. I also started to notice that many of the roads were not well traveled. Some areas looked as if we were the only modern vehicles to have driven on the roads in years. There were sinkholes and other road dangers, and the territory is very rocky. These roads should not be attempted at night—unless, of course, you have a radio to call for help. However, there are no repeaters in the areas we traveled through. QSOs are simplex, and the higher up you go, the greater your range. Small 1.5-watt HTs provide excellent service.

The scenery was breathtaking, and suddenly we arrived in a small hamlet. The last 3 km of road to the Balisa Mountains shrine are brand new. Evidently, tourism is expected, as the buildings are modern with great store fronts, sidewalks, and other necessary infrastructure items, but there were no occupants. Count on hams to find the rare, obscure locations, right? There were three small bed-and-breakfast motels which were older and sparse, but quite adequate.

Like a motorcycle gang taking over a small country town, BJRSA and the ham taxis moved in. The locals, the few we saw, were overjoyed to see us. Visiting men, women, and children of all ages suddenly

The completed operating site.

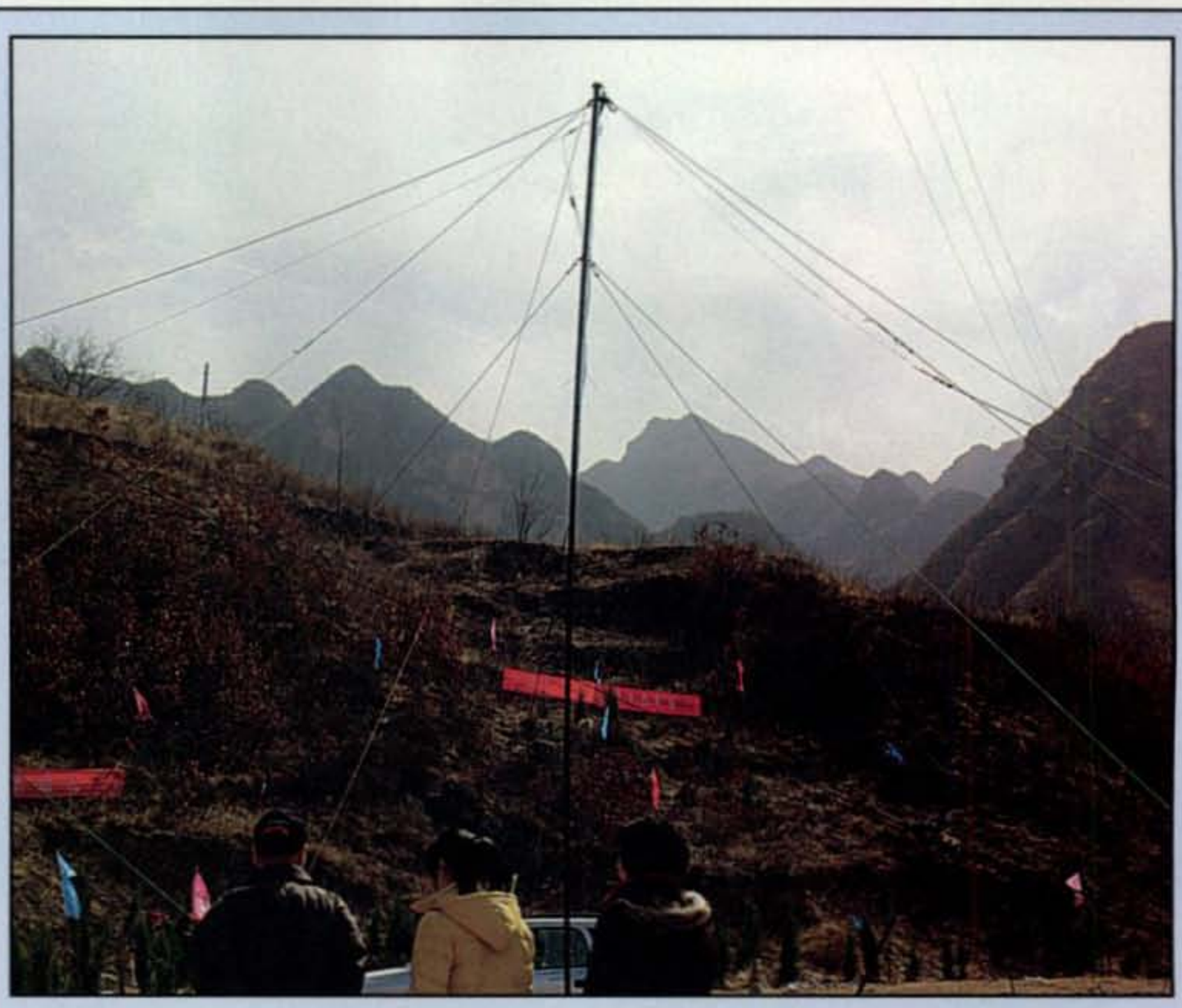
The author with some of the other happy operators.

brought life into this mountain village! By 1 PM we were having lunch with at least 500 other participants. I cannot say enough about the great respect the Chinese people have for one another and their country. Each one I met was an ambassador of goodwill. Clearly a foreigner, they welcomed me with open arms and invited me to participate in all of the festivities and never stopped asking questions. This large group had come to have fun, plant some trees, compete, make radio contacts, and enjoy the environment. This is what we call "family fun" in the U.S. There were activities for all ages.

It was not a true "Field Day" by ARRL standards, but it certainly was a field day by Chinese standards. There were an amazing number of willing participants ready to organize and execute a plan at a moment's notice. In China if one says "let's" the other says "go!" The mountains were decorated with ribbons, new pine trees were planted and watered, dipoles were erected, and refreshments all were made ready in minutes. Having served in my radio club back home in Alabama, I could not help but compare this event with those of my club. We could use a taste of their energy and enthusiasm back home.

As the daylight began to slip away, I had thoughts of a great meal, a soft bed, and maybe a quiet roundtable debriefing of the days activities. Wrong script!

After dinner I noticed that large groups were walking back up the mountain road. With only the moonlight to guide us, we walked by the hundreds to the end of the road, where the Balisa Mountain shrine is located. Here again, to my amazement there were lights, fireworks, music, dancing, and even stools to sit on. This was the award ceremony for the recognition of participants. I also noticed dancers and performers in traditional clothing preparing for a show. My ham buddies pushed me out into the center of the dancers as they joined in the traditional dance around the shrine. I learned that newcomers are always asked to participate in the dance.



The antenna setup.

During the closing ceremony I was asked to give greetings and present the awards. I was provided with a translator, another ham, who repeated my humble thanks for their hospitality and everlasting friendship. My comments that as hams we do make the world safer, closer, and help in the cause of world peace were very well received.

I say to amateur radio operators everywhere that we are ambassadors. We do not know where our signals will find reception, but wherever they do land, it is vital that they contain the message of goodwill, mutual respect, and dignity. By displaying these traits, we each can make a big difference in the quality of ham radio.

I also was in a place that I am sure few westerners will ever see. I was with people many of whom had never seen a westerner up close. They welcomed me with grace and warmth unlike any I have ever witnessed. They value friendship and peace. Let's take a page from their log book and QSL.

The amazing closing ceremonies at the Balisa Mountains shrine.

The group assembled outside the BJRSA electronics store.

major equipment providers are scarce. Hopefully this will improve, as the market clearly is already there. The relatively high price of most HF gear is likely also to blame for the absence of well-equipped stations.

It should be mentioned that I saw a variety of foreign-made vehicles. Some of these were 4-wheel drive SUVs with 2-meter/440-MHz as well as HF gear installed. These were robust SUVs.

I purchased a Pucxing handheld for around $40 U.S. Still, so many new hams entering the market on a monthly basis should be a wake-up call for the big-gun manufacturers. China is known for its ability to manufacture products quickly. ICOM, Yaesu, Kenwood, Ten-Tec, etc., should consider serving the market before the local manufacturing industry answers the call.

From my viewpoint, young electronic engineers are being oriented daily. New hams by the hundreds are receiving their licenses in a smooth, systematic process. China has a radio community that is warm, generous, polite, and intelligent. I would rather have these qualities on "my side" than against me. The energy for learning and acquiring efficient technical skills is far more advanced than what I have seen in our local trade schools. This is being accomplished with a limited budget.

The Beijing, China amateur radio experience is a positive lesson for all of us. The donated equipment, old second-hand gear, and the home-brew attitude I witnessed have given me inspiration. Ham or no ham, this experience teaches a lesson we all should learn.

I invite my fellow hams to send their de-commissioned radios to the BJRSA. It is a donation for the cause of education and international goodwill. I have sent one of mine. Who knows? You might make a contact with your former radio in BY-land someday. Your generosity will be greatly appreciated; I am quite confident of that!

When visiting China, contact the Beijing Radio Sports Association in downtown Beijing for the thrill of a lifetime. Contact details as follows:

Physical address: Beijing Radio Sports Association (BJRSA), No. 14-A, Tiantan Dongli Zhongqu, Beijing 100061 China

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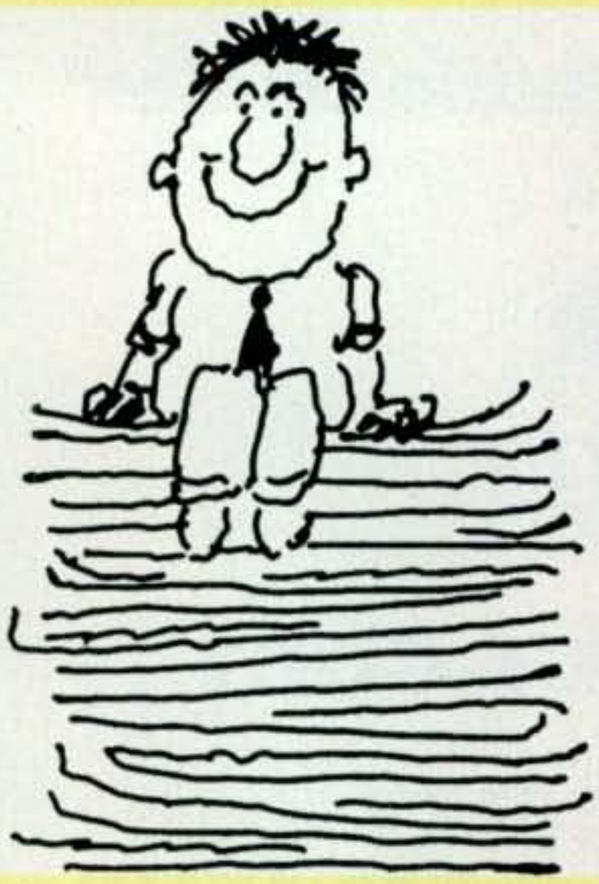

What You've Told Us...

Our August survey asked about your attendance at hamfests, which seem to be recovering in popularity in many areas. Nearly everyone who responded (93%) says they've been to at least one hamfest or convention, and of the 5% who said they hadn't, most are new hams.

Local and regional hamfests are the most popular, with 87% and 72% respectively, having attended one of those at least once, and with 58% and 42%, respectively, saying they attend those regularly. Next, 50% have been to at least one ARRL section, state or division convention, and 24% attend those regularly. The Dayton Hamvention® has been visited at least once by 44%, with 21% going regularly; followed by the ARRL national Convention which 27% have been to at least once, but only 3% attend regularly. Eighteen per cent have attended a regional or national specialty conference at least once, while 6% are regulars at those events.

The vast majority of you (82%) go to hamfests to shop for equipment and accessories, while 59% go for social purposes, 56% attend talks and forums, 22% go to sell equipment, and 18% help out as volunteers. The greatest number of you (46%) said the statement that best reflected your feelings about hamfests was "I go ... to browse, even if there's nothing particular that AI need," followed by mainly socializing (38%), looking for something specific (8%), mainly for forums (7%) and mainly to sell stuff (6%).

Finally, 68% of you said the hamfests you've attended recently generally met your expectations, while 16% found they did not meet their expectations and 11% felt they exceeded them.

This month's free subscription winner is Dave Collins, AD7JT, of Sun City West, Arizona.

Reader Survey November 2007

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 is a follow-up to September's survey about mobile operating, focusing this time on VHF/UHF FM.

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

1. Do you operate ham radio from your vehicle?
Yes 1
No 2

1. Do you operate VHF &/or UHF FM from your vehicle?
Yes, VHF only 3
Yes, UHF only 4
Yes, VHF and UHF 5
No 6

3. Do you tend to stick to one favorite repeater or bounce around?
Generally stick with one repeater 7
Bounce around to several repeaters 8
Depends on activity levels 9
Do not operate on repeaters 10

4. When do you generally operate FM mobile? (Circle all that apply)
6 a.m. – 9 a.m 11
9 a.m. – 12 noon 12
12 noon – 5 p.m. 13
5 p.m. – 7 p.m. 14
7 p.m. – 11 p.m. 15
11 p.m. – 6 a.m. 16
Do not operate FM mobile 17

5. Do you take a VHF/UHF FM rig with you on road trips?
Always 18
Sometimes 19
Never 20

6. How easy is it for you to find contacts on repeaters during trips?
Very easy 21
Moderately easy 22
Moderately difficult 23
Very difficult 24
Do not operate on repeaters 25

7. Where and when do you find it easier to find repeater contacts?
Easier in urban areas than rural areas 26
Easier in rural areas than urban areas 27
About the same in both areas 28
Easier during "drive times" 29
Easier during "off times" 30
About the same regardless of time 31
Do not operate on repeaters 32

We'll be back with more questions next month.

Tell "Santa" you want a Holiday Gift that Keeps Giving, Receiving and Transmitting!

Clip this ad and leave it for your favorite "elf" to find.

The ARD9000 Mk2 and ARD9800 are both great gifts because there's "no assembly required" to start having fun. No radio modifications are necessary and it works with any brand of transceiver.

- NO transceiver modifications necessary
- Digital voice communications using existing analog transceivers
- Works on Single Side Band (SSB) mode.
- Automatic digital receive
- Optional interface cables for most popular transceivers
- Built-in high grade Vocoder (AMBE)
- Built-in FEC protocol
- Compact unit. Easy to operate.
- Utilizes a uniquely designed high performance DSP engine
- Uses the established G4GUO open protocol
- ARD9800 can also be used for digital slow scan TV and data transmissions (images require optional memory board)

It's like adding a whole new mode to your HF operation without needing a new radio!

With a few quick connections, you can be part of the digital voice excitement that's sweeping the SSB bands. Once you hear the audio quality, you'll be a believer! Whenever these digital voice modems are demonstrated, looks of amazement pass through the crowds.

Using the open G4GUO protocol, the ARD9000 Mk2 or ARD9800 allows any ham to convert an existing HF analog transceiver to work digital voice in one easy step! The unit automatically detects digital signals and decodes them, but you also maintain full analog capabilities. Whether a contact comes in as digital or analog, the ARD9000 Mk2 and ARD9800 can handle it.

It's a real breakthrough in communications technology that uses the same audio frequencies (300 Hz ~ 2500 Hz) as microphone audio to transmit digital SSB voice signals.

'Tis the season to help your favorite ham (even if that's yourself) enjoy the clean, clear audio that makes HF digital so much fun!

Be sure to check the website at www.aorusa.com for FAQs, links to user groups and more!

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BY IRWIN MATH,* WA2NDM

More on Experimentation

Last month we encouraged our readers to experiment. This month I will describe a circuit and some techniques that might be of use to you as a good starting point for RF-based investigations. The circuit is a simple, very-wide-band receiver that you can easily configure for almost any frequency you wish. Although it is not very sensitive (lacking an RF amplifier) it can be tuned as you want, so perhaps that is some sort of compensation.

The circuit (shown in fig. 1) in reality is just a simple diode detector that has been pre-biased to increase its sensitivity. The fact that it is not specifically tuned is what makes it interesting to the experimenter. Of course, you can always add a tuned front end when you decide where you want to operate, but this then will narrow the response to the bandwidth of the tuned circuit. The output of the detector is a simple LM386 amplifier with three gain options. These are shown in the dotted section of the schematic diagram. Gains of 20, 50, and 200 are available simply by selecting the desired feedback components.

The 1N5711 Schottky diode used (in principle) will operate well into the microwave region, so you have a lot of leeway. If you build the front end of the circuit (to the left of Rin and the 0.1-µF coupling cap) carefully and with very short leads, you can get good UHF response. If you use surface-mount devices for these two components (or perhaps even used cell-phone or satellite TV parts), you may be able to go even higher. By the way, the value of Rin determines the input impedance of the circuit. It can be anywhere from 50 ohms to a couple of K ohms depending on the requirements of your tuned circuit. The bias pot can also be adjusted for best sensitivity with the particular diode you choose to use.

As we said last month, there are many areas in the electromagnetic spectrum (both high and low) that have not been fully investigated, so here is your chance. With a high-value inductor and capacitor for the tuned circuit, you can operate as low in frequency as you wish. Maybe RF at 5 or 10 kHz (or

*c/o CQ magazine

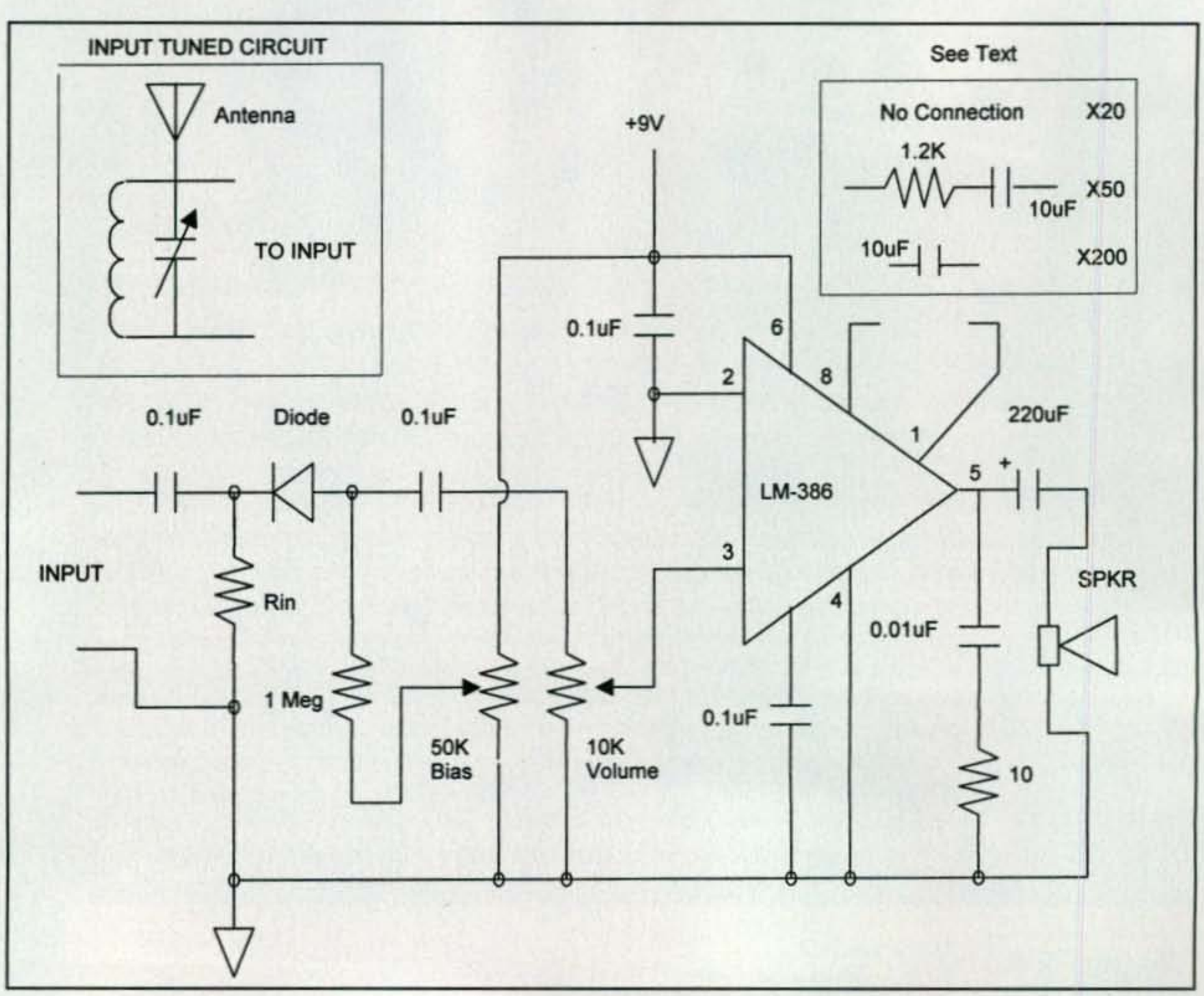


Fig. 1– Basic wide-band receiver circuit.

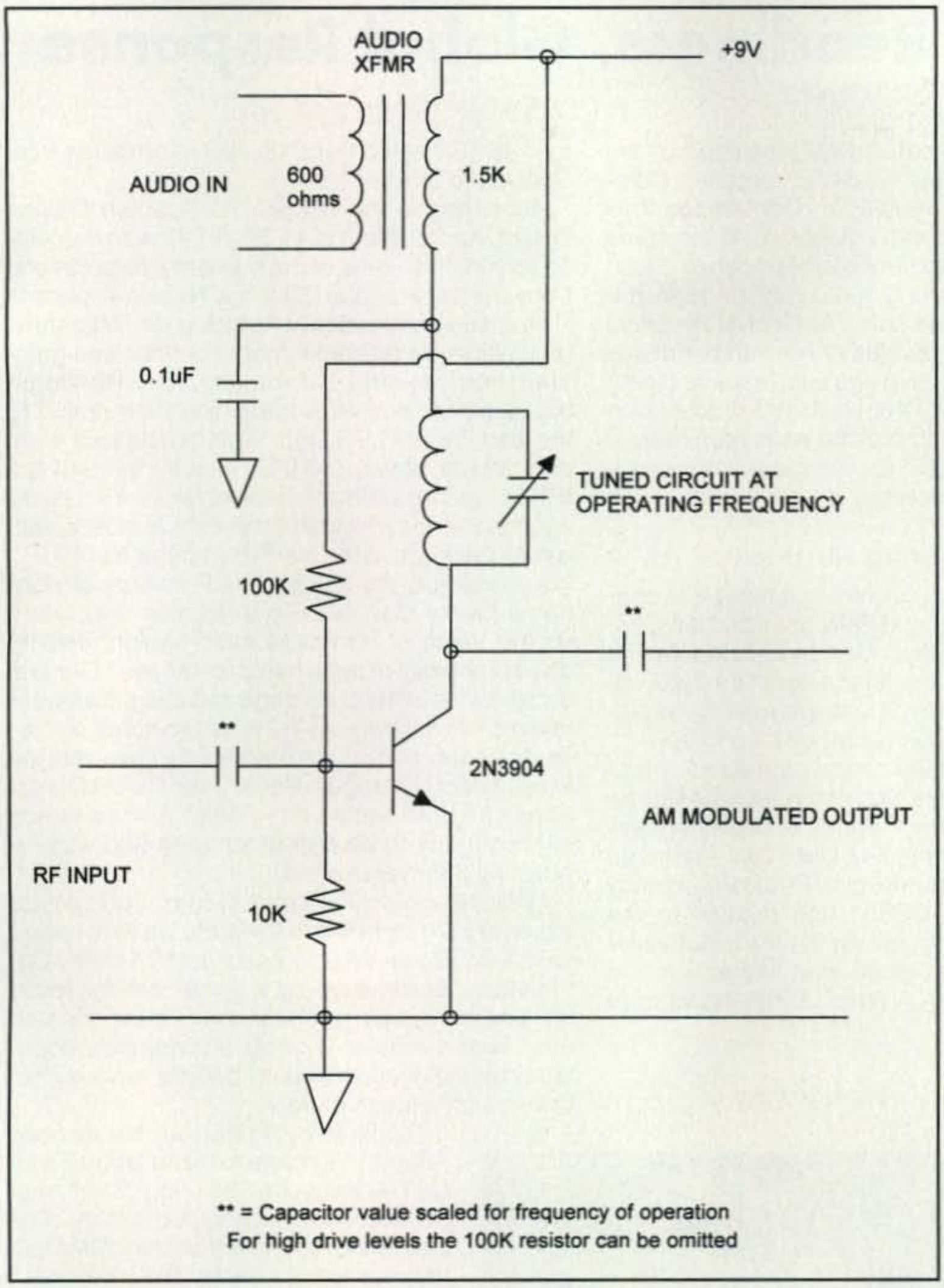


Fig. 2– A simple AM modulator.

even lower) offers interesting possibilities. At the other end of the spectrum, with chip parts and tuned lines or cavities you might be able to extend the receiver well into the microwave region. You might also consult various editions of books such as the *ARRL Handbook for Radio Communications* for tuned circuit ideas or simply "roll your own." Also, don't limit yourself to the specific diode we mentioned. Feel free to try anything you have or can improvise. We saw a website that described diodes made from chemically etching metal strips and the early galena ("fools gold") diodes occurred naturally!

On the transmit side, there are plenty of pre-packaged oscillators available for just a few dollars from many electronic distributors such as Mouser Electronics or DigiKey. These usually produce square waves, rich in harmonics, so that higher frequencies are not too difficult to achieve. Using 7400 series TTL divider chips connected to the output of these oscillators allows you to produce low frequencies as well. Then, coupling the output of any of these oscillators or dividers to a tuned circuit (through a capacitor) will usually convert the square waves into reasonable sine waves. Finally, varying the amplitude of a simple tuned amplifier such as the one shown in fig. 2 will make an AM modulator at any frequency within the range of the amplifier. Note that the capacitors marked with an asterisk are chosen for the frequency of operation. Usually a 0.1 µF will suffice for most mid-range RF frequencies. Also, if you have enough drive (such as from a prepackaged oscillator), you can leave off the 100K resistor for true class C operation of the modulator. As you can see, with this simplistic approach a good deal of the "regular" RF spectrum is available to you at very low cost.

While it is true that the power output of the "transmitter" and sensitivity of the receiver described here are not particularly high, remember that you do not need to transmit very far to investigate the various effects of different frequencies. It is important to note that Marconi's initial transmission range was only a few meters. Once he had that "down pat," he proceeded to refine his equipment and then eventually to tackle the Atlantic Ocean. In a like manner, when you determine where you want to be you can always build more elaborate circuitry.

In the "old days," we obtained components for experimentation from discarded radios and then TV sets. The famous RCA 630 was a gold mine of parts for the radio experimenter, and I personally cannibalized a few in my time. The components we obtained allowed us to experiment well into the VHF and UHF spectrum, often well beyond the initial capabilities of the equipment we disassembled. Today, discarded cell phones and old satellite dishes are good sources of microwave components. Surface-mount parts are plentiful from discarded electronic assemblies, and even obsolete computers often contain oscillators, power supplies, and a wealth of other components if you simply take the time to "dig" into them.

Who knows how high (or low) in frequency one can go with variations of these parts in unique circuitry? Also, as we've mentioned in the past, don't forget about the various auction sites such as eBay. Great bargains in high-quality test equipment are waiting for you there almost for the taking in some cases.

Most of all, please don't be afraid to experiment. All of the suggestions given here are not intended to be optimum designs, but just "food for thought." Further refinement is up to you. As we said last month: "When the 22nd century historians write about the previous 100 years, there will be many people alive and well today who will have contributed to the state of the technology at that time. Maybe you can be one of them!"

73, Irwin, WA2NDM

public service

BY BOB JOSUWEIT,* WA3PZO

Global Readiness, Global Response

A call to be prepared was presented at the Global Amateur Radio Emergency Communications (GAREC) Conference this past August in Huntsville, Alabama. At the same time, potentially catastrophic Hurricanes Dean and Felix were making their way through the Caribbean toward the coast of Central America, and in mid-September Hurricane Humberto was dumping heavy rainfall in eastern Texas and central Louisiana. First we'll cover the hurricanes, and then take a look at some of the ways ham radio is preparing for international emergency communications (Emcom) response.

Hams Praised During Hurricanes

Delivering a one-two punch over a two-week period, Hurricanes Dean and Felix pounded the Central American coast from Mexico to Honduras as Category 5 storms. One forecaster at the National Hurricane Center said, "These are extremely dangerous and potentially catastrophic hurricanes."

Amateurs from many countries helped collect and relay reports to the National Hurricane Center from the disaster area. Reports of property damage and people missing and killed were gathered by members of the International Radio Emergency Support Coalition (IRESC) and relayed to the National Hurricane Center via the VoIP Hurricane Net. Additional information was relayed on the Hurricane Watch Net. A team of translators from the IRESC helped translate vital information from Spanish to English.

According to the IRESC, its Spanish Liaison Officer, Andoni Axpe Soto, EB1FGO, was requested to translate some of the hurricane data coming from the Nicaraguan Sistema Nacional para la Prevención, Mitigación y Atención de Desastres. In addition, he relayed information that was gathered from several Nicaraguan and Honduran broadcasters that were streaming their output to the web. The IRESC said, "The translations were provided to Steve, G4HPE, directly through the IRESC secure internal systems. Steve then packaged these and provided them over Echolink, with e-mail back-up, to the VoIP Hurricane Net."

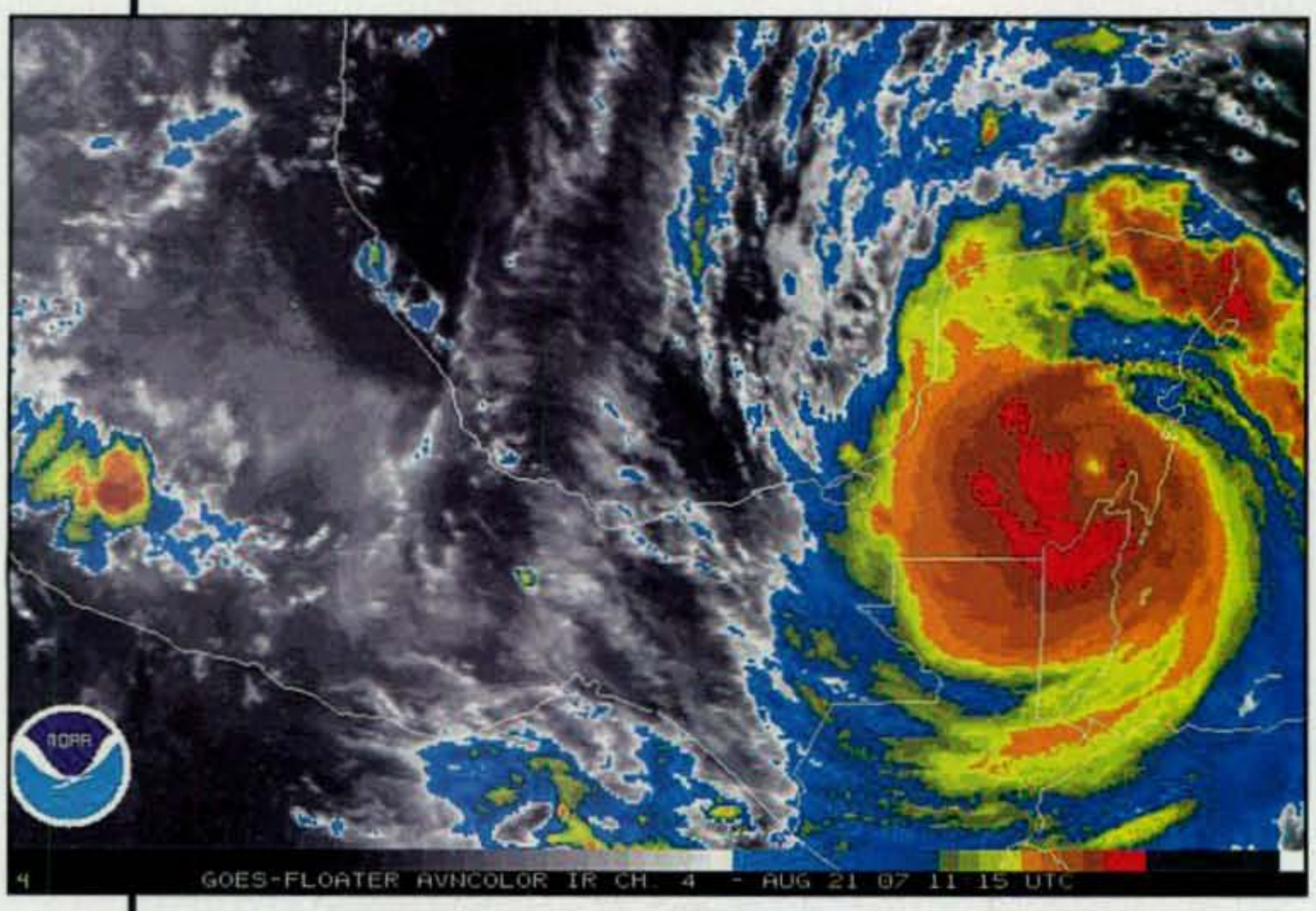
According to the IRESC, the President of Honduras, Señor Manuel Zelaya Rosales, was heard on the Voice of Honduras radio station praising "the community of radio hams for the aid." General details of the scale of damage and casualties were relayed on Nicaraguan TV within minutes of their confirmation. IRESC also carried the news that the President of Nicaragua, Señor José Daniel Ortega Saavedra, had declared the north Atlantic region of his country to be a disaster zone and was requesting international aid.

"The National Hurricane Center forecasters were very happy to receive reports via ham radio," said Julio Ripoll, WD4R, Assistant WX4NHC Coordinator, "as there are no weather stations along the landfall area called The Miskito Coast." He said this lowland area of Nicaragua is sparsely populated by indigenous Miskito people, who do not have much infrastructure.

Ripoll said, "Felix was the second Atlantic hurricane to make landfall as a CAT-5 this year. This has never happened before in recorded history. The ham radio reports will be part of this historic hurricane's official NHC archives." He concluded by saying, "WX4NHC extends its sincere thanks to all the ham radio operators from many countries and nets for being the link between NHC and those in the path of this extremely powerful and dangerous hurricane. We hope that our continued efforts to spread the hurricane warnings will helped save lives."

Also, in mid-September, as this was being written, Hurricane Humberto was spreading heavy rains over Texas. Winds were at 85 mph with higher gusts. Texas officials were concerned about flooding, as rainfall amounts of 5 to 10 inches were expected through eastern Texas as well as central Louisiana. The National Hurricane Center had warned that 15 inches of rain was possible in isolated areas. Amateurs in Texas were making prepa-

*c/o CQ magazine
e-mail: <wa3pzo@cq-amateur-radio.com>



Hurricane Dean required a coordinated amateur radio response from hams in many countries in North, Central, and South America. (Photo courtesy NOAA)

rations for possible communications duty as the storm approached.

International Emcoms

As an international hobby, amateur radio operators communicate across borders on a daily basis. "We have equipment and the will to help" in emergencies, said Seppo Sissatto, OH1VR, Emcom Coordinator for IARU Region 1.[1] "We are known by authorities as a powerful resource, but we do not have the proper protocols like how to behave, how to contact proper authorities, etc., in the case of international Emcoms. . . . We are good and we have a good will but without tools our role is limited," Sissatto told GAREC attendees. "We are *not* organized for international Emcom."

Sissatto recommended an extension of Region 1's "Emcom Party On-the-Air." This exercise is held twice a year, with participation by headquarters stations of ham radio associations within the region, as well as special Emcom groups. The next Emcom Party will be on November 11.

Those participating at GAREC recommended the "introduction of the call-sign suffix '/D' for use by stations of the Amateur Radio Service handling traffic related to emergency and disaster situations, and its publication and promotion by the IARU and its member societies and by all specialized emergency communications groups."

Several groups already have an international presence, including the VoIP Hurricane Net, the International Radio Emergency Support Coalition (IRESC), and the Hurricane Watch Net, as well as several maritime and missionary nets. The VoIP Hurricane Net merges Echolink and IRLP systems to provide a single point of contact for people in the field submitting reports, as well as for the National Hurricane Center and National Weather Service to be able to easily stay in contact with one another.

According to its website, the "IRESC's main objectives are to foster efficient collaboration between Amateur Radio Operators, extend friendships across the world, and provide international emergency communications in times of need." The IRESC has an international group of amateurs "who are dedicated to helping at all times of the day or night." Currently, the IRESC team has over 30 active member countries and it continues to grow. Various members of the IRESC staff are also affiliated with organizations such as the International Red Cross; Israel's national emergency medical, disaster, and ambulance service (the Magen David Adom); the Salvation Army; Great Britain's RAYNET; local ARES and RACES groups; and many others. The IRESC team uses HF, APRS, VHF, UHF, amateur satellites, and Echolink VoIP communications to keep in contact. The Hurricane Watch Net activates whenever a hurricane or tropical storm in the Atlantic or Caribbean is within 300 miles of a possible landfall.

The conference suggested that "studies be initiated by the IARU in cooperation with its member societies and with specialized emergency communication groups, on the development and possible introduction of standard codes for use in international emergency communications and on the need for the development of a list of standard resource types."

Jim Linton, VK3PC, chairman of the IARU Region 3 Disaster Communications Committee, said its policy encourages member societies to "take action to ensure that the Amateur Service is better prepared for its role of providing communications in times of an emergency or natural disaster." His report also said the committee "decided that there should be a regional Simulated Emergency Test (SET), and that monitoring occur on the progress or otherwise of member societies in their efforts to have national administrations implement relevant changes" from the World Radio Conference in 2003.

The SET is a tool to help develop existing recognition that more needs to be done in terms of emergency communications. Its aims include:

- Testing equipment and training personnel under message-handling conditions.
- Foster greater cooperation within the region.
- Help increase awareness of the Amateur Service and its role.

The report continued that in "recognition of the difficulty, at least in the early introduction of SET, to achieve it on a regional basis it is suggested that in the short-term, member societies can conduct one within their own country or perhaps involve neighboring countries if that is possible."

Contesters Take Note

Region 3 has recommended the SET take place in October because of favorable propagation conditions. However, they did note that the CQ WW and Oceania DX Contest weekends would have to be taken into account. GAREC has urged all contest organizers "to

include in their respective rules an instruction to the effect that frequencies in the immediate vicinity of the Center of Activity frequencies as proposed by GAREC-05 and subsequently adopted by the competent conferences of IARU Regions 1, 2, and 3 should not be used for contest contacts." Those frequencies include 21.360 MHz, 18.160 MHz, and 14.300 MHz. In addition, in Region 1, 7.060 MHz and 3.760 MHz are included. *(Editor's note: This recommendation was received much too late to even be considered for the 2007 CQ WW DX Contest, as the issue in which the rules were published went to the printer in mid-July. Contesters are urged to be aware of this activity and to minimize possible interference to any ongoing communications. SET organizers are urged to concentrate their activities on 17 meters whenever it is open, as there is no contest operation on that band.)*

Army MARS Chief Stuart S. ("Stu") Carter chats with conference attendees at Dayton. (Photo by James Banks, Army MARS)

The Future of MARS

It's not just about MARS. That was the opening theme as Stu Carter, Chief, Army MARS spoke at the GAREC conference. Carter said his remarks would apply to "all of us involved in emergency communications. That includes Army, Air Force, or Navy-Marine Corps MARS, and the rest of Amateur Radio too, ARES and RACES and SATERN in particular."

Army MARS is tasked with providing civil support in the continental United States. Yet all three MARS organizations (Army, Air Force, and Navy-Marine Corps) are tasked to work together. Just one year ago, the future of MARS was in doubt. As Carter said, "the lights were out and they were locking the doors. The Army didn't see how Army MARS would serve the Army or any of its missions."

"Today, the program is moving vigorously forward," said Carter. He told the group that in the late summer "the Army has directed the construction of a brand-new 2,500 sq. ft. HQ facility and Gateway Station for Army MARS . . . to ensure that this vitally important back-up Army Command and Control Comms capability is capable of supporting evolving Army missions and to provide civil support when needed to support disaster response in America."

For the first time since 9/11, Army MARS has a "specific and very practical job to perform for a major government entity," said Carter. It's not "just a vague commitment to provide backup communication in some general, unspecified way." This is the Army MARS partnership with the Transportation Security Administration (TSA). Carter says this is "only the first (assignment) involving deployment of Army MARS operators away from their home stations." He thinks that the lessons learned, experience acquired, and successes achieved while deploying for TSA will lead to similar partnerships with other federal entities.

According to Carter, the TSA has installed or will soon finish installing Army MARS long-haul comms capabilities at nearly 20 large airports. He says these airports are led by TSA Federal Security Directors, who have responsibility for the safe movement of people and goods. They are partnering with Army MARS to ensure they have robust and agile backup communication capabilities at their airports. He says the agile part gives TSA the ability to quickly move light and lean Army MARS HF response teams to other TSA locations when needed to re-establish or augment lost communications at major transportation hubs. He pointed out that Navy-Marine Corps and Air Force MARS members

Michael Barrett, K3MMB (center, holding book), is the Transportation Security Administrator's Washington liaison with Army MARS. He is shown at Tucson International Airport briefing officials on Operation Sidewinder. (Photo courtesy TSA)

are taking a role in these TSA response teams. He said "they augment Army MARS for TSA deployments, under Army MARS control."

Winlink

"For sheer impact on MARS capability, nothing through the history of MARS matches the increased capability and impact that the new WinLink 2000 (WL2K) messaging system provides," said Carter. "From the official adoption of the WL2K technology to the fielding of a fully functioning nationwide supernetwork, it took Army MARS barely a year. Plans include a WL2K system that "will insulate our system from any attacks on the Internet."

"As for future impact of the WinLink 2000 messaging system," Carter said, "we have a symbiotic relationship going here. Just as the TSA partnership broke the ice for a direct, defined, and meaningful Homeland Defense and Homeland Security mission, WinLink gives us just the tool to expand such relationships across the government. Everybody knows how to use e-mail. But we provide e-mail over HF. Over our restricted MARS HF frequencies, and over our own HF Connected Server network, spanning the Continental United States and reaching beyond."

Interoperability

Carter says the three MARS services are working on integrating operations by having similar procedures and joint frequency usage. He says that is "the key to MARS providing our emergency response partners (such as TSA, ARES, RACES, SATERN, etc.) with a one-stop long-haul comms connectivity. Together, we will provide fast access to dependable long-haul message handling." Carter predicts "the three MARS services will share phone trees, plan disaster response jointly, and conduct joint exercises until integrated operations become second nature to our members." Carter says that MARS is ready to establish a formal MOU (Memorandum of Understanding) with the ARRL.

Unpredictable Future

Carter took time to discuss the role of all communicators answering the country's emergency communications needs. Without focusing specifically on Hurricane Katrina or the 9/11 attacks, he talked about one of the bigger lessons learned from those events. Carter said:

It's the proposition that even with all the smarts in the world, nobody can dependably foresee the full dimension of future disasters, whether natural or the result of hostile action. "We can prepare for every eventuality" —this thinking goes—but the full scope and impact of a calamity goes beyond realistic human calculation. Can you really prepare, realistically, for an event so lacking of precedent, so monstrous, that its very shape cannot be foreseen? How many of you stared at the TV when the first airplane struck the World Trade Center and thought: How could an pilot crash his airplane into such a big building? I sure didn't think the first crash was the work of terrorists. How many of those poor souls on that aircraft thought the hijackers would kill themselves by using the airplane as a flying bomb? These are precisely the outside-the-box events "no one" expected.

In the future, Carter sees MARS as a "tightly-knit force of well-trained, equipped, and motivated communicators whose teams will react to any kind of situation whether or not it's covered by an SOP (Standard Operating Procedure), whether or not there has been time for instructions from the chain of command, whether or not the President or the Governor is able to request a response. In this kind of worst-case scenario," he noted, "the chain of command may no longer be there." He says there is a parallel between MARS members and those who serve in the uniformed Special Forces. Like Special Forces, "MARS members are ready for every possible situation an enemy might throw at them. They are knowledgeable, prepared, practiced, agile, self-sufficient, and adaptive. And please note that, like MARS, the Special Forces also are a tri-service formation."

Coming Together

Carter said many will remember how some of the amateur radio community's most memorable service in recent disasters came from no SOP or "OPPLAN" or chain of command. These actions were the result of operators using their own initiative in coping with the unforeseen, but within the bounds of their training. Carter shared two stories:

Here's one story from 9/11. Ham radio organizations responded vigorously to meet New York City's needs. Well, one of the most crucial needs had nothing to do with radio, which doesn't function well among the tall skyscrapers anyway. The American Red Cross desperately needed immediate help wiring up a telephone system inside its huge temporary headquarters in New York. Hams were asked if they could do the job. They could and they did. That's thinking—and working—outside the box.

And here's a story from Katrina. The Salvation Army had thousands of health and

Bill Read, KB5FYA, Acting Assistant Director of the National Hurricane Center, brings to his position years of experience in working with the amateur radio community on severe weather. (Photo courtesy NHC/NOAA)

welfare messages to move from all over the world into their hurriedly-organized refugee data processing center in Dallas. Grant Hays and the Ft. Huachuca gateway station had a high-speed data link that could help in this. Joe Fratto, NNNØJUN, a Navy-Marine Corps MARS and SHARES member, figured out how SHARES could interface Army MARS and SATERN. Overnight, the data link was working. *That's* thinking outside the box. That's success!!"

Red Cross Update

The Memorandum of Understanding between the ARRL and the American Red Cross expired in September. It was allowed to expire because the ARRL did not agree with the ARC policy on conducting mode of living as well as background checks on volunteers. *CQ* checked with Dennis C. Dura, K2DCD, ARRL's Manager of Emergency Preparedness and Response, on the relationship between the two organizations after the MOU expired. According to Dura, the "ARRL and ARC have begun the process of revising and establishing a new Memorandum of Understanding between the two organizations." While the current MOU expired in September, "the ARRL has no plans or intentions of discontinuing the relationship or services amateur radio and the ARES program provide."

NHC #2 is a ham

Bill Read, KB5FYA, is serving as the Acting Assistant Director of the National Hurricane Center. He was unsuccessful in his application to become hurricane center director last year. Read served as Meteorologist in Charge of the Houston-Galveston area office of the National Weather Service since 1992. He led that office through events including tornado outbreaks, floods, and heat waves, as well as Hurricanes Claudette and Rita. While at the Houston office, he worked to modernize forecasting tools, including improving that region's Doppler radar. He began working for the National Weather Service in 1977 after serving in the U.S. Navy, where he was an on-board meteorologist with the Navy Hurricane Hunters from 1972 to 1973.

Read will be second in command to Ed Rappaport, who was moved up from deputy director to acting director when Bill Proenza was moved out in July. Rappaport is expected to remain acting director through the remainder of this hurricane season, which ends on November 30.

Meanwhile, Proenza has returned to a previous post as Director of the National Weather Service's Southern Region. Proenza, a 40-year veteran of the National Weather Service, "has a record of outstanding performance," said retired Navy Vice Adm. Conrad C. Lautenbacher, Jr., Ph.D., Undersecretary of Commerce for Oceans and Atmosphere and NOAA administrator. "Having him return to the region is the best way for NOAA to continue to benefit from his skills."

Global Response

This was a busy month reporting on events and visions that will influence the world of amateur radio emergency communications. Two catastrophic hurricanes struck the Central American coast, and another pounded parts of Texas and Louisiana. The international response of amateur radio operators to Hurricanes Dean and Felix showed that plans must be made on the global level. We are not isolated in our own communities. As we all know, radio communications knows no boundaries. Will you be prepared to help in your local community, around the country, or around the world?

Do you have a story to tell involving amateur radio emergency communications or public service work? Drop us a note. Until next time . . .

73, Bob, WA3PZO

Note

1. The International Amateur Radio Union (IARU) is divided administratively into three regions. Region 1 covers Europe, Africa, the Middle East and northern Asia; Region 2 includes North and South America; the rest of Asia, Australia, and the Pacific are in Region 3.

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1. Bottom line scrolls and fills with text, then that entire line is displayed on top line until bottom line refills -- makes reading text extra easy! Automatically displays speed in WPM.

2. Same as **1**, without speed display -- gives you maximum text display.

3. Top line scrolls, bottom line displays speed in Words-Per-Minute.

4. Both top and bottom lines scroll.

Two-line LCD display has 32 large 1/4 inch high-contrast characters.

MFJ Instant Replay

The last 140 characters can be instantly replayed. This lets you re-read or check your copy if you're copying along side the MFJ-461.

High Performance Modem

Consistently get solid copy from MFJ's high performance *PLL* (*phase-lock loop*) modem. Digs out weak signals. Even tracks slightly drifting signals.

Of course, nothing can clean up and copy a sloppy fist, especially weak signals with lots of QRM/QRN.

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The MFJ-461's serial port lets you display CW text full screen on a bright computer monitor -- just use your computer serial port and terminal program.

More Features

When it's too noisy for its microphone pickup, you can connect the MFJ-461 to your receiver with a cable.

Battery saving feature puts MFJ-461 to sleep during periods of inactivity. It wakes up and decodes when it hears CW.

Uses 9 Volt battery (not included).

True Pocket Size

Fits in your shirt pocket with room to spare - smaller than a pack of cigarettes. Tiny 2¼x3¼x1 in. 5½ ounces.

No Instruction Manual needed!

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WORLD of ideas

BY DAVE INGRAM,* K4TWJ

One-Tubers from Yesteryear – Part II

Locating suitable successors to the horizontally positioned 804-tube transmitter featured in last month's column proved a formidable challenge, but some impressive candidates jumped up and volunteered for the honor. The more we studied them, the better they looked, so this month we are proudly highlighting a unique push-pull 6L6 oscillator-type transmitter compliments of Jerry Fuller, W6JRY, and an almost forgotten 6T9 Compactron tube transmitter compliments of Charlie Zarek, W9SAY. As an extra treat, we are also adding details of a quick-brew 3A5 transmitter you can power from a double handful of 9-volt batteries. All three transmitters are low in cost and easy to build, so enjoy another double-shot of golden days nostalgia supreme!

Once again I must emphasize these open-air vacuum-tube transmitters require high voltage for plate power. Do not even think about building or using one on the air unless you have creditable experience working with tubes and high voltages and are very aware of their dangers. Likewise, tube-savvy amateurs are reminded to use their own best judgment in allowing exposed wires to abound or covering the transmitter with a plastic case, using a keying relay or an enclosed-mechanism key, and in choosing a source of plate power. *Always think safety first.* Now let's take a look at this month's featured transmitters!

Photo A– Twins! The marvelous push-pull 6L6 transmitter Jerry Fuller, W6JRY, built on a 6" × 9" oak wood base with routered edges and authentic-era parts. Details on homebrewing a copy of the B&W "JCL" plug-in plate coil and dual-section tuning capacitor are in the text. (Photo courtesy of Jerry, W6JRY)

Push-Pull 6L6s

One of the most popular tubes of the past is unquestionably the dear little 6L6—and with good reason. No other tube had so many close "cousins" or has been produced in such a wide variety of shapes and styles. There was the 6L6, 6L6G, 6L6GC, 6L6GT, etc., the 6V6, the sweet little 6F6, and the dazzling British equivalent, the big bottle KT66. Sheer works of art one and all! Ah . . . and those envelopes! There were small ones, straight

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e-mail: <k4twj@cq-amateur-radio.com>

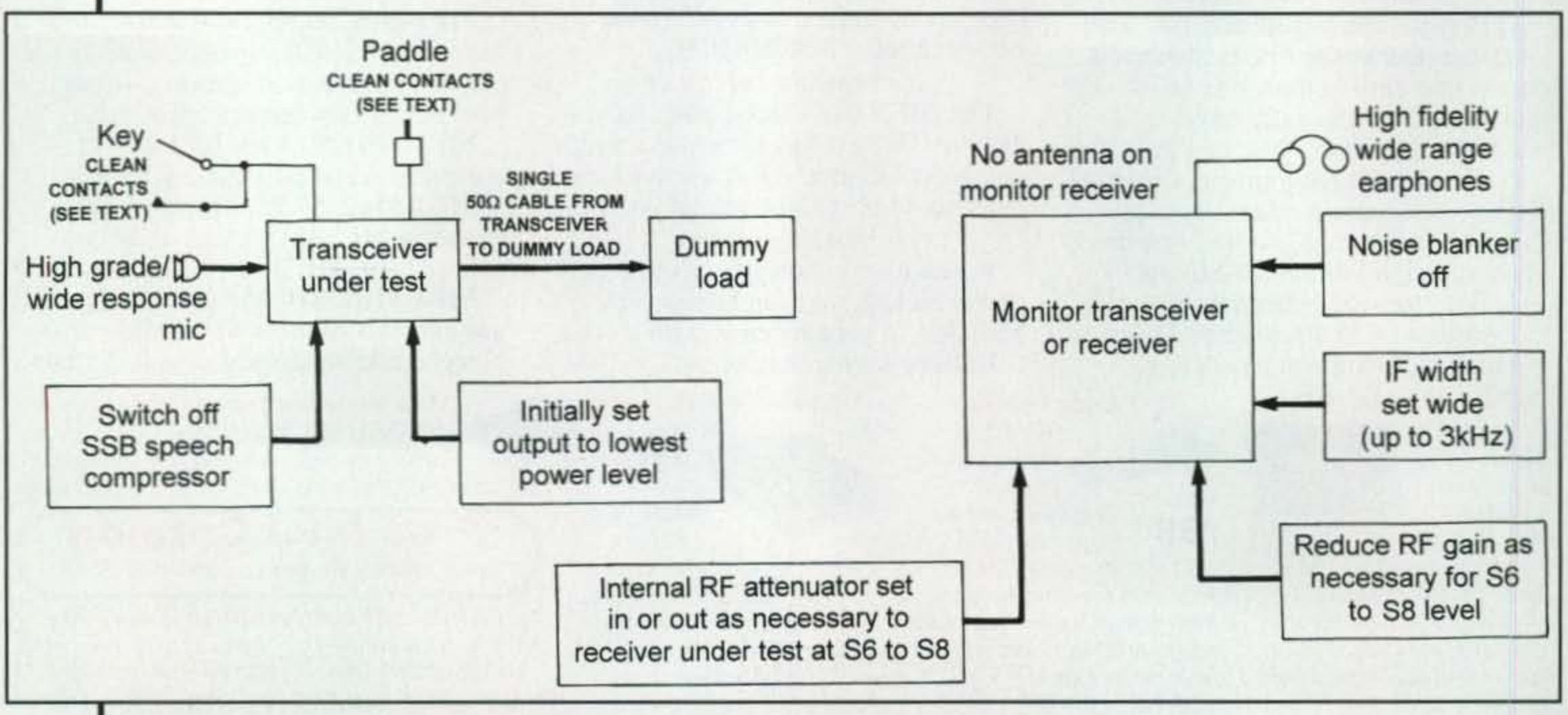

Fig. 1– Circuit diagram of the push-pull 6L6 transmitter. RFC2 is included in the plate line of the top tube (only) to eliminate any UHF parasitic oscillation. It is visible between front tube and skirted knob in photo A.

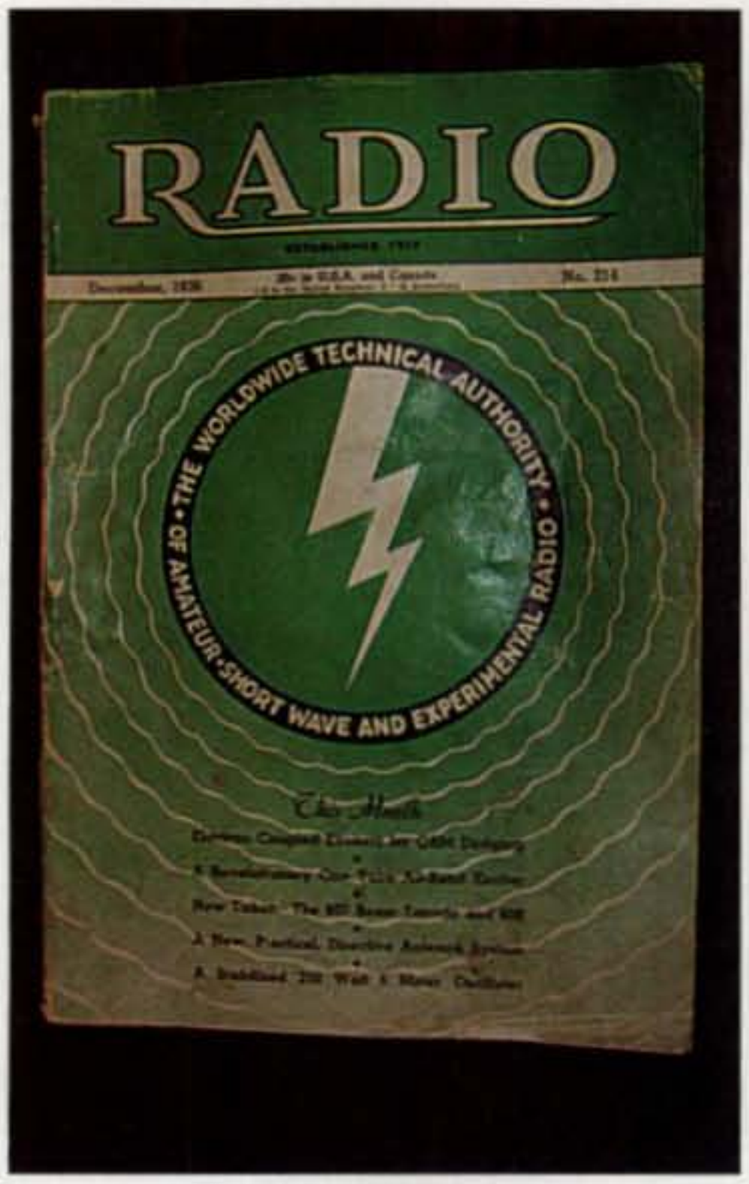

Photo B– This month's star attraction, a 50-watt 40-meter transmitter with twin 6L6s in push-pull, was featured in the December 1936 issue of Radio *magazine and built as an exact copy by Jerry Fuller, W6JRY.* Radio *magazine is special, because it was started as the* Pacific Radio News *in 1917, and split into* Audio *and* Radio *a few years later. Later on the name* Radio *was changed to* CQ, The Radio Amateurs Journal, *the magazine you are holding in your hands.*

ones, oversize ones, dome ones, and—lest we forget—black and metal envelope 6L6s that looked cool, but could burn your hand when touched.

If there is anything more captivating than a single 6L6 transmitter, it has to be a push-pull 6L6 transmitter with matching envelopes. Cast your eyes on the little beauty in photo A and fig. 1, and I am sure you will agree.

Jerry Fuller, W6JRY, found full build 'em details of this masterpiece in the December 1936 edition of *Radio* magazine (photo B) and started a diligent search that produced all the parts to make an exact copy of the gem. The transmitter covers 40 meters (or 80 or 30 meters if you dink with plate coil turns) and delivers 30 to 50 watts output, depending on its high-voltage power supply and the type of tubes used (6V6s, 6F6s, small 6L6s, large 6L6s, etc.). Jerry built his transmitter on a specially cut wood base, and he was fortunate enough to find not one, but two large dome-type envelope 6L6s plus

Photo C– Delightfully dangerous amply describes this open-air and copper-framed 6T9 transmitter built by Charlie Zarek, W9SAY. It runs 10 to 15 watts on 40 meters, has an on-board power supply, and sports a classic Heathkit meter on the front panel. Nice! (Photo courtesy of W9SAY)

Photo D– Rear view of the W9SAY 6T9 transmitter reveals a clean layout with a "canned" filter capacitor under the cardboard wrapper and a Hammarlund 100-pFd miniature tuning capacitor. All that copper reminds us of the classic R. L. Drake gear, doesn't it? (Photo curtesy of W9SAY)

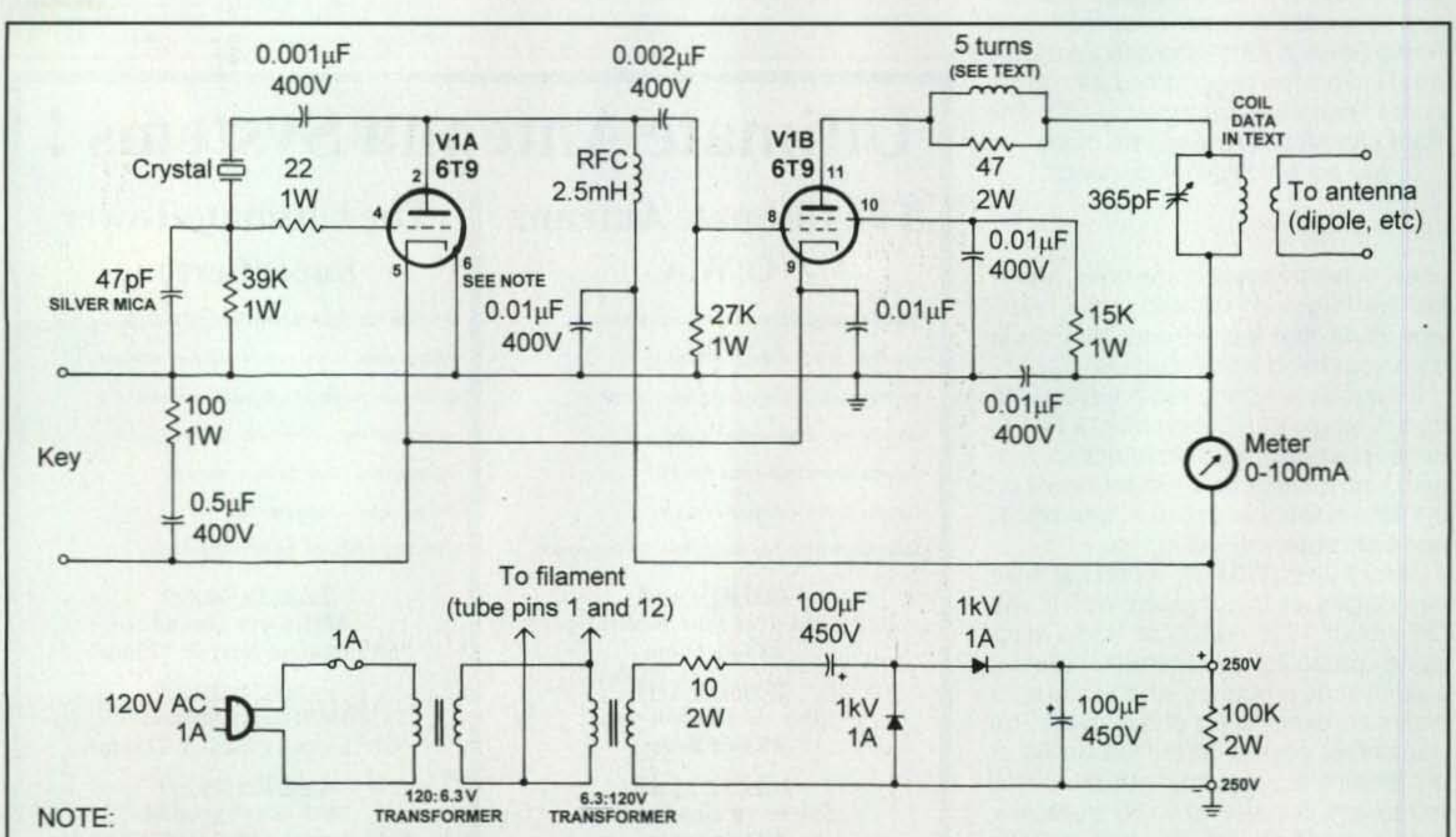

Fig. 2– Circuit diagram of the neat little 6T9 Compactron tube transmitter built by W9SAY. Charlie used a hard-to-find transformer in a power supply, so I switched to using a pair of 120- to 6-volt transformers and a voltage doubler circuit to yield approximately 250 volts for the tube's plates. (Discussion in text.)

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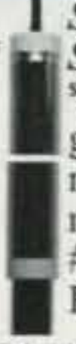

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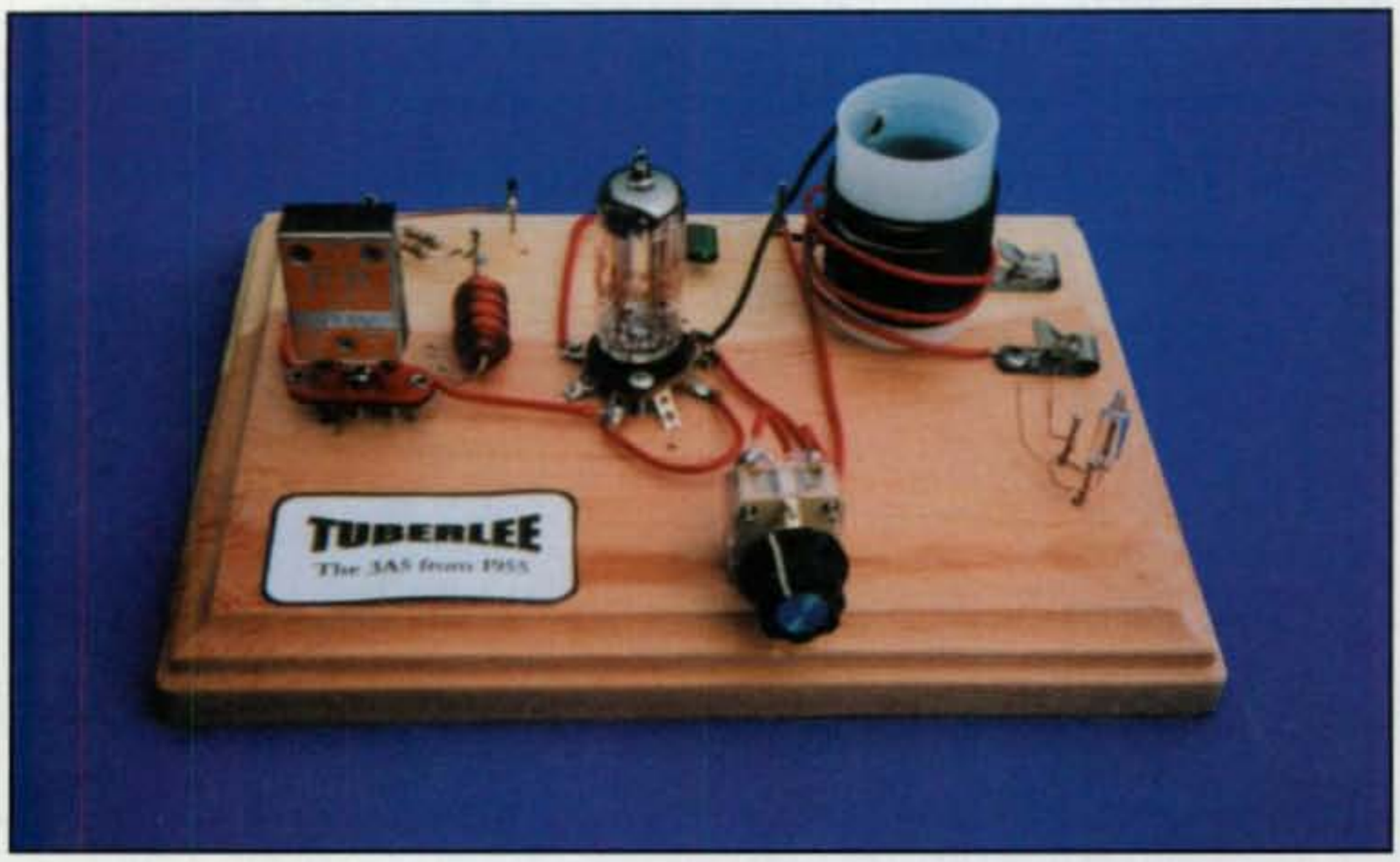

Photo E– TheTuberlee is an easy-to-build 40-meter transmitter sporting a sweet little 3A5 tube and operating completely from batteries (two D-cells for filament power and fifteen 9-volt batteries for plate power). Overlook the haphazard wiring, as I built this li'l gem in a rush, laying out parts as I went.

ceramic sockets for them and a round-cased Bliley crystal. He also found a rare B&W plug-in plate coil—a "JCL" type from the late 1950s.

I doubt if you can find an original "JCL" or comparable "ready to use" plug-in coil today (unless you scour eBay for one run over by a Mack truck), so Jerry kindly provided details for homebrewing a copy. For 40 meters it consists of 26 turns of #20 wire wound with a diameter of $1^5/_8$ inches and spaced to a length of 2 inches. The antenna pick-up coil is 3 turns of insulated wire wound over the center of the plate coil. For 80 meters, the plate coil is 36 turns of #22 wire of similar diameter and length. The mating plate tuning capacitor is a dual section—160 pFd per section item you probably will need to homebrew using two separate capacitors, a shaft extension, a shaft coupler, and some of your old-time electro-mechanical creativity. You know the drill. If you are an old pro, you probably also know your options in obtaining 300 to 450 volts for the 6L6 plates—using a homebrew power supply with a now rare high-voltage transformer, adapting a voltage doubler or quadrupler circuit, etc. Also check Phil Salas, AD5X's "Weekender" column in the July 2007 issue of *CQ*. It describes how to adapt a 13-volt DC inverter for high voltage. Add a voltage doubler to its output, and you are set for fun at home or in the car. The car? Sure! Remember when trunk-mounted transmitters were in vogue? Did you ever get locked in a trunk while tuning one?

Finally, tune up and operation of this transmitter involves adjusting C4 for the highest output consistent with the cleanest keying. For full loading, you may wish to add a 365-pfd variable in series with the antenna pickup coil. Dink, experiment, and enjoy! Need more details on this push-pull 6L6 transmitter? You can e-mail W6JRY at <jefuller @juno.com>.

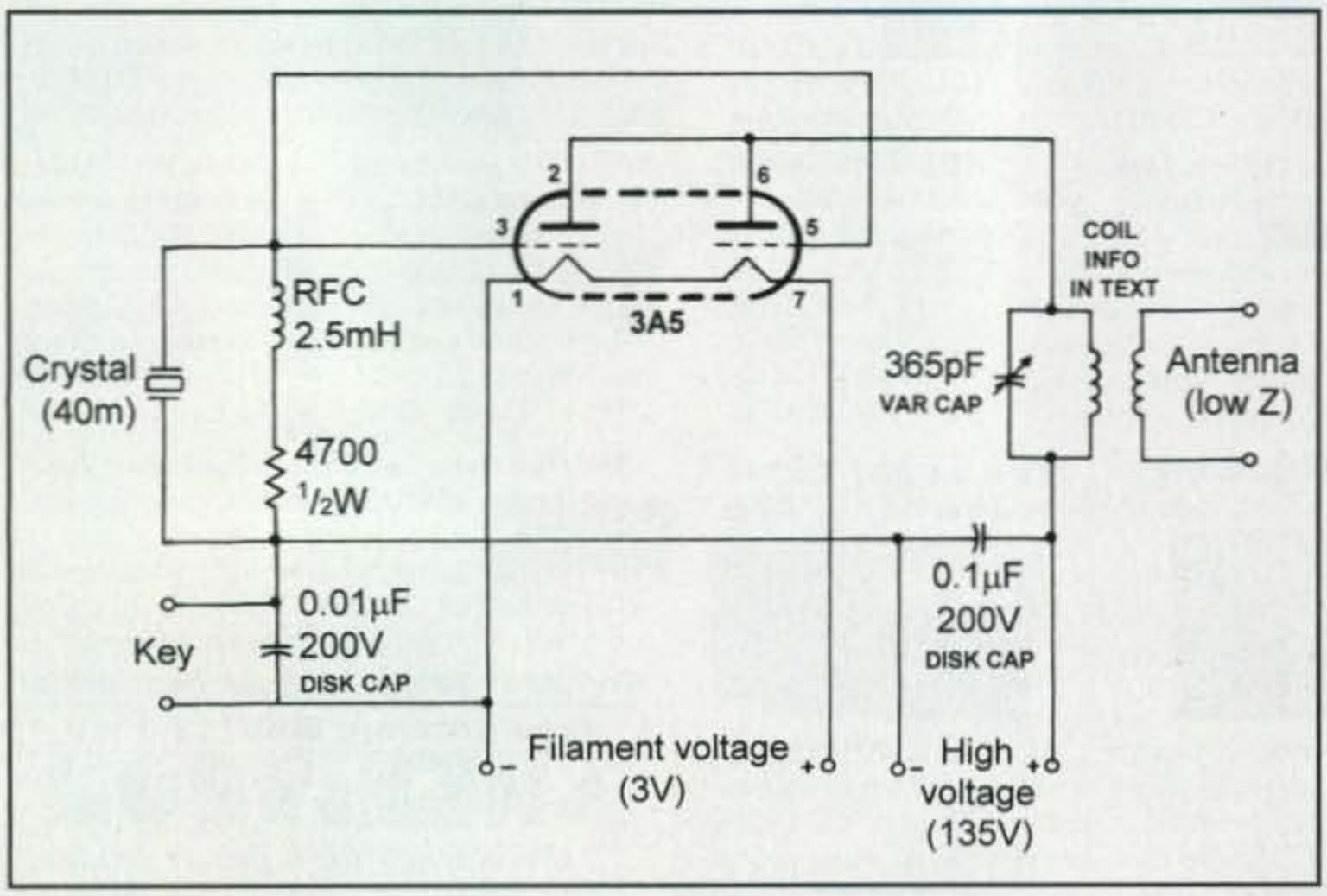

Fig. 3– The circuit diagram of the Tuberlee. The tube's low current makes it appealing for battery power. (See discussion in text.)

Compactron Resurrection

A few months ago, Charlie Zarek, W9SAY, shared pictures and details of his recently assembled one-tube transmitter with us and it looked so good that we could not resist highlighting it in this month's column (photos C, D, and fig. 2). Do you remember the 6T9? It is a Compactron—one of those unusual-shape and glass-base tubes popular during the heyday of "tube" TVs and sweep-tube linear amplifiers. Here its dual sections serve as a two-stage (oscillator and RF amplifier) transmitter with 250 volts on the plates and 10 or 15 watts output on 40 meters.

Circuit-wise, the transmitter is classic and conventional. Capacitive coupling between stages eliminates the need for a tuning capacitor, and link coupling electrically isolates the rig from the antenna and ground (nice if you use an AC/DC-type power supply and a floating ground under the rig's chassis). Parasitic suppressor Z1 is made by winding 5 turns of solid wire on a 47-ohm, 2-watt resistor connected to pin 11, the tube's plate lead.

Two schemes for (lightly) shifting the transmit frequency warrant mention. One is mounting the quartz slab or "blank" from your existing 40-meter crystal in a Bud or similar "adjustable crystal holder"—if you are lucky enough to find one as they are rare. Basically, they just vary pressure on the contact plate pushing against the quartz slab, so you might achieve the same results by loosening the front screws on an FT-243 case or adding a spring-loaded pressure screw to the (FT-243) case front plate. As an alternative, try adding

10 µHy of inductance (a molded or hand-wound coil on a toroid) and a 150- or 250-pFd variable capacitor in series with the coil. It should warp the crystal's frequency by 3 or 4 kHz. Charlie wound the transmitter's plate coil on a 1-inch diameter form. It consists of 22 turns of #20 enamel-coated copper wire (for 40 meters) with a 3-turn antenna pickup coil wound over it. Tune-up involves adjusting the plate capacitor for a dip in current, repositioning the antenna coil up or down for increased loading, retuning the plate capacitor for a (higher current) dip, and maybe repeating the sequence until reaching tube saturation/maximum output or degrading the output signal's CW note. It is that simple and easy to use. Cool, eh? Questions? You can contact Charlie via e-mail at <ckzarek@sbcglobal.net>.

Tuberlee

Recently while scrounging through my special collection of one-tube transmitter circuits, I rediscovered a sweet little 3A5 begging to be built and unleashed on the airwaves. Then after pulling a 3A5 from my drawer and studying its twin plates glistening like tiny mirrors, I knew it was the perfect item for topping off this year's one-tubers columns. I started gathering parts to build the transmitter; a 6" × 9" wood base, a tube socket, a roll of insulated hookup wire ,and some "shiny steel" nails left from 50C5 and 117N7 kits (mainly because my supply of solder lugs was depleted). Then I realized that with several other projects going full blast, this was destined to be a real rush job.

The completed transmitter is not the neatest wired one-tuber I've built (photo E), but that's fine, because it is a good example of what you can do when you are limited by time and money. I built the little transmitter in one afternoon—and that included hunting for screws to mount the tube socket and winding the coil (for 40 meters). I planned parts layout and wired the rig "on the fly" as I progressed (obvious in photo E).

The transmitter's circuit diagram is shown in fig. 3. The tube's dual triode sections are wired in parallel to achieve maximum surface area and maximum output power. How much power? With 135 volts (obtained from fifteen 9-volt batteries sold for two-for-a-dollar by Dollar Stores), output is close to 2 watts. Yes, and as many amateurs agree, 2 watts from a vacuum-tube transmitter seems to produce the same strength signal as 5 watts from a solid-state rig.

The transmitter's plate coil (for 40 meters) is 15 turns of #18 solid and insulated wire wound on an empty 35-mm film canister. The 35-mm canister is 1.25 inches in diameter and insulation on the wire produces ideal spacing of turns, so after winding, the coil is 1 inch long/tall. Small double holes punched in the canister let the wire ends loop through for holding securely in place. A 3-turn loop (also of #18 wire) is wound over the plate coil for an antenna pickup coil. Digging again in the proverbial junk box turned up two Fahnestock clips, so they were used for antenna connections. I have not had time for fine-tuning, incidentally, but reducing plate coil turns from 15 to 12 should allow the transmitter to operate on 30 meters. A small 200- or 300-pFd open-frame variable capacitor would be ideal for this transmitter, but all I found in a 10-minute search was a small plastic-cased 365-pFd capacitor, so in it went and it worked!

Tune-up and operation of this transmitter is quite simple: Connect the filament and plate batteries, allow a couple of minutes for the tube to warm up, and then close the key and tune the plate capacitor for maximum output. A small NE2 lamp makes a good tuning aid and output indicator, or you can go more modern by using an SWR bridge. Experimentally vary the antenna pickup coil's position over the plate coil while repeaking the plate coil to acquire maximum output consistent with the best signal quality. Once smooth operation is confirmed, you might consider adding an optional crystal warping circuit or VXO by wiring a 10- or 12-µHy inductor and 365-pFd variable capacitor in series with the crystal. Then take to the airwaves with a truly delightful mini rig. Oh yes, the name "Tuberlee" is a spin-off of that classic 1950s song "Staggerlee." Appropriate enough?

Conclusion

That winds down the views for this time, friends, and I hope you enjoyed revisiting those low-cost rigs from the dear old days as much as I enjoyed bringing them back to life for you. In looking back, you may also agree that while today's transceivers are full of super features and tops in performance, some of us grew up during the wonderful era of yesteryear in ham radio. May those memories of open-air transmitters, soft glowing tubes, and bugs flashing with high voltage live forever!

73, Dave, K4TWJ

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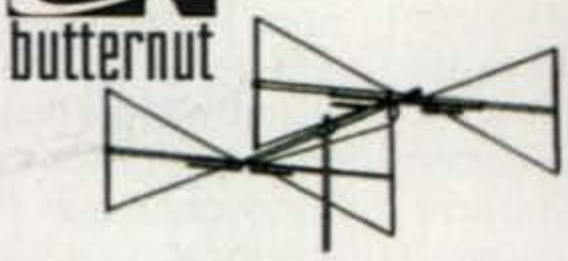

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washington readout

BY FREDERICK O. MAIA,* W5YI

From the Mailbag

We get many letters from our readers asking for information about certain ham radio subjects. We save the questions of general interest, and every once in a while we include them in one of our "mailbag" columns. It has been a while since we did this, so here goes....

Q: Just how many U.S. licensed amateur radio operators are there? I see different census figures being quoted.

A: According to the Federal Communications Commission's records, there are approximately 712,000 individual radio amateurs (plus another 10,500 ham clubs) in the amateur database.

The FCC considers all amateur radio licenses to be active for 12 years instead of the usual 10-year term. This is because a licensee whose license has expired still has another two-year "grace period" in which to renew without having to retake the license examinations. (An amateur has no operating privileges during this two-year period, however.) Therefore, the 712,000 individual amateur radio operators includes thousands of inactive licensees whose 10-year term has expired. These inactive amateurs account for about 57,000 (8 percent) of the total, and, at the present time that total breaks down into 6,300 Novices, 27,600 Techs, 12,100 Generals, 7,500 Advanced, and 3,300 Extra Class licensees. That leaves a currently FCC-licensed census of around 655,000. This figure has decreased slightly (about 3 percent) over the past decade. There were about 675,000 currently licensed radio amateurs ten years ago.

Right now there are about 2,000 new (first time licensed) radio amateurs entering the hobby every month. Practically all enter at the Technician level by studying the current question pool. About 2,000 licensees also leave the hobby every month through normal attrition or failure to renew their licenses.

Q: What impact has increasing the available voice frequencies and doing away with Morse code testing had on amateur radio growth?

A: The short answer is "virtually none." The two recent major FCC rulemakings (WT Docket 04-140) which "refarmed" Novice spectrum to more HF phone frequencies for higher class amateurs, and WT Docket 05-235 which eliminated all telegraphy testing, do not seem to have had any effect on the total number of radio amateurs. They have, however, rearranged the mix of radio amateurs in each license class.

Since the beginning of the year, there are about 3,000 more Extra Class (and 3,000 fewer Advanced Class) and 11,000 more General Class operators (and 11,000 fewer Technician Class licensees). It looks like the Techs moved up to General (and the Advanced Class upgraded to Extra) because they did not have to pass a code test. In any event, the total number of licensees has pretty much remained the same.

Looking at the licensing trends over the past decade, it appears the biggest increase in the number of licensed radio amateurs (about 5,000) took place in 2000 when the FCC restructured the hobby and reduced the top code speed to 5 wpm. That's when (as of April 15, 2000) the FCC discontinued issuing new Advanced, Tech Plus, and Novice licenses, and Technician Plus renewals were assigned Technician licenses. This effectively reduced the number of license classes from six to three. The number of license examinations went from eight to four.

Also eliminated in 2000 were the 13- and 20-wpm Morse code exams; only a single 5-wpm requirement remained. This caused a dramatic increase in the number of General and Extra Class licensees (more than 40,000), and a corresponding decrease in the number of Technician and Advanced Class amateurs who no longer had to pass a telegraphy test to upgrade.

The bottom line is that the advent of the no-code Technician (in 1991), restructuring (in 2000), more voice frequencies (in 2006), and ending code testing (earlier this year) have had little impact on amateur radio growth. There are, in fact, slightly fewer licensed amateurs than five or ten years ago. What has happened is that the number of radio amateurs in each license class has been reshuffled upward. Ten years ago there were almost as many Novices as Extra Class licensees. Today there are five times more Extra Class operators than Novices.

Q: What states have the most amateur radio operators?

A: The top ten states with FCC-licensed ham operators are: (1) California (90.7K); (2) Texas (42.9K); (3) Florida (38.1K); (4) New York (28.3K); (5) Ohio (28.2K); (6) Washington (24.8K); (7) Pennsylvania (23.2K); (8) Illinois (21.0K); (9) Michigan (20.6K); and (10) North Carolina (18.0K). More than half of all FCC licensed radio amateurs live in these ten states.

A better question might be: Which states have the most amateurs when compared to their population? The clear winner is Alaska, which has five ham radio ooperators for every thousand citizens. The average for all U.S. states is around two licensed amateur radio operators for every thousand citizens.

Q: Can you explain in simple language just what the RF safety guidelines are for ham radio?

A: I understand the confusion. RF safety can be a very baffling subject. Up until ten years ago, amateur radio was specifically excluded from the FCC's RF radiation safety rules. The reason was that due to relatively low power and duty cycles, ham radio transmitters were found to be safe under the existing (1982) RF protection guidelines. That all changed in 1996, when the Commission adopted new and stricter RF safety guidelines and ham

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radio was included for the first time (see Report & Order, ET Docket 93-62, adopted August 1, 1996).

The new RF safety rules meant that amateur radio would no longer be categorically exempt from the FCC's RF safety rules. Effective in 1998, all amateurs whose output power exceeds 50 watts now have to comply with the new rules. To comply, amateurs must do a "routine evaluation," which is explained in Supplement "B" to RF Safety Bulletin 65. This addendum is entitled "Additional Information for Amateur Radio Stations."

Supplement "B" contains information, tables, and figures that can be used by amateur station licensees to determine whether a station must be evaluated for RF compliance, and if so, how that evaluation can be accomplished. The complete text of OET Bulletin 65 and Supplement B (about 150 pages total, complete with all the tables) can be viewed and downloaded from the FCC's OET (Office of Engineering and Technology) website at: <http://www.fcc.gov/oet/info/documents/bulletins/#65>. This document is not easy reading. It contains all sorts of esoteric terms such as time averaging, Maximum Permissible Exposure (MPE) limits, power density, far-field equations, controlled and uncontrolled environments, computer modeling, electric and magnetic field strengths, and the like.

The good news is that most amateur stations do not need to be evaluated. A station evaluation is not required if your station's power level is less than the limits specified in Part 97.13(c)(1). The ARRL (American Radio Relay League) has an excellent section online about the FCC's RF Exposure Rules at <http://www.arrl.org/news/rfsafety/>.

Last, be aware of the fine print on your new or renewal license application. When you sign the application, you are certifying that you have read, understand, and complied with the new RF safety rules.

Q: How are amateur radio callsigns determined. Who gets what?

A: Station callsigns have a three-fold purpose. They identify the nationality of the station, they identify the type of station, and they identify the individual station. Radio callsigns, in effect, are the "license plates" that identify communication traffic on the radio highways.

Since 1927, and by international agreement, the first characters of a callsign indicate the country in which the station is authorized to operate. These

callsign prefixes are coordinated by the ITU (International Telecommunication Union). The U.S. is assigned three prefix letters—N, K, and W—and shares the initial letter A with other countries.

Part 2 of the FCC Rules details the composition of all callsigns and the blocks of letters that are assigned to each radio service. U.S. amateur station callsigns consist of one or two prefix letters, one digit, and up to three suffix letters. The prefix letters may be K (or KA–KZ), N (or NA–NZ), W (or WA–WZ) or AA–AL. (The single prefix letter A may not be used.) The numeral is one through zero, and the suffix letter blocks are A–Z, AA–ZZ, and AAA–ZZZ.

Certain two-letter prefixes are reserved for stations located outside of the 48 contiguous states. AH, KH, NH, and WH are reserved for Pacific area stations (such as Hawaii); AL, KL, NL, and WL are reserved for Alaska; and KP, NP, and WP are for Atlantic area stations (such as the U.S. Virgin Islands and Puerto Rico).

Using the Part 2 guidelines, the FCC issues amateur radio station callsigns under three different programs. An amateur's first callsign is assigned in strict sequence from an alphabetized list. This is known as the Sequential Call Sign System. There are four callsign groupings (A, B, C, and D), with the shortest callsigns being reserved for the higher class ham licenses.

Group A contains 1-by-2, 2-by-1, and AA to AK-by-2 letter format callsigns. Group B callsigns are all other 2-by-2 formats, Group C has a 1-by-3 format, and Group D callsigns are 2-by-3. Amateur Extra Class amateurs qualify for Group A (or lower group) callsigns; Advanced Class Group B; Technician, Tech Plus, and General Class Group C; and Novices Group D. (As of the year 2000, no new Advanced, Tech Plus, or Novice Class licenses are being issued.) When all of the callsigns have been used up within a block, callsigns from the next lowest block are sequentially assigned.

Amateur radio operators are permitted to change their sequential callsign at any time without cost. However, they may only request another sequential callsign appropriate for their license class grouping. You cannot choose a specific callsign under this program.

The Vanity Call Sign System permits amateurs to select an exact callsign of their choice—that is, as long as it is unassigned and contains a format appropriate for their license class. An Amateur Extra Class operator may select any available Group A, B, C, or D callsign; Advanced: Group B, C, or D; Technician, Tech Plus, or General Class Group C or D; and Novice Group D only. You may also select any numeral—that is, the digit does not have to coincide with your geographical radio district.

A callsign is normally assignable two years following license expiration, callsign cancellation, or death of the amateur who previously held the callsign. Unlike sequential callsigns which are free, a vanity callsign carries a "regulatory fee." Club stations and close relatives may select the callsign of a deceased member of the club or family without waiting the two years.

Although you can use a paper form, most amateurs order their vanity callsign using their computer to access their record located at the FCC's Universal Licensing System website. The regulatory fee may also be paid online using a credit card.

The Special Event Call Sign System permits amateurs to temporarily use a 1-by-1 format callsign during an event of special significance. You merely substitute the special event callsign for your regular FCC-assigned callsign during the station ID announcement. Once an hour you must also transmit your regular FCC-assigned callsign.

An example of a 1-by-1 callsign is K1A. There are 750 of them. The format of each callsign consists of the single letter K, N, or W followed by a single digit and a single letter A to Z—except X which is not available to amateur stations.

Any licensed amateur may temporarily use a 1-by-1 callsign during a special event. Also, amateurs may determine for themselves exactly what constitutes a special event. You do not have to hold any special class of license to qualify for a 1-by-1 special event callsign. The use of these callsigns is managed by callsign coordinators. A special event callsign may be used for a maximum of 15 days. There is no cost to reserve a 1-by-1 callsign.

You can obtain additional information on these three amateur station callsign systems from the FCC's Amateur Service web pages located at: <http://wireless.fcc.gov/services/amateur>.

Q: I already hold an amateur radio license issued in [another country]. Can I operate my equipment in the United States without further licensing?

A: Yes, providing there is a reciprocal or multi-lateral operating agreement between your country and the United States. A complete updated list of Reciprocal Operating Agreement countries can be found on the FCC's Amateur Service website listed above (click on the "Reciprocal Licensing" link). The

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SS-25	20	25	2⅞ x 7 x 9⅝	4.2
SS-30	25	30	3¼ x 7 x 9⅝	5.0

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MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SS-25M*	20	25	2⅞ x 7 x 9⅝	4.2
SS-30M*	25	30	3¼ x 7 x 9⅝	5.0

MODEL SRM-30

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SRM-25	20	25	3½ x 19 x 9⅝	6.5
SRM-30	25	30	3½ x 19 x 9⅝	7.0

WITH SEPARATE VOLT & AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25M	20	25	3½ x 19 x 9⅝	6.5
SRM-30M	25	30	3½ x 19 x 9⅝	7.0

MODEL SRM-30M-2

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MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25-2	20	25	3½ x 19 x 9⅝	10.5
SRM-30-2	25	30	3½ x 19 x 9⅝	11.0

WITH SEPARATE VOLT & AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25M-2	20	25	3½ x 19 x 9⅝	10.5
SRM-30M-2	25	30	3½ x 19 x 9⅝	11.0

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two multi-lateral operating arrangements include the CEPT license or an IARP permit.

The FCC says these last two arrangements are intended to make it easier for U.S. hams to operate amateur radio temporarily in several countries in Europe and Central and South America. Likewise, hams from those countries are allowed to operate stations in places where the FCC regulates ham radio.

A CEPT license is issued by countries belonging to the European Conference of Postal and Telecommunications Administrations and non-CEPT countries that have adopted Recommendation T/R 61-01.

The IARP, short for the International Amateur Radio Permit, is issued by several countries in Central and South America, including Argentina, Brazil, El Salvador, Panama, Peru, Trinidad and Tobago, Uruguay, and Venezuela. Canada and the United States also are signatories to the treaty, which is often referred to as the CITEL/Amateur Convention. An IARP is not a license, but it certifies the existence of a license.

These treaty arrangements were prompted by amateur operators who wanted to operate their stations during international travel without first having to obtain a permit from the country visited. No additional paperwork, licenses, or permits are required from the FCC for foreign amateurs to operate under these three agreements. You need only bring your original license, issued by your home country, when you visit the United States.

To identify your station, you simply append your foreign callsign after the U.S. callsign district in which you are operating. For example, a Brazilian amateur with the callsign PY7AB would identify his station as W4/PY7AB when operating from the southeastern part of the United States. Canadians (because of treaty wording) must append the U.S. radio district after their home callsign (for example, VE1ABC/W4).

An example of station identification under IARP by a U.S. radio amateur while traveling in or near Lima, Peru might be "this is OA1/W1XYZ, near Lima Peru," or on CW, "de OA1/W1XYZ nr Lima Peru."

Q: I recently agreed to be the trustee of our club's repeater station. Exactly what are my duties ... and what am I responsible for?

A: The duties of a club station trustee are the same as the duties of a primary station licensee. These duties are specified in Section §97.103 of the rules. A trustee or licensee has three duties: (1) ensure the proper operation of the station, (2) designate the control operator(s) of the station, and (3) make the station and station records available for inspection on request of an FCC representative. You must be able to shut off the transmitter if something goes wrong. How you perform these duties is up to you, but if they are not performed, you are in violation of the rules.

There are three types of control that can be used at amateur service stations: local, remote, and automatic control. These are defined in Section §97.109. When a station is operated under either local or remote control, the control operator must be at the control point to manipulate the operating adjustments of the station to achieve compliance with the FCC rules. This allows you to shut off the transmitter if something goes wrong. Any station can be operated under local or remote control.

Repeaters may be operated under automatic control. That means these stations have devices and procedures in place to control the repeater so that compliance with the rules is achieved without the control operator being present at the control point. Automatic control does not mean to turn the transmitter on and forget about it.

The second duty, designating the control operator(s) of the station, does not shift responsibility away from the trustee. Even though control operators may be designated by the trustee, the trustee still shares responsibility if the repeater or its users do not comply with the rules. It is important that you, as trustee, detail (preferably in writing and retained in the station records) who the station control operators are and when they are in control. If something goes wrong, the FCC will want this information.

The bottom line is that the FCC considers the trustee to be the licensee of a repeater station. As such, the trustee must take steps to ensure that the station is operated properly and conforms to the rules whenever it is on the air. It is a big responsibility and the trustee's license is on the line. Do not take being a trustee lightly.

Q: I hear references on the amateur airwaves to RACES, the Amateur Auxiliary, MARS, AMSAT, and ARES. What are these organizations and what do they do?

A: Amateur radio is a hobby of many interests. You have named five groups that primarily participate in a specific activity within the hobby.

RACES is the Radio Amateur Civil Emergency Service. It used to be a Civil Defense service separate from amateur

radio that had callsigns issued with a WC prefix. No RACES licenses have been issued in 30 years and the FCC is not renewing existing RACES stations. However, RACES stations still participate with local Civil Defense (emergency management) organizations and transmit communications related to the safety of individuals and the protection of property.

ARES is the Amateur Radio Emergency Service, an ARRL-sponsored public-service group that provides communications during emergencies. You enroll in RACES through a local Civil Defense organization; in ARES through a local ARRL Emergency Coordinator. ARES, unlike RACES, is not sanctioned in the FCC rules.

Commonly called "Official Observers," the Amateur Auxiliary is composed of amateur operators who are recruited and trained for the purpose of detecting, on a voluntary and uncompensated basis, improper amateur radio transmissions. This information is conveyed to the FCC. Advisory notices are issued to persons who apparently have violated the Amateur Service rules. The Official Observer program is based on a formal agreement between the FCC and the ARRL. Its objective is to foster better compliance with the FCC rules.

AMSAT is the Radio Amateur Satellite Corporation, a volunteer group formed to further amateur radio's participation in space research and communication. AMSAT was founded to continue the efforts, begun in 1961, by Project OSCAR, a West Coast USA based group which built and launched the very first amateur radio satellite, OSCAR-1. Today, there are AMSAT groups around the world that have built and launched amateur radio satellites.

MARS is the Military Affiliate Radio System, a U.S. Department of Defense sponsored program, established as a separately managed and operated program by the Army, Navy, and Air Force. The program consists of licensed amateur radio operators who are interested in military communications on a local, national, and international basis as an adjunct to normal communications. They operate on government frequencies and have their own callsigns. One of their missions is to support military communications.

In the future we again will publish reader queries and answers of interest to amateur radio operators, so please keep corresponding with us via the contact information at the beginning of this column. 73, Fred, W5YI

how it works

BY DAVE INGRAM,* K4TWJ

Fine-Tuning Your Transmitted Signal

Our recent "How It Works" columns presented a behind-the-dials look at transmitters, and we trust you found them helpful in understanding your rig's internal operations. Equally important, in my opinion, is knowing how your transmitter's special features and various aftermarket accessories can be used in tandem to acquire the best sounding transmitted signal—and that is the subject of this month's column.

Ah, but don't all modern transceivers produce good-sounding SSB and CW signals? Yes indeed, but we all have different voices, and some operators strive for full-bodied broadcast-grade audio, while DXers and contesters prefer more concentrated and treble-emphasizing audio for getting through pile-ups. As a result, audio tailored to one's specific needs has its advantages. We should also point out that stations recognize us mainly by our on-the-air signal or voice, and first impressions or first QSOs tend to be very important. Going that extra step to ensure a good on-the-air image could be the best move you ever made.

How do you check or monitor your transmitted signal, what do you concentrate on hearing (or not hearing), and how do you change what you hear? That depends on your voice, your setup, and the point in this pursuit you consider "just right." If you operate SSB, listen for unwanted background noises, pumping, distortion, and adjacent frequency "splatter" when transmitting. If you operate CW, listen for clicks, thumps, and/or chirps on your transmitted signal. Two methods of checking or monitoring are possible here—using your transceiver's internal monitor feature (included in approximately 75 percent of modern transceivers) or using an external monitoring setup (typically a borrowed or "second" rig). Let's take a closer look at the benefits and shortcomings of each method.

Photo A– Great-sounding SSB signals begin with great-sounding microphones, and Heil Sound's mics are world famous for their outstanding audio quality. Shown here is the ever-popular HM-10 dual-element microphone with instant switch selection of full-bodied audio for glamorous sound or concentrated-range audio for DXing and contesting. It is sitting in an optional shock mount that eliminates noise from drumming on the desktop or pulling out a drawer. (Photo courtesy of Bob Heil, K9EID)

Using Internal Monitors

A fair number of modern SSB/CW transceivers have a built-in monitor function that allows you to listen to the output of your microphone after in-rig audio processing and/or amplification but prior to filter shaping and transmission. It is good for a "first look," such as checking mic pickup patterns, background noise levels, or A-B comparing various mics' sounds (some mics sound good, some sound like mush), but its overall benefits basically end there. *Listening directly to your off-the-air signal with an external monitor/receiver is the only true and accurate means of determining how you actually sound to other stations.* But wait . . . perhaps you can hear changes or adjustments in audio equalizer settings such as bass boost, high boost, etc., on your transceiver's internal monitor. That's true, but it is because the transceiver's equalizer is located electrically between the mic input socket and an audio amplifier stage "before" the balanced modulator or IF/crystal filter.

Whether monitoring in-rig audio or your off-the-air signal, always use earphones rather than a speaker so you can evaluate every fine detail of your sound. Bear in mind that low-grade "phones" can make even the best voice and mic sound low grade, so start with a pair of high-grade/wide-frequency-response earphones to avoid unnecessarily repeating your steps. The type with full "cover the ear" pads is preferred, as they prevent feedback, block extraneous sounds, and ensure you hear only earphone-reproduced audio.

I also suggest reducing your transceiver's RF output to minimum and transmitting into a dummy load or using a blank frequency on a "dead band" such as 160 meters during midday or 10 meters after 9 PM to prevent generating QRM during rig checks. Listen carefully as you talk into the mic and write down your observations for later comparison with actual off-the-air checks; the differences can be quite surprising.

The External Monitoring Arrangement

Since transceivers can be factory-set or owner set for various transmit bandwidths and/or RF response curves, each one has the capability of sounding slightly different on the air. You can check

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that sound and also compare signals from rigs A and B (and C?) with the use of a second transceiver or a borrowed shortwave radio/receiver. The procedure is relatively simple, but your selection of equipment and the way it is set up has a direct influence on overall results and opinions. I prefer using a transceiver with an IF/crystal-filter bandwidth of 2.6 or 2.8 kHz (as opposed to 2.1 or 2.4 kHz) so I hear my signal in the same light—err, width—that most other operators hear it. A (communications grade) receiver with RF attenuator, RF gain, and 2.6- or 2.8-kHz bandwidth is equally suitable. Also remember the earphones: They too should exhibit wide audio response to prevent misinterpreting what you hear.

Once again, the transceiver under test or evaluation should be connected to a dummy load. I suggest using a single direct

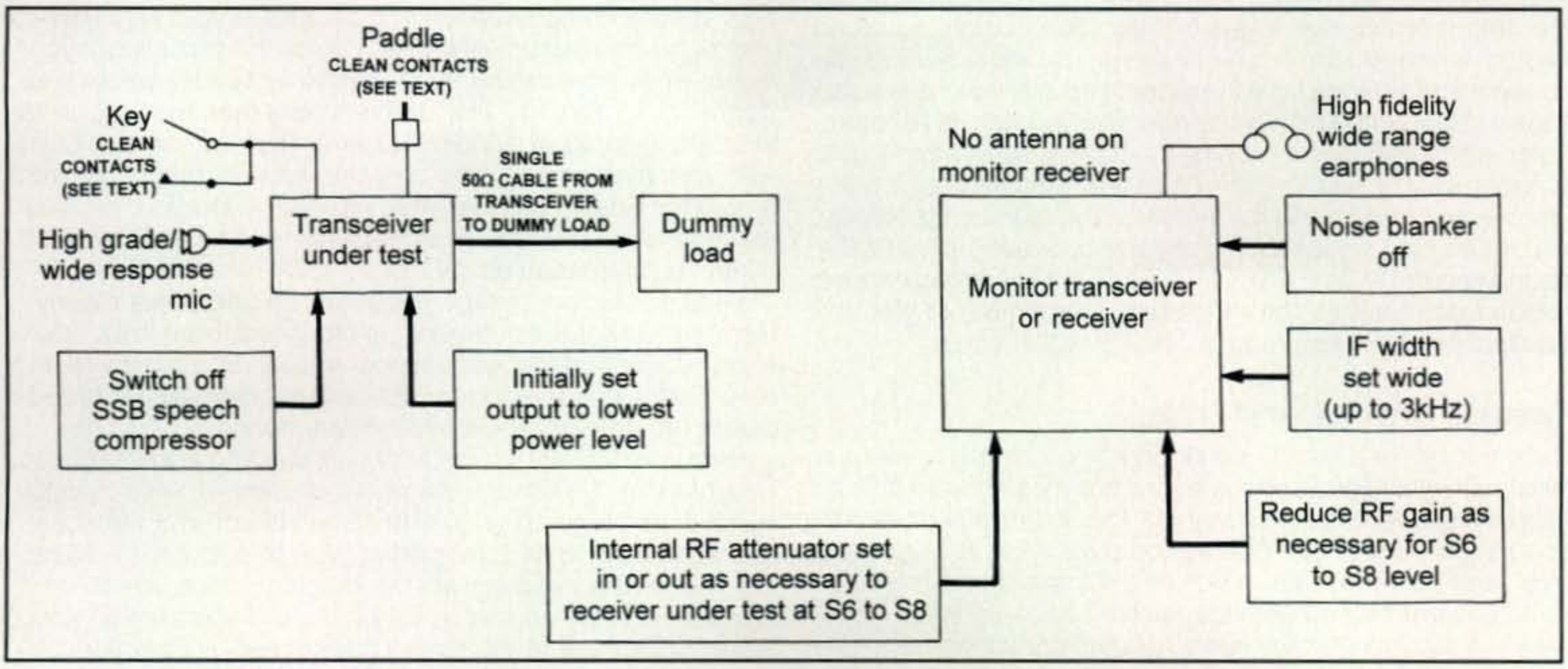

Fig. 1– Basic outline of an external monitoring arrangement for checking off-the-air quality of your transmitted signal. (Details in the text.)

Photo B– This is the new PR-781 full-spectrum mic from Heil Sound, and it is the perfect accessory for any transceiver with built-in equalization or DSP for transmitting. Write down your particular menu settings as discussed in the text, and you can quickly select broadcast-grade or DX grabbing audio any time you desire. (Details at <www.heilsound.com>.)

Photo C– The lightweight earphone and super-sounding microphone combo that started the ham headset craze several years ago, Heil Sound's BM-10, continues going strong today. It is available with wide- or narrow-range mics. (Photo courtesy of Michelle Miller Levitt, Heil Sound)

cable rather than a coax switch to minimize any rig-zapping mistakes such as a switch in the wrong position, connecting the output of two rigs together, etc. (don't laugh, as it can happen when you are in a hurry and get distracted). Next disconnect any antenna from the monitor rig and ensure its noise blanker is switched off. I also prefer starting with its RF attenuator in line and then switching it out if my transmitted signal is exceptionally weak. Then I make a transmission at minimum power and tune in my signal on the monitor rig. Ideally, my transmitted signal should register between S6 and S8—strong enough to hear every fine detail, but not strong enough to saturate monitor receiver stages. Remember to give the transceiver under test regular "cool down" breaks.

Tweaks, Checks, and Frills

Once set up for external monitoring, you can easily recheck initial opinions of microphone sound quality and noise pickup. Assuming you do not make any changes to the monitor receiver during tests, you can directly compare mics, equalizer settings, and bandwidth selections on the transceiver under test. Write down preferred settings such as bass boost or –2 dB bass, +1 dB treble for full-bodied sound, or high-boost/ –4 dB bass, +3 dB treble for DXing or contesting so you can quickly change on-the-air sound when desired. If your transceiver does not have menu-selectable equalizer settings, check its manual. Some transceivers (ICOM's IC-706MKIIG, for example) include menu-selected adjustment of the injection oscillator's center frequency, which basically lets you tweak the rig's bass and treble response.

Next check for good mic gain without over-modulation, distortion, or adjacent frequency splatter on SSB both with the rig's speech compressor on and off, and at your rig's lowest and highest output power levels. You do this by tuning in your signal while transmitting, first from 10 or 15 kHz below your frequency to 10 or 15 kHz above it, and then from 10 or 15 kHz above to 10 or 15 kHz below it. Perform the test once with your high-power linear amplifier off and then again with it on. Don't panic the first time you hear distortion; recheck monitor receiver level. It probably increased well over S9 when you increased power.

Should I also encourage you to talk up and speak clearly? Remember that even the best microphone, equalizer, DSP, or transceiver cannot correct poor speech and mushy mumbles. Strive to speak like a professional radio or TV broadcaster rather than an airport flight announcer.

Here, incidentally, is another quick test that always proves enlightening. Switch on the noise blanker in your monitor receiver and tune 10 or 20 kHz either side of your transceiver's frequency while transmitting. You should hear nothing. Do you hear a cracking or "buckshotting" type effect? Is it splatter? Switch off the noise blanker. If the buckshotting stops, it was due to the strong transmitted signal overloading the receiver's front end or "blowing past" front end filters, rather than splatter. You can check that idiosyncrasy by switching the noise blanker on again and reducing the mon-

itor receiver's RF gain while increasing its AF gain. Remember that QRM-reducing maneuver, too, the next time you try to copy a weak signal amidst a sea of strong signals.

CW enthusiasts will also find checking the quality of transmitted signals beneficial, especially if their transceiver includes menu-selectable rise and fall times of keying waveforms. Listen to your transmitted signal while making adjustments and you can emerge with a super-sounding CW signal. Do you notice any key clicks, thumps, or chirps on your signal? Before considering factory-authorized service, try these "Doctor Dave's home remedies": Draw a clean sheet of blank paper through the contacts of your key or paddle to remove any accumulated dust. Repeat the procedure two or three times. If you are using full break-in operation, switch to semi break-in, send slightly slower, and recheck your signal. The relays in some transceivers have difficulty following high-speed CW.

Check your power supply. If its current rating is low or its filter capacitors have dropped in value with age and you are pushing your rig for maximum current drain/output power, chirp is quite possible. Connect a 15,000- or 25,000-µF capacitor across your power supply's DC output and note the difference in your output signal.

Finally, you might like to (carefully!) "test QSO" between your monitor and main transceiver to ensure you are transmitting exactly on the frequency on which you assume you are transmitting by tuning in one signal, noting the tone/frequency, and then shifting to the other transceiver.

Conclusion

Does the transmitted signal from some transceivers actually sound better than others? I would say yes, but I also say "better" is a subjective word. For example, Kenwood transceivers traditionally have been known for their rich-sounding and full-bodied audio, while ICOM transceivers typically produce more concentrated and narrow-range audio. When adjusted appropriately, however, equalizers and digital-based IF filters in new Kenwoods and ICOMs can alter those characteristics. The key is knowing your rig and its general circuitry and capabilities, and then using that knowledge to your benefit. Hopefully this month's column kindled your thinking in that direction. Build on this ground-floor introduction and enjoy our wonderful world of amateur radio.

73, Dave, K4TWJ

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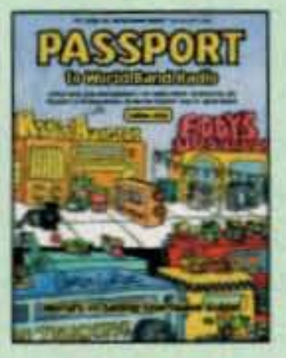

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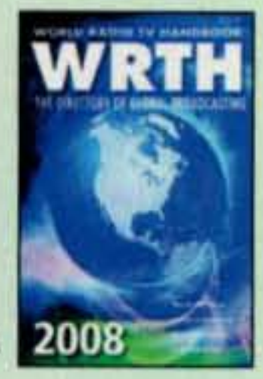

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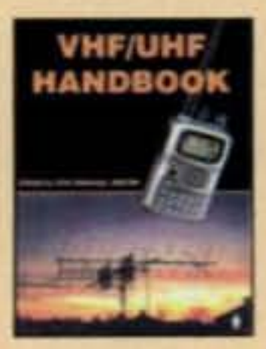

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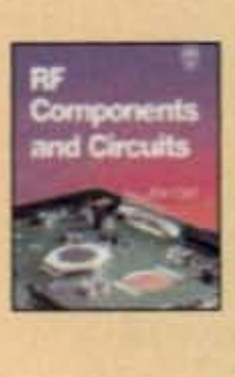

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BY PHIL SALAS,* AD5X

Packaging (and Modifying) the Elecraft 2T-gen 2-Tone Test Oscillator

First, an update on last month's packaging of the Elecraft XG2 Receiver Test Oscillator into a metal project box. The rotary crystal-select switch used in the XG2 has a 4-mm shaft. Therefore, rather than drilling out a 1/8-inch shaft knob with a 9/64-inch drill bit, use a Mouser 45KN050 4-mm shaft knob.

This month we'll package the Elecraft 2T-gen 2-Tone Test Oscillator in a metal box as well. In addition, we'll make two simple modifications to the 2T-gen to make it less tricky to set levels into your transceiver and also let you key your transceiver from the 2T-gen.

The Elecraft 2T-gen provides 700-Hz and 1900-Hz tones that feed the microphone connector on your transceiver to permit you to measure audio distortion or transmitter linearity. Like the Elecraft XG2 discussed last month, the 2T-get uses all PC-

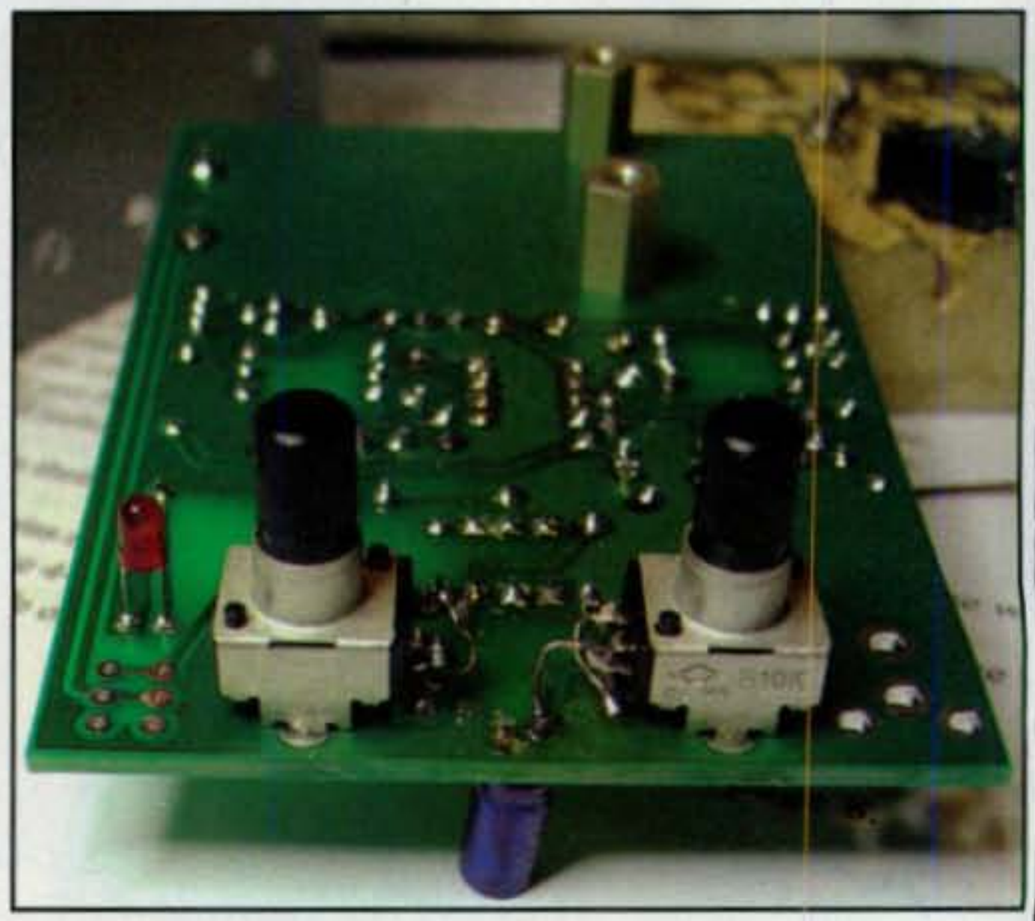


Photo A– Backside-mounted component for the packaged 2T-gen Test Oscillator.

*1517 Creekside Drive, Richardson, TX 75081
e-mail: <ad5x@cq-amateur-radio.com>

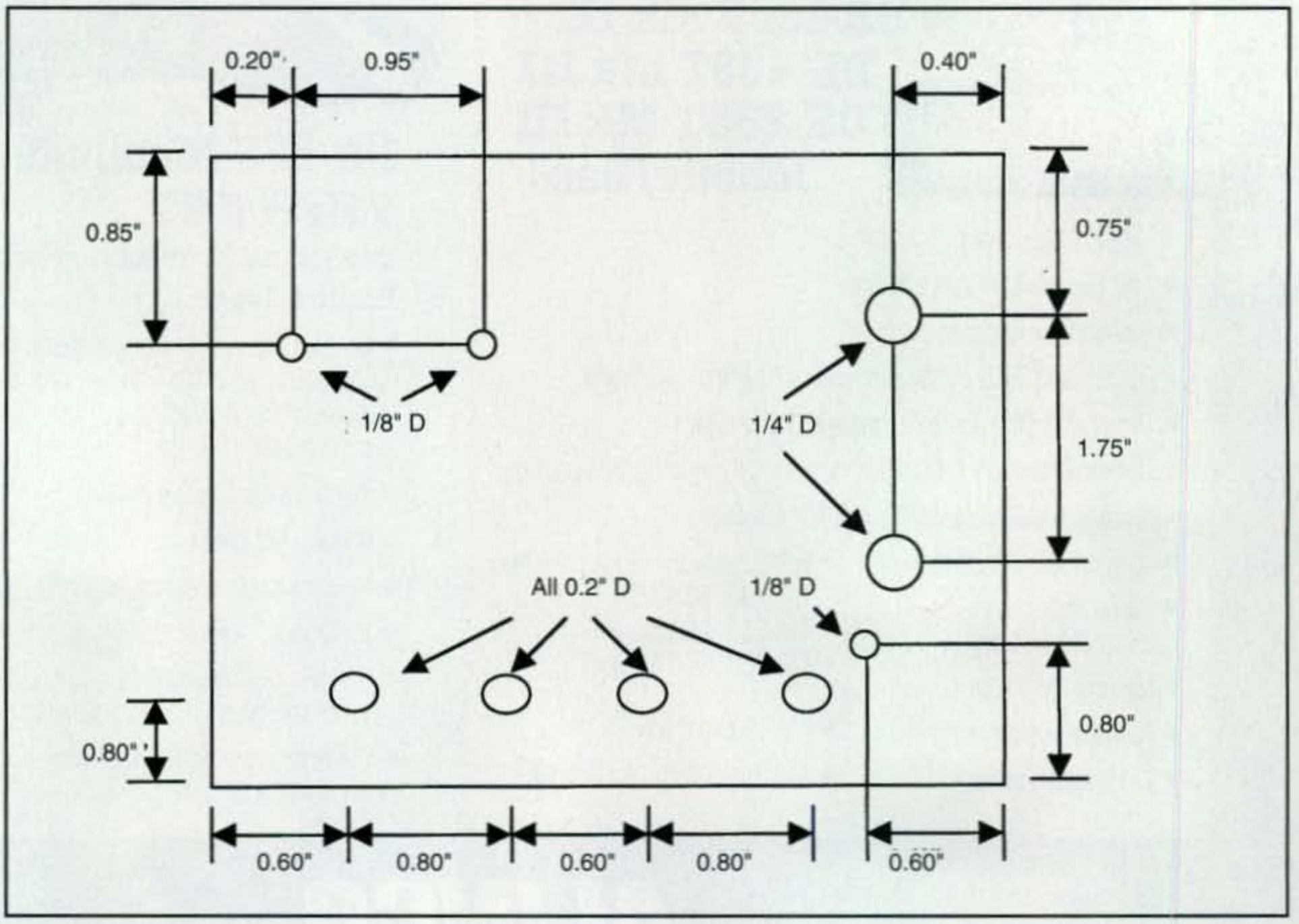


Fig. 1– Hole dimensioning.

board mounted controls and connectors. These include a power switch, level and balance controls, the output RCA connector, and two on-board straps for turning the individual tones on and off. It's a very nice design, but not that convenient to use. Thus, like the repackaged XG2 discussed last month, I wanted a protected assembly with easy access to all controls. Furthermore, I wanted to be able to key my transceiver from the 2T-gen. I also wanted a range control on the output, as I found that the 300-mV p-p output was too much for easy adjustment of levels into the transceiver (typical microphone drive levels are 5–20 mV peak-to-peak [p-p]).

If you have an unbuilt 2T-gen kit, build it, *except* solder only one end of R18 to the PC board and do not mount the power switch, RCA jack, LED, and balance and level controls. If you have a built-up unit, you will need to remove the

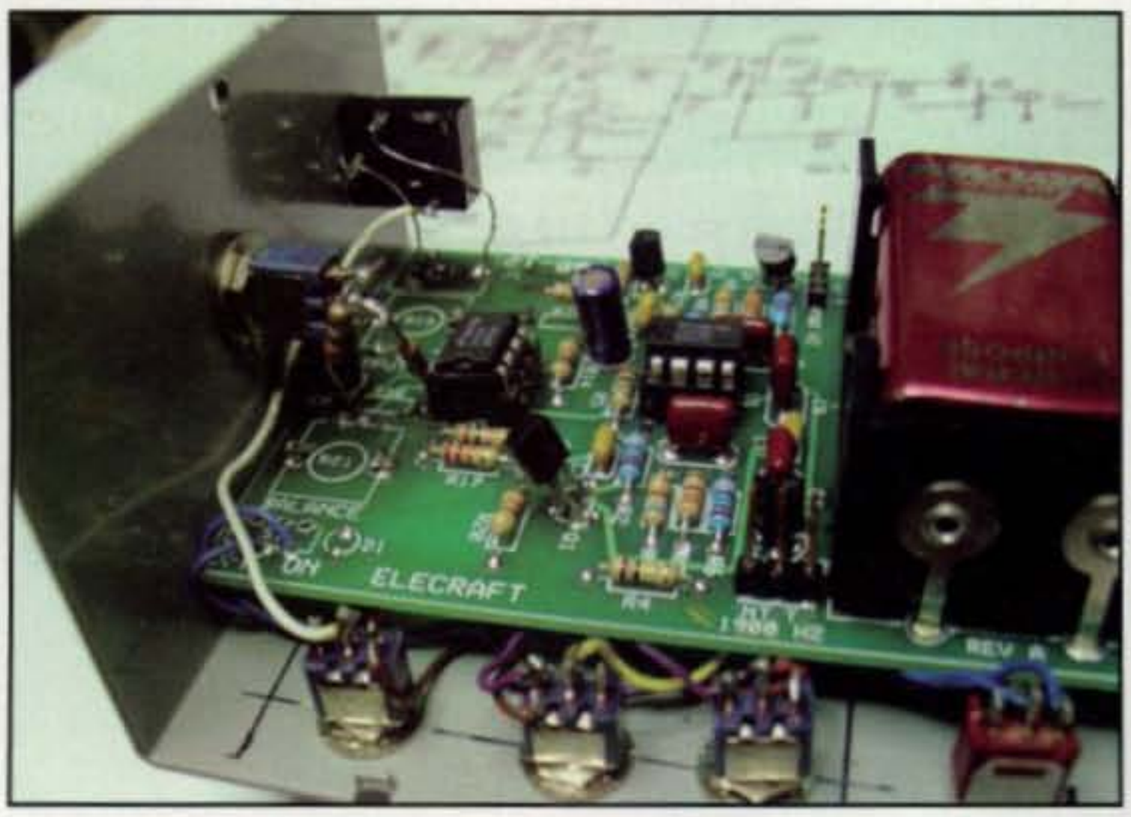


Photo B– Inside view of the packaged 2T-gen. The new ON/OFF switch is a chassis-mounted toggle switch located in the upper right-hand corner.

Photo C– Control-side view of the packaged 2T-gen. Aren't these controls much more convenient to operate than the original PC assembly?

Qty.	Description	Source/Part Number	Price each
1	3.75" × 3" × 2.13" aluminum box	Mouser 537-135-P	$8.73
2	0.375" × 4-40 tapped spacer	Mouser 561-L4.375	$0.53
1	270K 1/4-watt resistor	Mouser 660-CF1/4C274J	$0.10
2	Knob, 0.54"D, 1/4" shaft	All Electronics KNB-187	$0.85
5	SPDT Sub-Mini Toggle	All Electronics SMTS-4	$1.35
1	3.5-mm stereo jack	All Electronics MJW-20	$0.50
?	3.5-mm stereo cable	All Electronics CB-121	$1.50
?	3-ft. CAT-5 cable	All Electronics CB-53	$2.35
?	3.5-mm stereo plug	All Electronics SMPM	$0.65
?	8-pin round mic connector	RF Connection MP8F	$2.50

Table I– Parts list for the Electraft 2T-gen 2-Tone Test Oscillator.

RCA jack, LED, and balance and level controls, and lift one end of R18. You can leave the power switch in place, but leave it set in the OFF position. Now from the backside of the PC board, mount the LED so its base is 0.30 inch above the PC board. Also, mount the balance control on the back of the PC board. Before mounting the output level control on the back of the PC board, bend the two outer pins straight outward, as these pins must be wired to the opposite mounting holes (cross-connected) on the PC board with small pieces of bus wire. Otherwise the level will adjust backwards. The balance control actually works better (in my opinion) as the level of the higher frequency increases as you turn the knob clockwise. When finished, you should have a backside assembly that looks like photo A.

Now you need to measure the positions of the LED, level and balance controls, mounting holes, and toggle-switch holes. The dimensions I used are shown in fig. 1. Drill the holes and mount the 3/8-inch standoffs to the PC board with 1/4"×4-40 hardware through the battery holder. Drill holes for a 1/8-inch stereo jack and another toggle switch on the output side of the metal box in convenient positions.

Now attach wires from the strap positions, on/off switch, open end of R18, and the audio output on the PC board, and mount the PC-board assembly to the metal box using 1/4"×4-40 hardware. Solder the strap, switch, and output wires to the switches and connectors. Solder a wire from the open end of R18 and from the PC board to the output-range switch, and solder a 270K resistor across the switch's pins as shown in fig. 2.

Finally, solder wires from the PTT switch to the ring of the 1/8-inch output stereo connector and ground. The output connector is a 1/8-inch stereo jack that has the audio output on the tip and PTT on the ring. Also, the output-range control switch will switch between 300-mV p-p maximum and 30-mV p-p maximum.

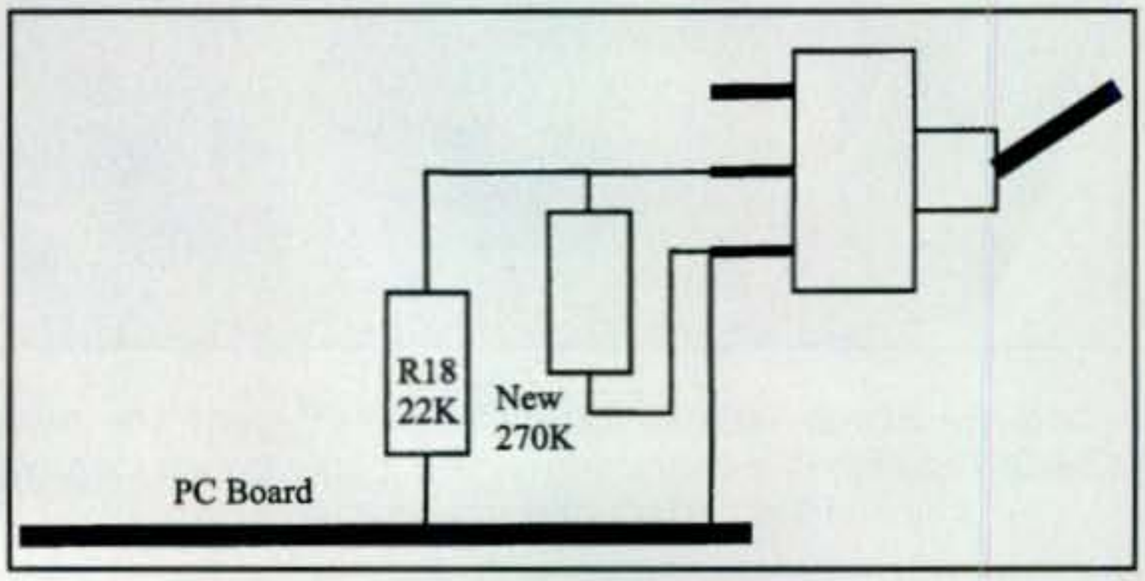
Your final assembly should look something like photo B. The control side of the PC board will look like photo C, and the output-connector/range-control side of the box should look like photo C.

The last thing I did was to build two microphone interface cables for my transceivers. I have a Yaesu MKV, an ICOM IC-706MIIG, and an ICOM IC-703. The ICOM radios use a RJ45 connector, so I bought a CAT-5 cable, cut off one end, and added a 1/8-inch stereo plug to the cut-off end. For the MKV, I bought an 8-pin round connector from The RF Connection (www.therfc.com) and made a cable using a 1/8-inch stereo plug on one end. Refer to your transceiver's operating manual for the specific mic connector and necessary wiring.

That's it. With a little bit of work we've created a more flexible and user-friendly piece of transmitter test equipment. Until next month . . . 73, Phil, AD5X

Photo D– Output side of the packaged 2T-gen. Note the output-level range selector switch.

Fig. 2– Output range control.



BY JEFF REINHARDT,* AA6JR

Thinking Big

Most of our previous columns have focused on installing mobile radios and operating them from automobiles or pick-up trucks. We've given particular attention to squeezing a radio into today's newer cars, where computer-aided designs have allowed manufacturers to make the most of every cubic inch of space inside a vehicle. Certainly, getting a functional radio set up in a modern car is a challenge, but our innovative readers have proven time and again: "Where there's a will, there's a way."

However, what if available space was not a factor? What if you had seemingly unlimited room for a radio (or two)? What kind of a radio setup would you install?

Several years ago I had the "pleasure" of facing that challenge, and sometimes more is, well, *more*, as in more room, more choices, more decisions. As a disaster communications volunteer with the Los Angeles County Sheriff's Department back in the early 1990s, our organization received an old post office van that had been donated to the group by the widow of a deceased member. He had built the van using his own resources and innovative thinking. By the time the group received it, the van was in need of a major refit, but through the efforts of many dedicated volunteers, it went into service just in time for an unusual sequence of emergencies that targeted our region of southern California, including wildfires, floods, and a major earthquake. The van was also a nice asset to roll out for community events and the annual Field Day exercise. It remains in service to this very day.

To build a great communications van, you start with an empty box such as this. (All photos of the van courtesy of K6AIX)

A Clean Sheet of Paper

The current crop of volunteers serving the Malibu-Lost Hills Sheriff Station in Los Angeles County realized the old van was getting quite "long in the tooth." It was time to consider a more reliable unit, but where to begin? The old van could remain in service, but it would be stationed at a location in Malibu where it could serve the communities on that side of the Santa Monica Mountains, the coastal range that rises up from the Pacific. The newer van would be located at the inland sheriff's station and be ready to roll where needed on the north side of the mountains, which also recognizes the fact that the roads through the mountain pass-

Here's the "finished product"—a communications van that's ready to provide emergency communications on a moment's notice. This is a project in which the Disaster Communications Service volunteers can take pride. Note the side lighting for night operations. I'll bet they get attention with those front-mounted speakers!

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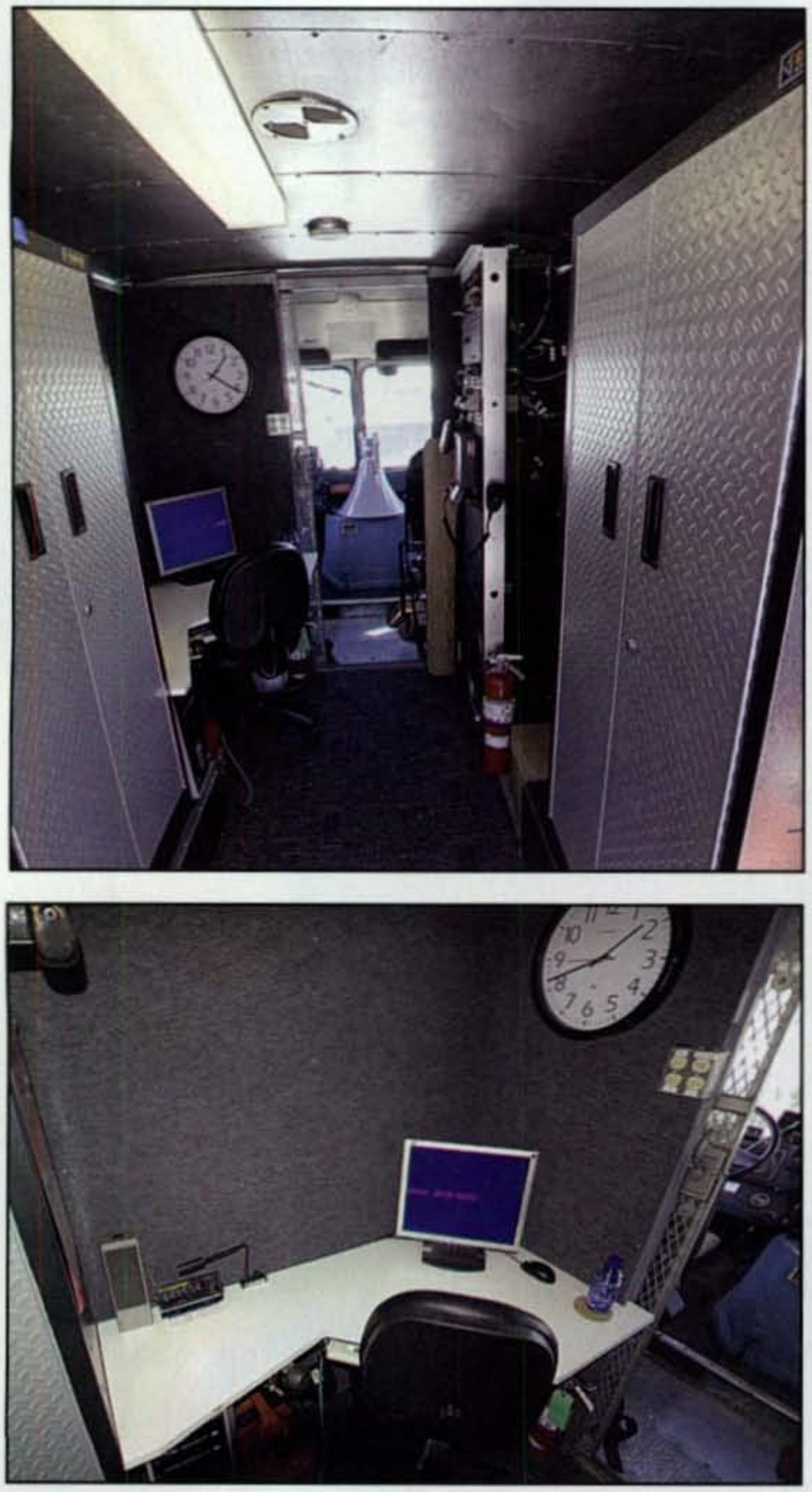


Radios are rack mounted for easy access and service, if needed.

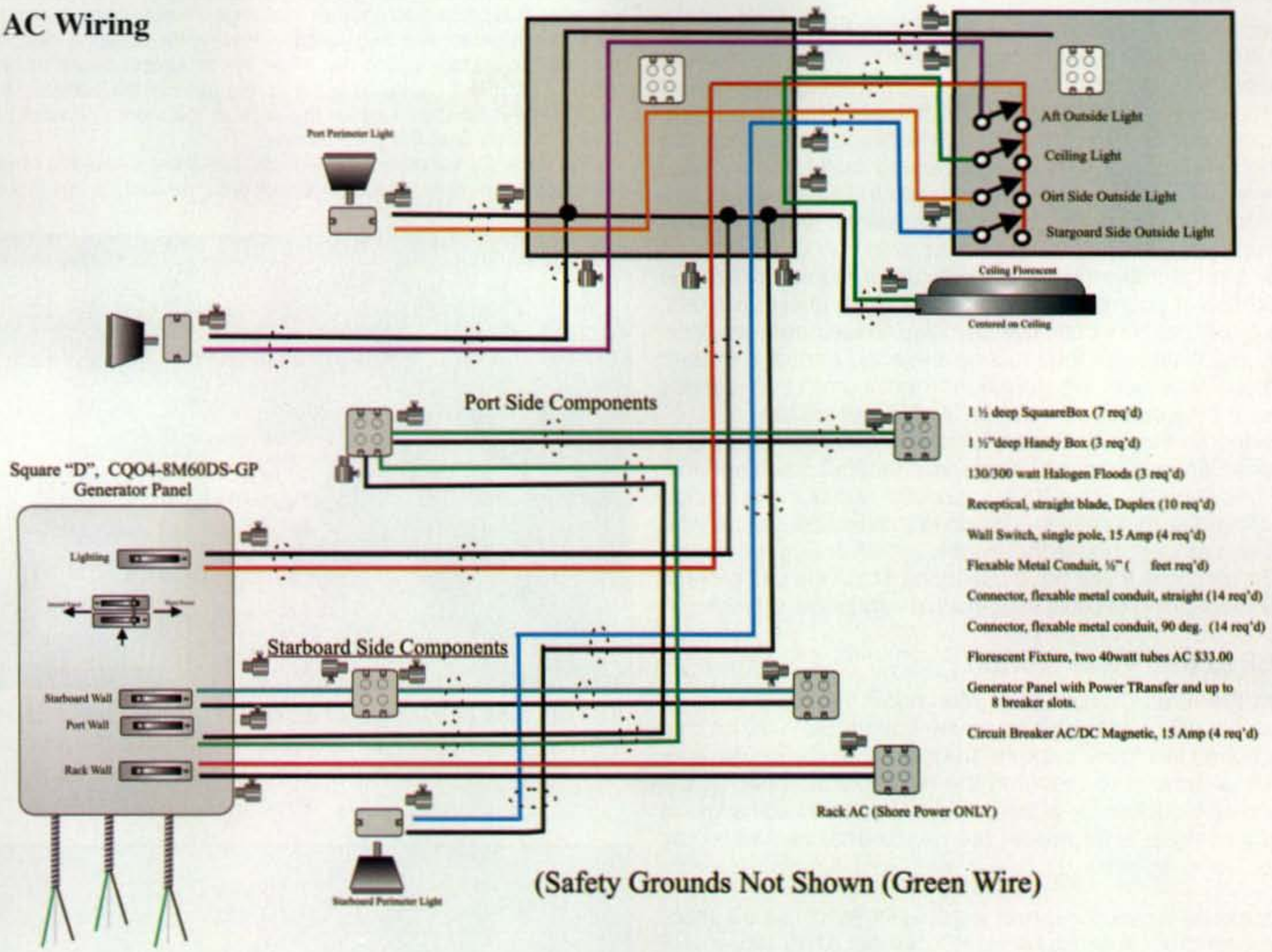
The van's interior provides storage and workspace in a clean, organized environment.

The driver's position can double as an operating position.

es are subject to closure during heavy rains or as a result of landslides that may result from weather, wildfires, or earthquakes (it's seldom boring in our section of California).

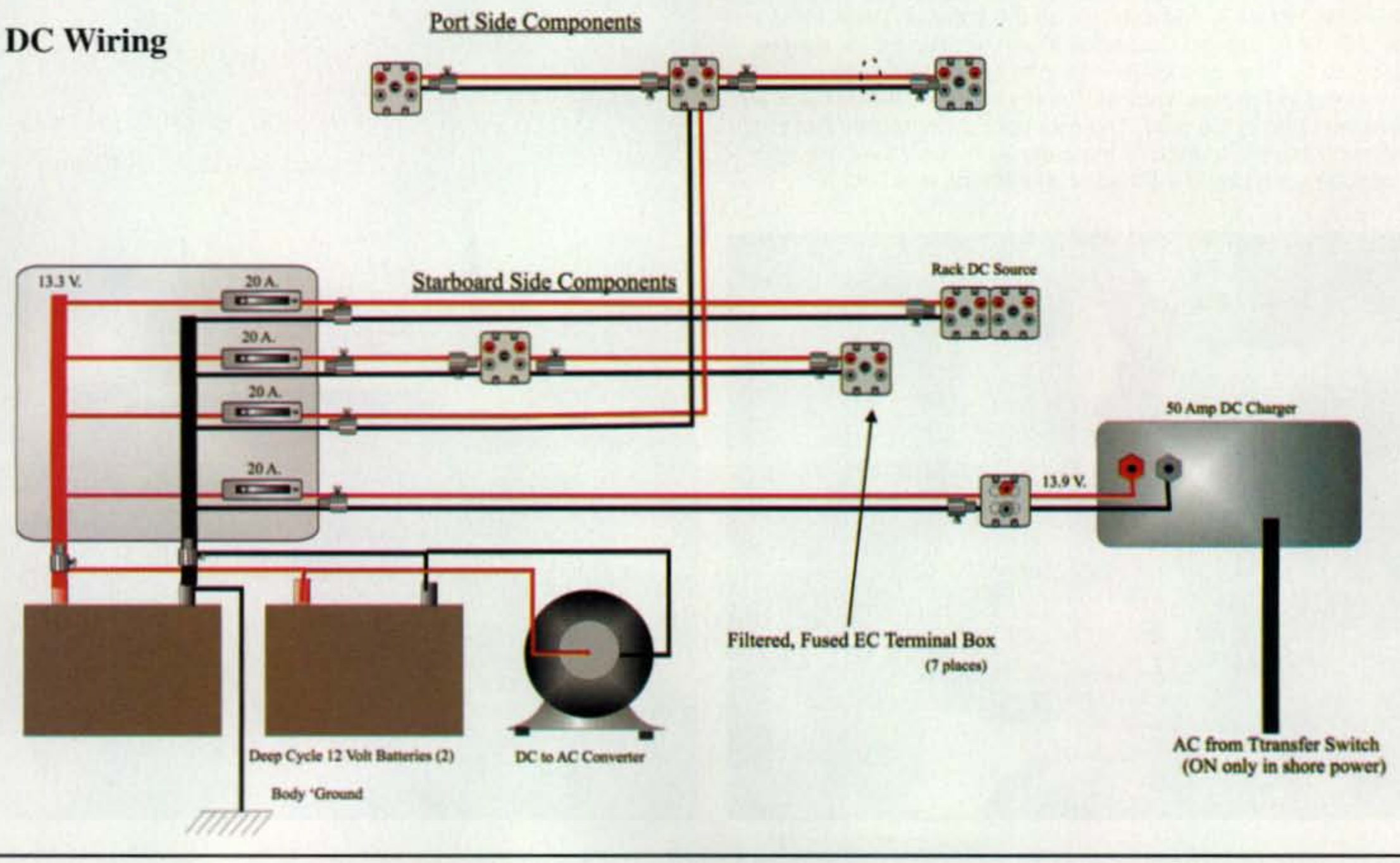
An available van was located, and the communications volunteers got to work on a large, empty box (see photos). Based somewhat on a "wish list" and drawing from their likes, dislikes, and experiences with the previous van, the group drew up a list of goals for the project: comfortable operating space for long periods of operation; adequate battery and AC power to operate independently for a minimum of four hours; an external AC port to enable longer periods of operation and unattended battery charging; the ability to operate multiple radios on all frequencies from 80 meters through 440 MHz; the ability to operate all radios from each operating position in the van; two fixed work stations with radios and networked computers; locking storage cabinets and bins for supplies, equipment, and spare parts; and finally, exterior lighting for safe nighttime access and operations. Could it be done?

AC Wiring



(Safety Grounds Not Shown (Green Wire)

DC Wiring



Any project used by others will benefit greatly by having printed wiring diagrams on board. The DCS volunteers did an excellent job with these schematics.

The Finish Line

Anyone who has taken on a project of this magnitude will tell you that it's never really "done," but the basics were in place in about six months of construction time. There are always tweaks and improvements, but the finished product is something in which all of the group's volunteers can take great pride.

The new van is in service and proving itself to be an asset for everything from "real" emergencies to Field Day to communications support for community events, where the volunteers get a chance to hone their skills. And in case you think a project like this is too difficult or would stretch the resources of your club, let me point out an interesting fact: This group has now done it twice in two consecutive decades. They did it through fund-raising projects, and one of their methods was seeking donations from community-service clubs. If they can do it; it's quite likely you can, too.

Kudos to the L.A. County Sheriff's Disaster Communications Service District 22; Reserve Captain Tom Fakehany, N6FDR; David Danner, K6AIX; and the rest of the crew (too many names and calls to include in this limited space) who built an excellent mobile that doubles as an emergency-operations platform. If you have questions about the van project, pass them along to Dave via e-mail at <dhdanner@lasdorg>.

Back to the "Real World"

From the "other" coast, Mike Marcoccio, KC1HD, wrote to share his nifty installation in a new Toyota SUV. While that may sound like there's ample "truck-size" space inside, take a look at how Mike mounted the radio control head in the space-efficient interior of the vehicle. We had to edit some of Mike's comments for space, but here's what he had to say about his installation:

My mobile station consists of a Yaesu FT-857D and the ATAS 120a screwdriver antenna. I decided to use the ATAS 120a for HF to UHF and just have one antenna on the vehicle. I also swap out the ATAS 120a with an Outbacker Perth, mainly for 75 meters. I have a 3/8"/24 threaded to UHF adapter on the Outbacker.

In looking at the new vehicle, I really couldn't re-use the k-400 mounts as I had in the past. The rear door swings open from right to left and I wanted to elevate the antenna. I knew the best mounting location would be in the middle of the roof, and I contemplated using a tri-mag-mount configuration or clamping to the luggage rack. However, this presented another challenge. I would need to remove the antenna before entering garages. Having the antenna mounted towards the middle would not allow me to simply reach up and unscrew it without having to scale up the back of the vehicle. With the inclement weather I get in my neck of the woods, it would be unsafe to climb onto the back bumper.

After carefully surveying the vehicle, I decided to use the torque bolts, used to secure the luggage rack onto the roof, for my mount-

KC1HD took advantage of existing holes for his antenna mount. The location also allows him to remove the antenna while standing on the ground.

A nifty control-head location in Mike, KC1HD's mobile shack. (All SUV photos courtesy of KC1HD)

KC1HD's antenna does not restrict the use of the vehicle's door/hatch.

KC1HD mounted the rig in a location where access to cooling air is not an issue. He used beefy 4-gauge wires for power and ground, run directly from the battery (like it says in the textbook!).

ing assembly anchor. I obtained a rectangular piece of 3/16" stainless steel and drilled holes in it to accommodate the k-400 UHF connector and the torque bolts (I cannibalized the UHF assembly from the trunk-lip mount). I decided to use the back luggage-rack mount area, as my coax was only 6.5 ft. long. Otherwise I could have used the center mount, but would have had to extend the coax due to where I mounted the radio. By using the rear mounting position I had to shim up one end and bend the stainless steel to make the antenna vertical. The most important aspect of this mount, for me, is that I can stand on the ground and unscrew the antenna, put the cap on the connector, and park in a garage.

After looking at the antenna next to my luggage rack, it appears the luggage rack is the same diameter as the antenna and it looks like it belongs there.

I ran 4-gauge wires from the battery positive and negative to the back of the vehicle and installed the main body of the radio in the back. I mounted the front panel up front, on the console, between both seats. This makes for fingertip operating control. The front panel is installed on an adjustable mount so that it can easily be tilted towards the passenger.

I've been operating mobile for quite some time, and I have to say this is the quietest vehicle I've had. There is absolutely no engine noise heard on the radio and operating is such a pleasure.

So Where's Your Mobile?

Mike responded to our call for readers' input on sharing their mobile installation and operation experiences. Could your installation be the next one featured in this column? Send an e-mail with hi-res digital photos to the address shown on the first page of this column, and who knows? You might have something to really brag about at a future club meeting! Here's to happy and safe mobiling. 73, Jeff, AA6JR

antennas

BY KENT BRITAIN,* WA5VJB

Mobile Antenna Basics

I have to apologize a bit. I like my articles to be more hands-on in nature, but I had to resort to a lot of NEC computer simulations for this month's column.

Many hams like to call their cars "The Ground Plane," but below 10 meters most cars are just too small to be true ground planes. A proper ground plane needs to be a half wavelength wide, and most cars just don't cut it. I guess if you're a dedicated 75-meter phone operator, you should be looking into one of those 20-passenger stretch limos. Meanwhile, let's take a look at the realities of antennas for HF mobile operation (some examples are shown in photo A).

As you can see in fig. 1, most cars have about 200 pF of capacitance between the car body and the ground. Perhaps there is a lot to be said for low riders on the HF bands.

Redrawn in fig. 2, you can see that the mobile antenna system is even more complex. The sine-wave source is your rig, and the capacitor represents the capacitance between the car body and the ground. Sorry, guys, but at the lower HF bands your vehicle chassis is not an RF ground.

The capacitive reactance between the car body and the ground varies with frequency, the size of the car, its height above ground, and a few fudge factors for the tires. However, these values average out pretty well.

Typical values for car/ground reactance are: 3.8 MHz, 200 ohms; 14.2 MHz, 50 ohms; and 28.5 MHz, 25 ohms, but the car body *is* a ground plane. Therefore, if your buddy is running most of a gallon on 75 meters, be really careful stepping out of the car while he has the mic keyed. There can be quite a voltage potential between that car body and the ground. As noted, car bodies are just not an RF ground at HF frequencies.

Photo A– Some antennas for HF mobile operation.

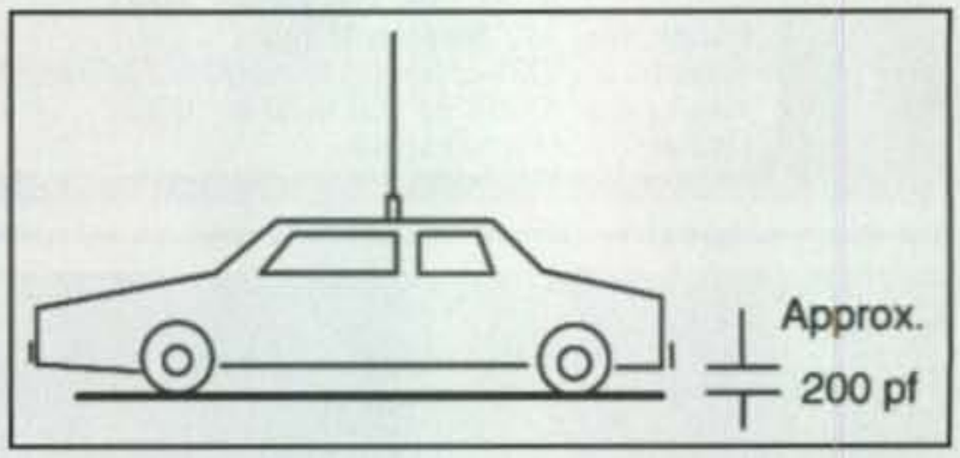


Fig. 1– Capacitance between the car and ground.

Position of the Loading Coil

For these examples, I am comparing the relative signal strength of a quarter-wave monopole on the roof of a car to a 5-foot long whip with the loading coil at different positions on the antenna. These values were all done at 7.2 MHz, so while some of you just might drive along with a 30-foot vertical sticking out of your car *(I think I saw one at Dayton a few years ago)*, most of us would not consider that a practical antenna.

Quarter wave: 0 dB reference
Base load: –10 dB
Center load: –9 dB
Top load: –9 dB

Thus, the center load and top load do have less loss, but maybe not enough to make up for a pretty top-heavy antenna.

Next we'll compare the relative signal strength of a quarter-wave monopole on the roof of a car to different lengths of a base-loaded antenna at the same spot (see Table I).

For short antennas, you are picking up about 3 dB more signal for every foot longer you make your 75-meter mobile antenna and about 2 dB on 40 meters. At the longer lengths you are picking up about a dB per foot. Therefore, a longer antenna really helps. In the base/center/top-loading example, this means that about a 5 1/2-foot base-loaded 40-meter whip has the same signal as the 5-foot long top-load, and that base-load will go in and out of the garage much easier than the top-heavy top-load.

Loading Coils

Quite a bit of paper has been used covering loading coils, so for those of you who are still trying to tweak the Q for your 160-meter vertical over 1000, this section is not for you.

In photo B we have a commercial HF antenna loading coil. The diameter of the wire, the spacing

*1626 Vineyard, Grand Prairie, TX 75052
e-mail: <wa5vjb@cq-amateur-radio.com>

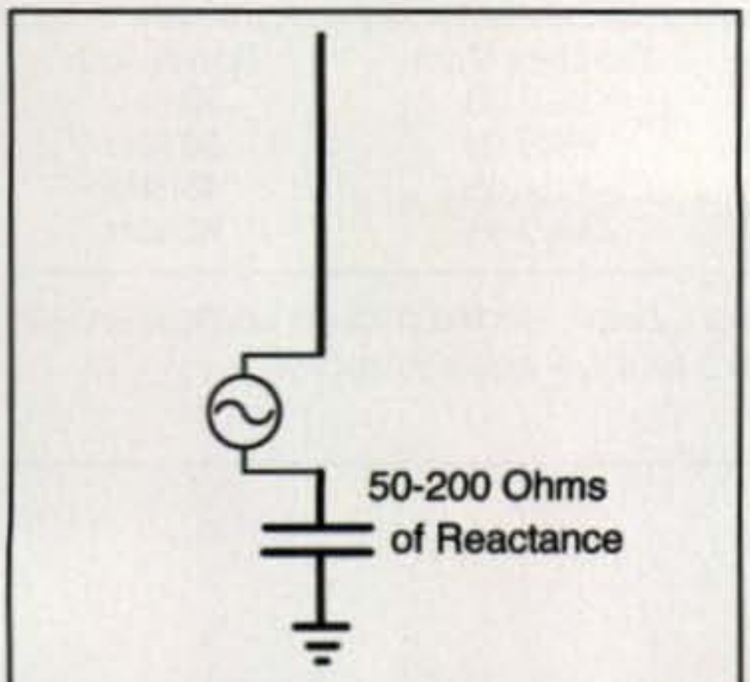


Fig. 2– Equivalent circuit of a mobile antenna.

Photo B– Loading coils.

between coils, and the height-to-width ratios are all important factors. Also, as you can see in photo C, there are many ways to wind a loading coil. However, perhaps that is a topic for a later time.

Large wire has less resistance and carries more current, b the coil has to be physically bigger. This reflects a fact of life for mobile antennas: *physical size, gain, bandwidth—pick only two.*

All antenna designs are tradeoffs among how big they are, how much gain they have, and how wide a frequency range they can work over. This is particularly true for mobile HF antennas.

If we go back to our 5-foot high 40-meter antenna and look at different wire diameters for the loading coil with a bit more precision, we get the data in Table II. This table assumes round copper wire, and there are some fancy tricks with silver plating and flat conductors that we will pass over this month, but you can see how it is possible to trade gain for bandwidth. If you just happen to have a favorite 40-meter net frequency, and a favorite ragchew frequency more than 30 kHz away, then there can be a real advantage to using smaller wire in the loading coil. Now you don't have to retune the antenna every time you QSY. Just understand that you are trading about 2 dB for that privilege.

Ferrites

A ferrite core such as the ones in photo D can boost the efficiency of a loading coil way up there. However, ferrites have a condition known as *saturation.* That means the inductance of the coil changes with the current, or power through the ferrite. Saturation is a minor

Quarter Wave	0 dB Reference		
	75 meters	40 meters	20 meters
3 feet	–30 dB	–16 dB	–7 dB
4 feet	–23 dB	–12 dB	–5 dB
5 feet	–20 dB	–10 dB	–4 dB
6 feet	–17 dB	–8 dB	–3 dB
7 feet	–15 dB	–7 dB	–3 dB
8 feet	–13.5 dB	–6 dB	–2.5 dB
9 feet	–12 dB	–5 dB	–2.5 dB
10 feet	–11 dB	–4.5 dB	–2.5 dB

Table I– The relative signal strength of a quarter-wave monopole on the roof of a car compared to different lengths of a base-loaded antenna at the same spot.

Photo C– Low- and high-Q loading coils.

Photo D– Ferrite cores are not something you want in antenna loading coils.

issue with a computer switching power supply, but in an antenna circuit you can see this saturation as a frequency shift.

Just imagine your rig running 1 watt while your antenna is tuned to the CW portion of the 40-meter band near 7.0 MHz. Crank up the power to 50 watts and the antenna is now in the SSB portion of 40 meters near 7.25 MHz. Now up the power to 100 watts and the antenna has its best SWR near

Gauge of Coil Wire	Relative Gain	Bandwidth
# 14	–10.0 dB	32 kHz
# 16	–9.6 dB	30 kHz
# 22	–11.4 dB	45 kHz
# 26	–14.0 dB	82 kHz

Table II– Five-foot high, base-loaded mobile vertical antenna relative to a 1/4-wave antenna.

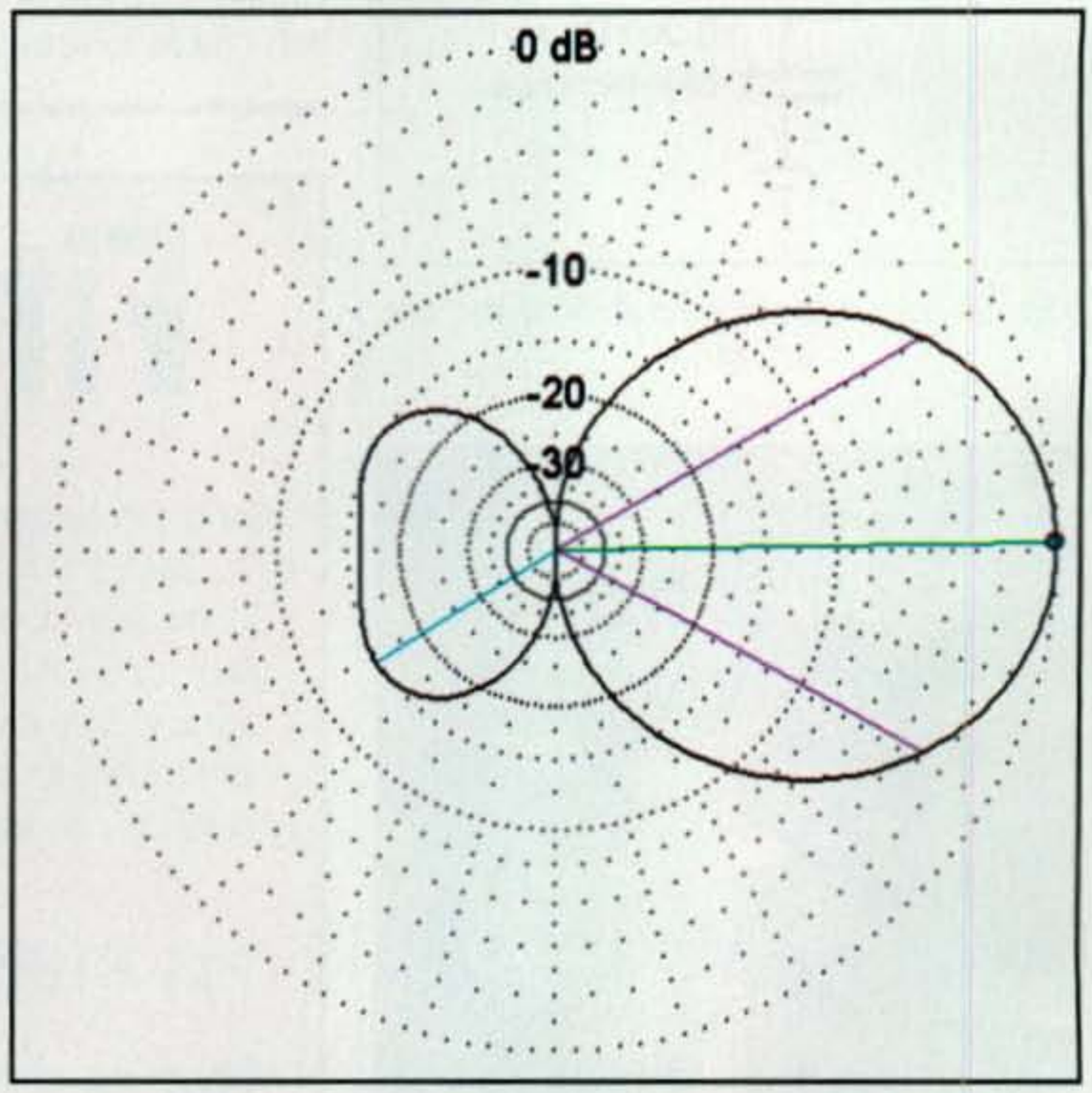


Fig. 3– Antenna polar plots for next time.

8 MHz. This is the effect you see when you have the wrong kind of ferrites in your antenna system. Thus, unless you really know what you're doing, avoid using ferrite inductors in your antenna coils. But hey, ferrites are still great for keep RF from running around your shack. I clamp them around power cords, mic cords, CW keys, and antenna leads ... anything that acts like it has a bunch of RF running around on it. The clamp-on ferrites and the loose ones on power cords were originally put there to keep RF signals in the computers, but they are also good for keeping stray RF signals out of your radios.

Bottom Line

Antenna length: As long as you can deal with (the longer the better).

Loading coil: High up is better, but there's not much difference unless you have a capacitance hat.

Coil windings: Big, fat wire gives you the best efficiency; thinner wire gives you more bandwidth.

Capacitance hats: They're great on 160 and 80 meters; marginally helpful on 40 meters; and of little value on 20 meters and up.

Next time we will be going over what antenna polar charts, such as the one in fig. 3, are really telling you about an antenna.

As always, some of our best ideas for projects and columns come from you, our readers. For antenna questions and topic suggestions, you are welcome to contact me at <wa5vjb@cq-amateur-radio.com>. 73, Kent, WA5VJB

Announcing:

The 2008 CQ World-Wide 160 Meter DX Contest

CW: 0000Z January 26 to 2359Z January 27
SSB: 0000Z February 23 to 2359Z February 24

The objective of these contests is for amateurs around the world to contact other amateurs in as many U.S. states, Canadian provinces, and countries as possible on the 160 meter band. *Note:* Each contest is 48 hours long and starts at 0000Z. Single operator stations may only operate 30 out of the 48 hours.

Classes: Single and Multi-Operator only. Use of packet, a spotting net, or logging assistance makes an entry Multi-Operator. Multi-Operators must show all operators, even helpers. Under Single Operator there will be a designation of power level: H = power over 150 watts, L = power under 150 watts, and Q = 5 watts or less. Single operators must show the actual call of the operator as a guest operator if it is different from the call used in the contest. Score listings will be per state or country, but if there is sufficient category activity or if a high enough score is made, then a certificate will be issued. Minimum score for a certificate is 5000 points for Low Power and 1000 points for QRP. Multi-Operators will all be considered high power.

Exchange: RS(T) and state for U.S., province for Canada, and either prefix or country abbreviation for DX. Contacts without some location indicator will be ruled invalid.

Scoring: Contacts with stations in own country, 2 points. Contacts with other countries on same continent, 5 points. Contacts with other continents, 10 points. Maritime mobile contacts count 5 points. There is no multiplier value for a maritime mobile contact.

Multiplier: Each continental U.S. state (48), U.S. District of Columbia (DC), Canadian area (14), and DX country. KL7 and KH6 are considered DX and not states for this contest. DX countries are DXCC plus WAE (IT, GM Shetland Islands, et. al). Canadian areas include VO1, VO2, NB, NS, PEI, VE2, VE3, VE4, VE5, VE6, VE7, NWT, VYØ, and Yukon. Do not count the United States and Canada as separate countries.

Final Score: Total QSO points times the sum of all multipliers (states, VE, DX countries).

Penalties: Three additional contacts may be deleted for each unverified contact removed from the log.

Disqualification: A log may be disqualified for violation of amateur radio regulations, unsportsmanlike conduct, or claiming excessive unverified contacts.

Awards: Certificates will be awarded to the top scorers in each class (see provisions under classes) by state, Canadian area, and DX country. Runners-up with high scores over 100,000 may also receive certificates. The following plaques, with donating sponsors as indicated, will be awarded for exceptional efforts.

2008 PLAQUES

SINGLE OPERATOR

	CW	SSB
World	W4ZV	N4NX
USA	K4TEA	K4JRB
Canada	Alabama Cont. Grp.	Alabama Cont. Grp.
Zone 3 USA	N5IA	N4TMW
Zone 4 USA	K4WA	N4XMX
Zone 5 USA	N4PN	K1PX
Europe	K9DX	WS9V
Africa	WS9V	WB4ZNH
Oceania	K9DX	D4B/4L5A
Asia	K4SX	NT4TT
Japan	Alabama Cont. Grp.	TBA
S. America	W4NU	D4B/4L5A
N. America**	CQ	CQ
	N4IN Memorial	K2EEK Memorial

MULTI-OPERATOR

World	N4RJ	SE DX Club
USA	W8UVZ, WØCD, K8GG	WB9Z
Zone 3	4X4NJ	4X4NJ

TBA = to be announced.

***North America outside U.S. and Canada.*

The plaque procedure is the top scorer in the indicated area wins the plaque. However, a station can only win one plaque per contest section. The plaque is then awarded to the next highest scoring station. For example, WX8ZZZ wins top World Multi-Operator. Then the next station in the U.S. wins the U.S. plaque.

Please observe the DX window from 1830 to 1835 kHz during the hours of darkness. The DX window is for intercontinental contacts. All stations will operate under the rules and regulations of their licensing agency regarding frequencies allowed and power levels. This is a gentleman's contest and band, so let's help make intercontinental contacts happen.

Computer Logging: Please submit your log via e-mail in the Cabrillo format. The Cabrillo format is created by all the major logging programs. Be sure to put your call and mode in the "Subject" line of each e-mail. The log must be an attachment and not in the body of the text. The correct name of the contest is either CQ-160-CW or CQ-160-SSB. Put in a claimed score in the Cabrillo summary if you want to be listed in claimed scores. Use your call .log (k4jrb.log for example) as the log name. Your e-mail log will automatically be acknowledged by the server and checked for proper Cabrillo format. You may mail a diskette; if you do so you must attach a printed summary sheet. The diskette must be clearly labeled with the call of the entrant, the mode (CW or SSB), and the category. If you print out a computer log, you must also send a diskette. Do not send .bin files, database files, or other non-conforming files. Do not remove duplicates from your log, as there is no penalty for duplicate contacts.

Manual Logs: Sample log and summary sheets may be obtained from *CQ* by sending a large SASE with sufficient postage to cover your request. You can also download paper log forms from the CQ website <http://www.cq-amateur-radio.com>, or make your own with 40 contacts per page with columns for GMT, exchanges, multiplier, and points. Paper logs with over 200 QSOs must include a dupe/check sheet with all calls in alpha-sort order. Show the multiplier only the first time it is worked. Each page must have sub-totals for multipliers, contacts, and points. A running total below the sub-total on each page is recommended. Include a summary sheet with your entry showing the scoring and other essential information. A printed name/mailing address is recommended and a signed declaration that all rules have been observed. Clearly mark all duplicate contacts and remember they have no point value. Please put the summary sheet at the front of the log. Manual logs should clearly indicate total multiplier, W/VE multiplier, and DX multiplier.

Club Competition: Any club that submits at least three logs may enter the Club Competition. The name of the club must be clearly identified under club competition on the summary sheet, or summary portion of the Cabrillo log. Club Competition is "for fun" to foster more activity. There is a separate listing for club scores.

Log Submissions: Mailing deadline for CW entries is February 28, 2008; for SSB entries March 31, 2008. For manual and diskettes logs send them early to assure receipt by the deadlines. For a return receipt enclose an SASE or SAE with postage or 2 new IRCs. Unreadable paper logs will be put in as check logs.

Send CW e-mail logs to: <160cw@kkn.net>

Send SSB e-mail logs to: <160ssb@kkn.net>.

All other logs go to CQ 160 Meter Contest, 25 Newbridge Road, Hicksville, NY 11801 USA. Indicate CW or SSB on the envelope.

beginner's corner

BY WAYNE YOSHIDA,* KH6WZ

Let's Go Shopping

After many years of faithful service, my dual-band, portable HT (handie-talkie) finally died. I switched out the battery pack to make sure it was not just a dead battery. I plugged in an external DC power supply. I then reset the microprocessor and re-entered a few frequencies. Although the rig powered up and the frequency display worked, the RF, as well as the audio portion of the radio, would not work. I tried to transmit to another radio on my desk to see if the HT was transmitting at all, but got nothing.

In addition to this problem, the glass over the LCD was cracked all the way across the face. Never store your little radio under a car's passenger seat, because if someone sits there and slides the seat back to make more leg room, your precious HT can be damaged! This little rig had gone to the factory before for service, but the repairs were not economically smart. Thus, I continued to use the radio as is. However, now this truly was a case when it was necessary to go shopping to purchase a replacement unit.

Fortunately, I live fairly close to a major ham radio store, so I could drive there, talk to the sales staff in person, touch and feel and operate the store's demonstration units, and decide what to purchase. I know many people live far away from a ham radio store, and mail order is sometimes the only way to buy a new ham radio rig. However, these days the internet, with websites of ham radio stores and manufacturers, etc., can help you decide which radio to buy. In addition, fellow hams are also a great source of information about current, as well as older, radios. There is an amazing array of HTs available, so many such that selecting the right one for you may be confusing (see photo A). It certainly is exciting to see what is available.

First decide what frequency band or bands on which you want to operate. The dual-band 144/450-MHz HT is the most popular type, but this may not be the case in your area. Therefore, the first thing you must do is find out where your friends operate. If they all are on 2 meters, then there is no need to get a dual-band unit. On the other hand, if your radio club sponsors more than one repeater system and is on several frequency bands, it may be wise to purchase a dual-band unit.

Let's take a look at what is available in the way of 144/450-MHz dual-band HTs and how to make the right choices for your application and needs.

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e-mail: <kh6wz@cq-amateur-radio.com>

Photo A– With so many radios available today, selecting the right one may be confusing.

Factors to Consider

In my case, my criteria for a portable rig are:

1. Dual band—2-meter and 70-cm capability.
2. Direct 12-volt input for charging and operating the unit.
3. Power output 5 watts on high power, and this is pretty much normal for HTs these days. A lower power setting will save battery life, but it is always good to have more power in "reserve" to use when you get into the "fringe areas" of the repeater coverage.
4. Size—small and lightweight, yet should not be too small to operate easily. My fingers are not too big, but I have noticed that my eyesight has been getting worse over the years, so keyboard and frequency-display visibility is important.
5. Accessories must be compatible with my older HT accessories, since I have quite an investment (almost a hundred bucks) in accessories for my "old" unit.

Speaking of accessories, here is a list of accessories that will increase your operating enjoyment (see photo B):

1. "Fast" or "smart" battery charger.
2. An extra battery pack
3. Carrying case to protect the radio from scratches and dirt.
4. After-market antenna for the radio's frequency coverage.
5. VOX (voice-operated transmit) headset with manual PTT (push-to-talk) switch. This is a must in noisy environments such as parades, or if you need hands-free operation (for example, when you operate bicycle mobile).
6. External power cord, with a cigarette-lighter plug and DC noise filter.
7. Adapter to connect your HT to an external mobile antenna.
8. External speaker/microphone, useful if you operate your rig in the car.

These accessories can be bought over time in order to stretch your radio budget as far as pos-

sible. Perhaps the best way to get accessories is to buy them when you anticipate a real need for the items. For example, if you are getting ready to go on a bicycling trip and want to operate your radio while pedaling along the bike route, put the external speaker/microphone on your shopping list before you go.

Find as much information as you can about your "radio candidates." Do a Google search on the internet, and ask your fellow club members for advice. Seeking advice from friends will also be very handy when it comes time to use your radio for the first time.

With a list of the final candidates in hand, it is time to go to your local ham radio shop and make the final selection. If you are buying on-line, it is simply a matter of finding what you want and then figuring out how to pay for it.

However, it is always more fun doing the shopping in person, at an old-fashioned brick-and-mortar store, and talking to the sales staff (photo C). (I suppose the not-too-fun part is paying for the item(s), but you have your special ham radio savings account, right?) The sales staff can give advice on the features and benefits of the radios. Do not forget to ask if there are any manufacturer specials or discounts in place when you consider which radio to buy.

Getting It Home and Opening the Box

When you get your new HT home, you must resist the temptation to immediately turn on the unit. You first have to charge the battery, and if you decided not to get the quick charger, you will have to charge the battery pack overnight. On the other hand, if you purchased the external power cable, then you can use a 12-volt power supply and the accessory cord to power your rig. However, I always recommend that time is well spent reading the operating manual. I like to skim through the entire book first, looking at the pictures, diagrams, and tables.

Operating manuals for ham equipment have improved over the years, but many still are not perfect. Even if all of the information is in there, the chore is to find the right information to define or explain the particular function you want to implement. For example, when a manufacturer explains how to use the memory function, it simply tells you how to access the "memory in" function. It describes all the "stuff" the radio can memorize, but you have to read about each feature and understand what keys to press in order to make the radio do that function. I am sure the manufacturers do this in order to reduce redundancy in the manuals. I always use little Post-It® sticky notes and summarize multiple instructions—or at least the page numbers—throughout the operating manual, so I can flip back and forth as I run through the operating steps.

Photo B–These useful accessories will increase your operating enjoyment. You can convert the battery-operated rig into a mobile setup with the proper accessories, such as the speaker/microphone.

Photo C–The helpful and friendly staff of a ham radio store can offer advice on the wide variety of radios from which to choose. Here are some of the guys from Ham Radio Outlet in Anaheim, California: Bill Scholz, W1HIJ; Phil Pacier, AD6NH; Jim Reno, K6MIV; and Heiko Peschel, AD6OI.

Another thing that may help your radio learning curve is to make a chart of what you want programmed into your radio—for example, channel, frequency, offset, sub-tone (PL), display, etc.

When your battery pack is fully charged, sit down in a comfortable chair, have the instruction book in front of you, and run through the radio settings step by step (photo D). As you program the rig for the proper requirements for the repeaters and simplex channels you use, you will begin to understand how to operate the rig. Believe me, after programming in 40 or 50 memory channels you will understand how your radio works!

Speaking of memory channels, I remember when five crystal-controlled channels were a lot in a VHF-FM radio. These days, hundreds of channels are the normal offering. While I never come close to filling the maximum number of memory channels, I have some friends who do come quite close. They have all the local police, fire, and other such agencies programmed in so they can listen in to what's going on in their neighborhood.

Get Organized

With so many memory channels available, you may want to organize your operating memory channels into "banks," or "groups." For example, in my RACES (Radio Amateur Civil Emergency Service) group, we have several "official" repeater and simplex frequencies to use. During our functions, we refer to frequencies by "Channel Number" rather than frequency or repeater name. Thus, in my radios I program "Bank 1" (channels one through 19) with memory channels that coincide with the RACES frequency list. This makes it easy to operate the radio during our drills and functions, since bank 1 is Channel 1 in my radio.

Bank 2 (channels 20 to 29) in my radios includes my most-often-used repeater systems that are non-RACES channels. Bank 3 is not used. I really do not have too many frequencies to put into memory, but it is nice to know that I can add more channels if I need to, and Bank 3 would be memory channels 30 to 39, and so on. The alphanumeric display function on the radio always helps me to understand what frequency I am operating on.

One of the useful functions is the "clone feature," in which one radio can program the radio via a cable and a computer or over the air. However, I recommend that you know how to program your radio the old-fashioned way, by performing all of the necessary key strokes. Otherwise, if you need to meet someone on a frequency that is not programmed into your radio, or if something bad happens and you have to reset the radio out in the field, you may be stuck with a useless unit. On the other hand, once you get home, or when you have access to your computer and all the frequency information, it will be an easy task to fix your radio programming.

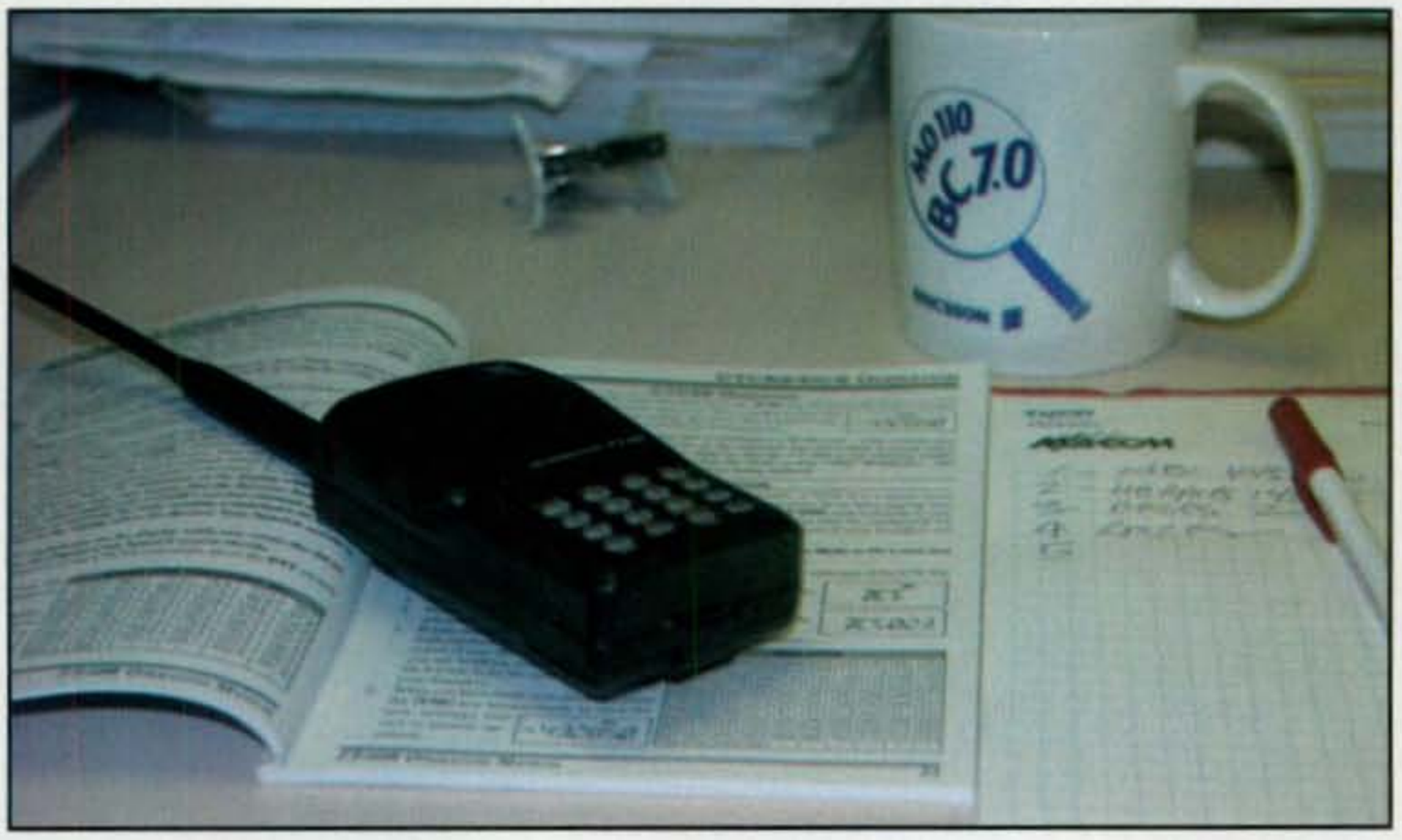

Photo D–The only way to learn how to operate your new radio is to actually use it, with the instructions in front of you.

What Else?

An HT is perhaps one of the most useful pieces of ham equipment to own. It is a complete amateur radio station that you can hold in one hand. Your range of communication may extend from a few blocks away from your home or office, and it certainly can be extended with a repeater system. With the proper accessories, you can turn your little hand-held unit into a mobile rig, operating from a car, a boat, or a bicycle. If you belong to a community service organization such as RACES, CERT (Community Emergency Response Team), or ARES (Amateur Radio Emergency Service), you may be able to help your friends and neighbors in a communications crisis, too.

73, Wayne, KH6WZ

Transceiver with Remote Operation Capability, SWR/Wattmeter, QSLs, & more

BY ANTHONY A. LUSCRE,* K8ZT

This month's column includes a look at an HF/50-MHz transceiver with built-in remote control capability, two QSL printers, and QSLing services. We will also report on a really big SWR/wattmeter! We investigate a product to make some old transceivers shine like new, a way to monitor ice buildup on your tower, and finish with a look at The Amateur Radio Website of the Month.

Photo A– Ten-Tec's Omni-VII transceiver combines easy remote capability and high performance. (Photo courtesy of Ten-Tec)

Ten-Tec's Omni-VII with Built-in Remote Operation Capability

This year saw the introduction of the first mainstream ham transceiver with full plug-and-play Ethernet remote capability, the Ten-Tec Omni-VII (photo A). To set up a complete remote HF/50-MHz station only requires you to plug one end of an Ethernet cable into the Omni-VII and connect the other end to a broadband internet connection. No PC is required at the rig to operate remote! The only additional items needed are a 12-volt power source and suitable antenna(s).

Using the provided simple "One Plug" GUI (Graphical User Interface) software (photo B), you can then remotely use your Omni-VII anywhere you have broadband internet access. The "One Plug" software delivers live control of the radio plus both receive and transmit audio. The software is available for download at no charge from Ten-Tec's firmware update website (www.rfsquared.com). That's not all: The latest GUI source code (written in Visual Basic) and complete programming instructions can also be downloaded to build your own customized GUI.

With the slick capability to remotely operate the Omni-VII, it is easy to gloss over the other great features of the rig. Ten-Tec's description of the Omni-VII includes: "unrivaled Close-in Dynamic Range in price class. Our new Distributed Roofing Filter architecture places filters in both the 1st and 2nd IFs at just the right places. Three built-in filters at 20 kHz, 6 kHz, and 2.5 kHz are included (2.5 kHz is a Collins mechanical filter). Optional Collins mechanical filters at 500 Hz and 300 Hz are also available. Filters can be selected manually or use AUTO for automatic selection via front-

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e-mail: <k8zt@cq-amateur-radio.com>

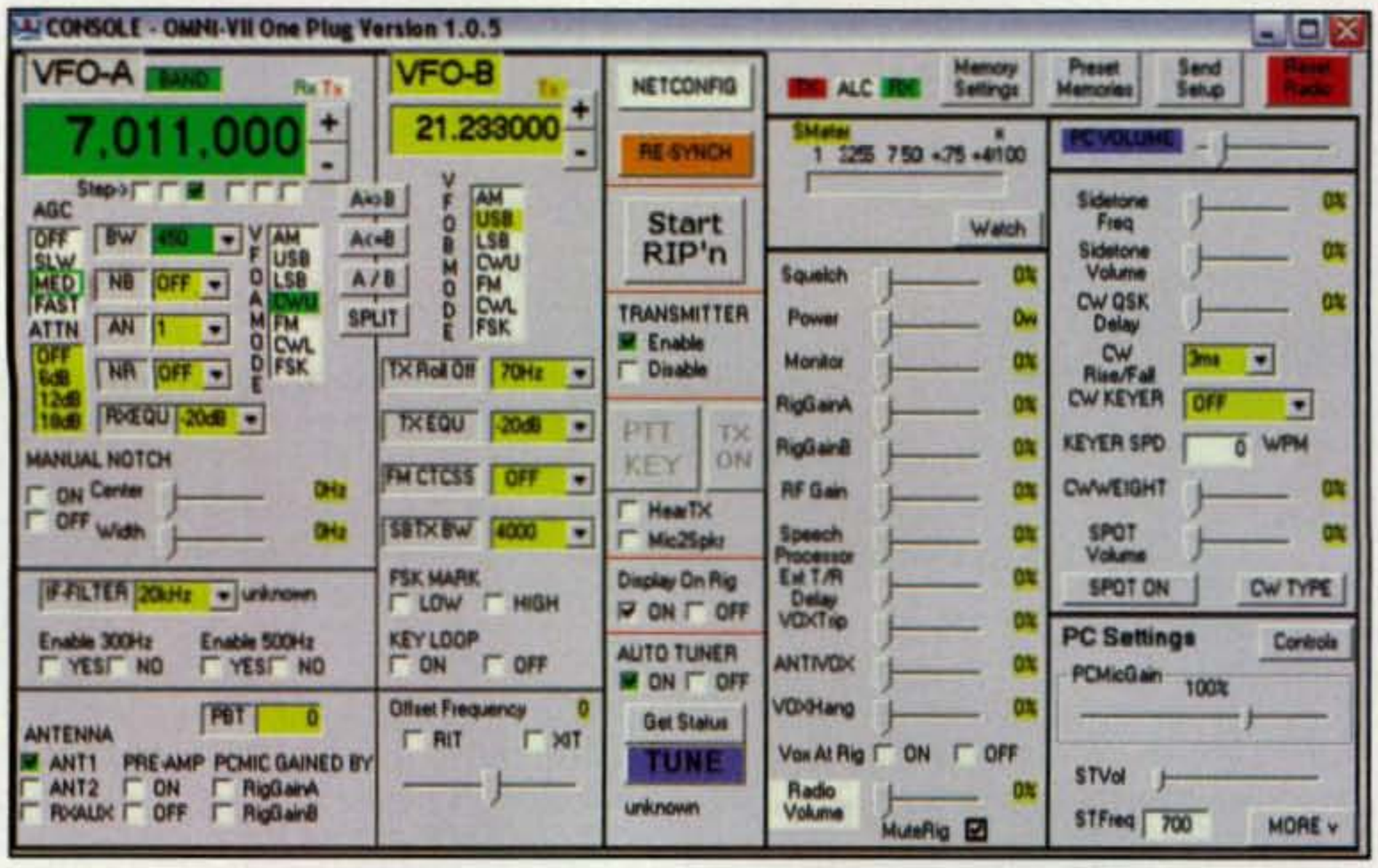


Photo B– "One Plug" remote-control software for the Ten-Tec Omni-VII.

Photo C– MFJ has announced the availability of "the world's largest SWR/Wattmeter for VHF/UHF."

panel DSP Bandwidth control. Also included are 37 built-in DSP bandwidth filters from a minimum of 200 Hz to 9 kHz maximum."

The Omni-VII provides full HF transmit coverage on 6 through 160 meters, 100 watts output, and general-coverage receive from 500 kHz to 30 MHz continuous plus 48 to 54 MHz. Modes of operation include SSB, CW, AM, FM, and Digital. Updates by Flash-ROM: Serial port interface for local rig control via PC and for Flash-ROM updates available via the Internet

Other features include dual VFOs with Split and Reverse functions, a full-function color LCD display screen with "band sweep," the legendary Ten-Tec QSK CW includes adjustable rise and decay times, and the built-in keyer can be used in Curtis A or B modes, adjustable from 5–63 wpm.

DSP noise reduction, automatic notch, and manual notch reduce interference from undesired carriers and random noise. DSP also provides 17 selectable transmit bandwidths to give your SSB audio a well-rounded sound tailored to your voice characteristics.

There are three antenna connectors: two SO-239 transceiver outputs, plus a third SO-239 connector for an auxiliary receive-only antenna. Antenna switching is front-panel selectable. The optional built-in antenna auto tuner matches most antennas up to 10:1 SWR.

The rig has aluminum chassis construction, and the steel outer case is 5" H × 12" W × 14.75" D and weighs14 pounds. Retail price is $2550 ($2850 with internal automatic antenna tuner). For more information, to download an operator's manual, or to order, visit the Ten-Tec website at <www.tentec.com> or phone 800-833-7373.

Giant SWR/Wattmeter for 144/220/440 MHz

MFJ is proud to announce "the world's largest SWR/Wattmeter for VHF/UHF!" Measuring 6.5 inches diagonally across the meter scale, the MFJ-867 (photo C) has ultra-fine resolution and large, high-contrast numbers to make reading it a breeze, even from across your shack. This analog meter features current needle position and motion, giving you an accurate indication for what's going on. MFJ's exclusive TrueActive peak-reading circuit captures true peak or average forward and reflected power readings. The MFJ-867 has 400/200/20-watt ranges and covers 144/220- and 440-MHz frequencies. The meter can use an internal 9-volt battery or external 12-volt DC. Overall size is 7" W × 5.5" H × 5" D. To order, call 1-800-647-1800, go online at <http://www.mfjenterprises.com>, or contact one of the many of ham radio dealers that sell MFJ products.

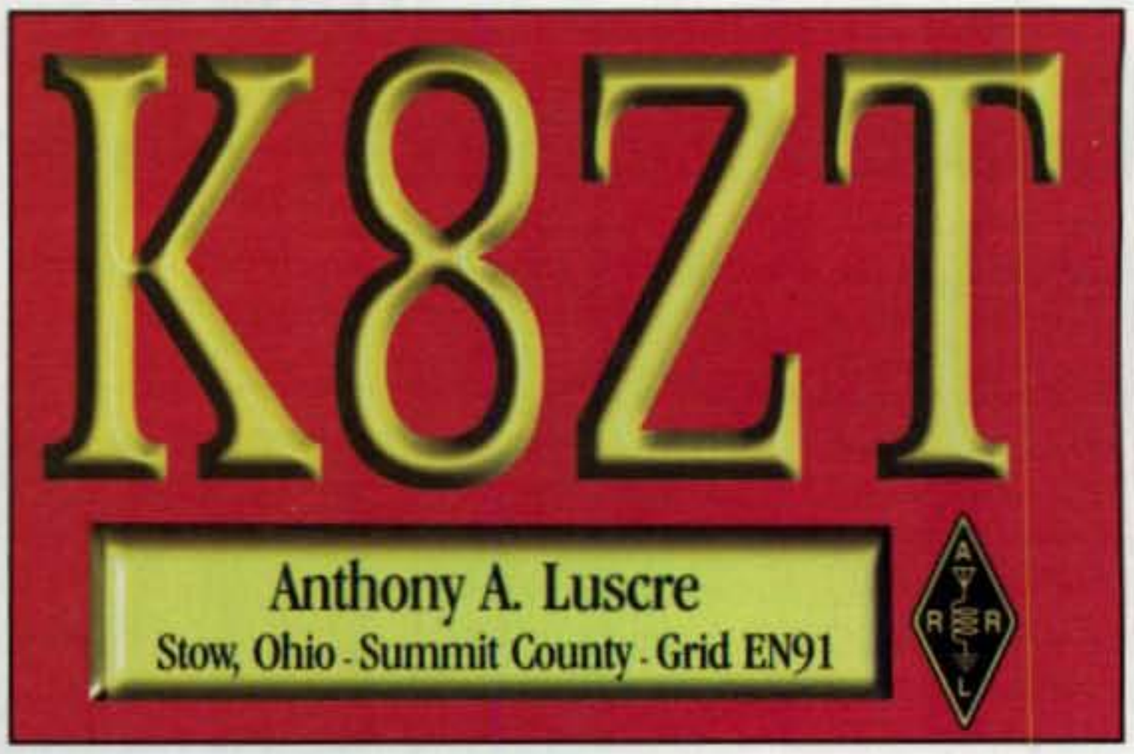


Fig. 1– Both iQSL USA and GlobalQSL provide tools to either design your own QSL card, or you can use your own existing design, as pictured here. You then can easily upload your design for printing and/or complete QSLing service.

QSL Cards and QSLing Services

This month we take a look at products from two companies that not only can print your QSL cards (fig. 1), but also provide QSLing Services.

iQSL USA (http://iqslusa.com) provides four services for hams: QSL printing, online QSL design, custom QSL design, and a QSLing Service. iQSL USA's website asks, "Tired of boring QSL templates? Want to have an attractive original QSL no one else has? Simply e-mail us your images and ideas and we will design your next QSL according to provided specifications. We will work with you on every intricate detail of the layout until you are completely satisfied with results. There are absolutely no restrictions. Add as much text as necessary, as many logos as you like, and as many images as you like." You can also use iQSL's online "QSL Maker" designing tool to quickly generate a QSL card to be printed for you.

The fourth service the company provides, in addition to printing your QSL cards, is importing information from your log and printing the QSO information for each contact directly on your cards. The cards are then ready to be sent to the stations you are QSLing. You can choose to have iQSL USA directly mail your presorted cards to national incoming or outgoing QSL bureaus or have them shipped directly to you. For more details on iQSL's services and prices, or to order, visit <http://iqslusa.com>, e-mail <ordersiqslusa@gmail.com>, or write to 3909 Witmer Rd. #490, Niagara Falls, NY 14305-1244.

GlobalQSL's website (www.globalqsl.com) states, "Forget about spending expensive time and big money for QSL cards printing, filling out, sorting, and sending! No need for you to write QSO reports on QSL cards or print labels! Don't sort your out-going cards, no more trips to the out-going and in-coming QSL bureau. You only pay for the amount of cards you use, no loss of cards. Don't waste time. Enjoy ham radio and the fun of getting QSL cards without the burden of writing them."

GlobalQSL has free QSL design software that you can download and run on a Windows® based computer. After de-

*Photo D– The new Avionics Corporation's Ice*Meister Model 9734 Industrial Ice and Precipitation Detecting Sensor System. (Photo courtesy of Ice*Meister)*

signing your QSL card, you can upload both the front and back images to your account on GlobalQSL's website. You then upload your log export as an ADIF file to the site and they will print your QSLs as needed along with the other station's QSO information. The cards are then sorted and sent to corresponding bureaus or directly to you. For more details on the services and prices or to order visit <www.globalqsl.com>, e-mail <info@globalqsl.com>.

Glow Safe

Sometimes replacing just one part can make an old item seem like new. Glow Safe provides a flat-display back-lighting panel that is a direct replacement for the Ten-Tec Delta-II and Argonaut-II models. These panels provide a blue backlight for the rigs' LCD displays. In addition to the 158 mm × 32 mm Ten-Tec replacement panel, Glow Safe can provide a variety of sizes of panels to meet various needs in other commercial radios or homebrew projects. The panel is approximately $10 plus shipping. For more information, visit the Glow Safe website at <www.glowsafe.com/e-shop> and choose the Lighting Panels link.

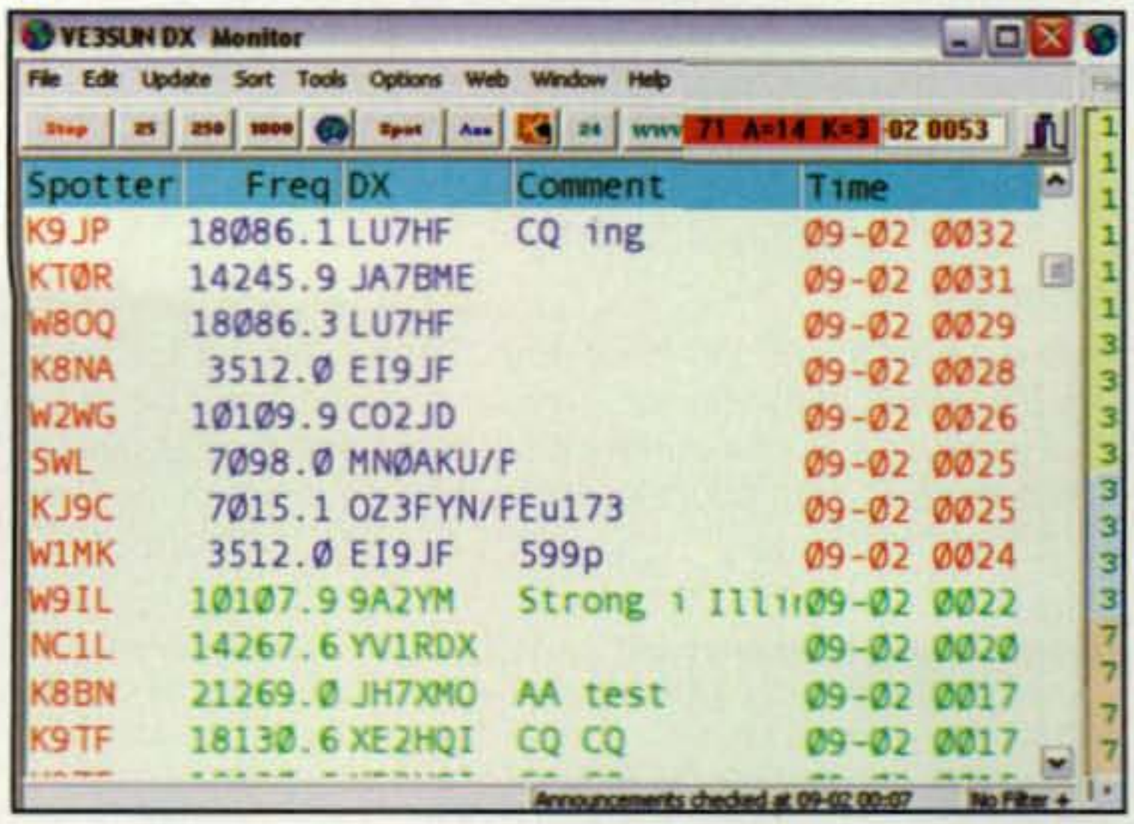


Fig. 2– Screen shot of DX Monitor's main screen and band map.

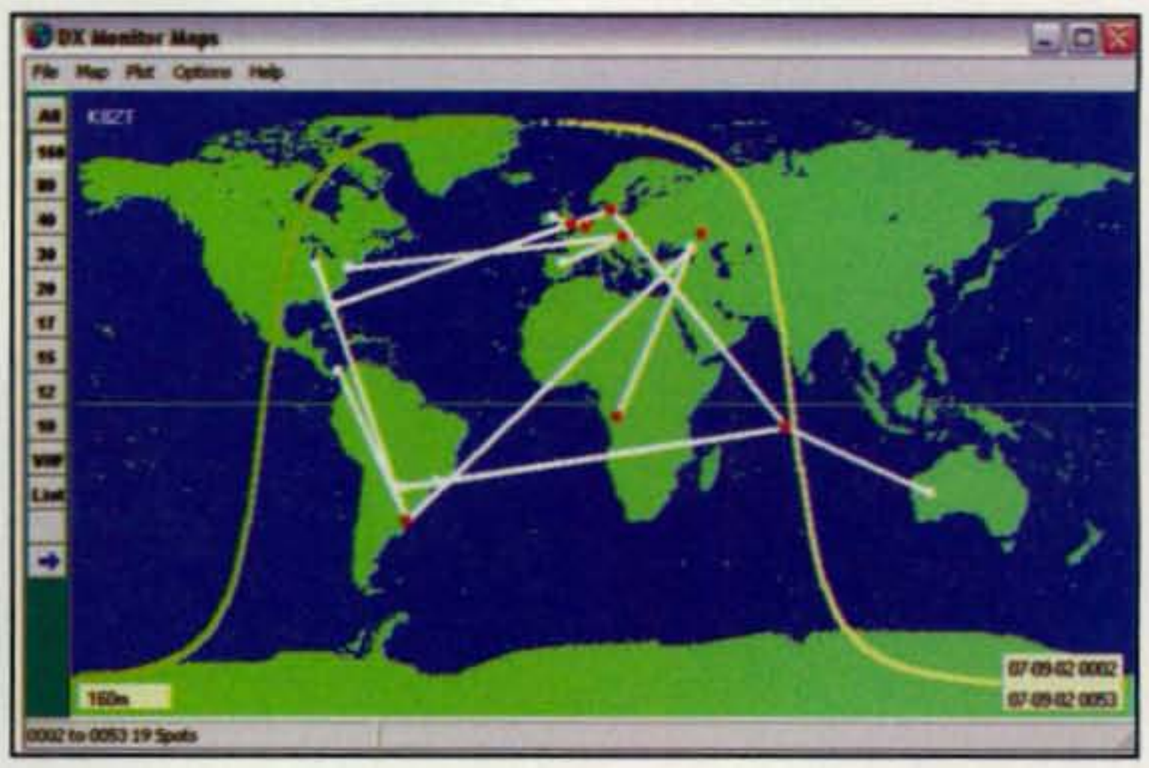


Fig. 3– DX Monitor's spots plotted on the map.

Ice*Meister Model 9734

With winter arriving here in Ohio, many ham's thoughts of summer lightning threats to their towers and antennas turn to worries of ice and wind. New Avionics Corporation's Ice*Meister Model 9734 Industrial Ice and Precipitation Detecting Sensor System (photo D) provides a means of remotely monitoring ice build-up on almost any surface. For more information, you can contact the company at <http://newavionics.com> or telephone 954-568-1991.

DX Monitor Software

DX Monitor (fig. 2) is a standalone Windows® program that monitors the DX announcements available on a number of sites on the internet and international DX Cluster Telnet servers. There are many other programs that can also carry out this basic function, but that is just the beginning of DX Monitor's features. DX Monitor allows you to set a wide variety of preferences and filtering options including choosing which spots to display based on frequency, band segments, location of the spotting station, and specified DXCC entities.

Spots are displayed sorted by your choice of spot time, DX call, spotter's call, or comments. In addition to the main display, you can choose to have spots displayed in a band map with color-coding you select (fig. 3). In addition to colors, you can also choose the font style and size for both windows.

You can also send spots, send or read announcements, and view solar flux and geomagnetic indexes. A third window displays a world map. You can choose an Azimuth (Great Circle) or Mercator projection. Both maps also display the current grayline. You can choose which spots you want plotted by band. There are also a number of preferences you can set for the map display. In addition to the built-in map display, you can use an animated Google Earth interface and pinpoint U.S. and Canadian amateurs using Google maps.

The History function gives you a complete list of spots for a specific station, including frequencies, times, comments,

Kanga US

At press time we received the following information from from Bill Kelsey, N8ET, of Kanga US, located in Findlay, Ohio:

Kanga US, makers of a variety of amateur radio products, including QRP kits, was affected by massive flooding in the area in late August. The flood waters destroyed all products except the stock of DK9SQ masts and computer records of the company. Any orders that came in over the summer months while the company was closed will be refunded. The building sustained damage from the flood as well and is in need of extensive repairs.

Bill hopes to get Kanga US going again, but as of press time there was no specific time frame when that would occur.

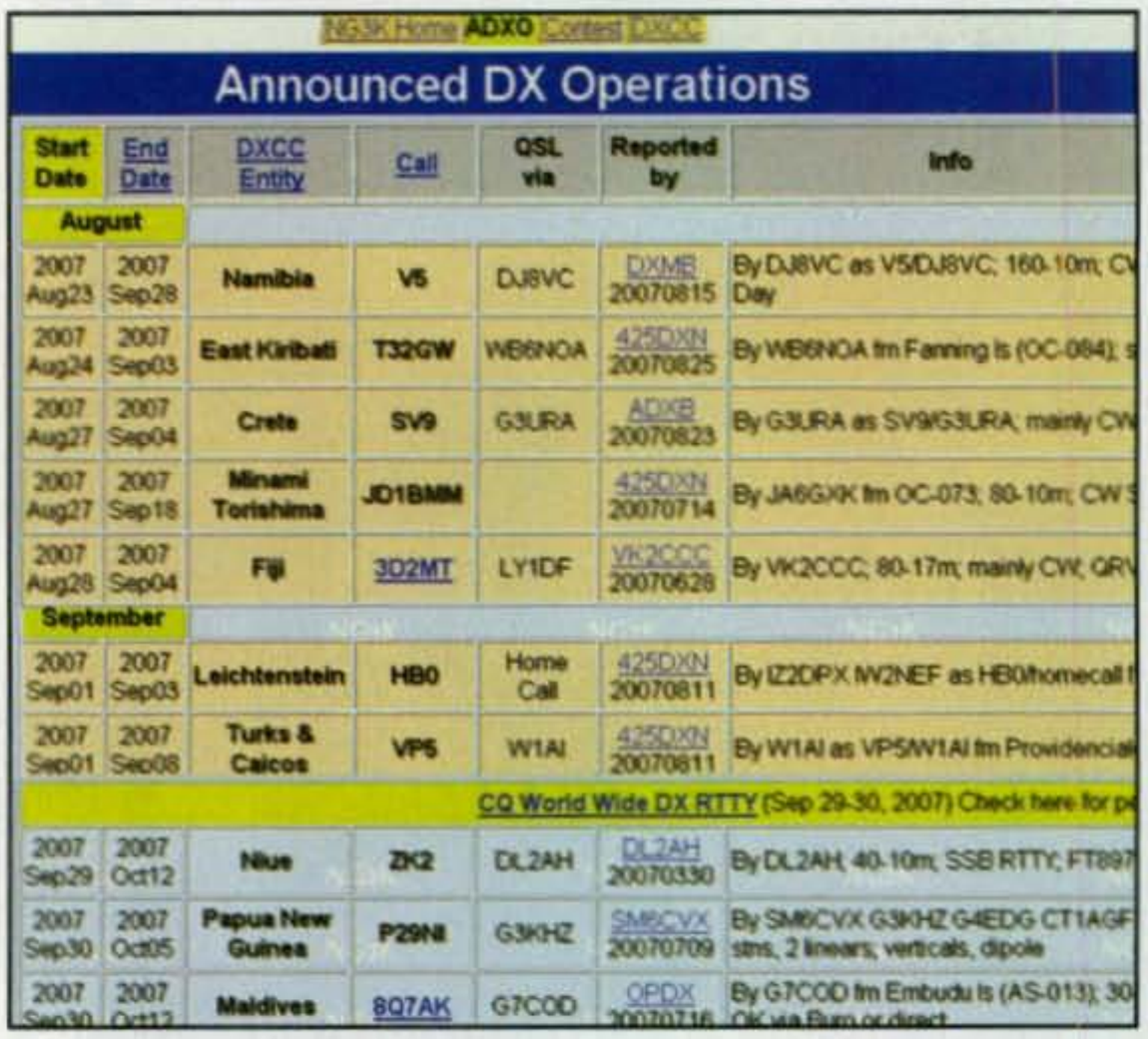
For further details, see the Kanga US website: <www.kangaus.com>.

and spotting stations. DX Monitor can quickly check propagation from your location to the DX using HamCap (www.dxatlas.com/HamCap). DX Monitor can even use OmniRig (www.dxatlas.com/omnirig), a free application written by Alex, VE3NEA, to control your rig and quickly jump to a spotted station's frequency.

There is not enough space to list all the features of DX Monitor, so you will need to visit <www.benlo.com/dxmon.html> for more information. DX Monitor is shareware. Try it free for 30 days, and if you like it, the cost of registering is $29.95.

The Amateur Radio Website of the Month

This month's site is produced by Bill Feidt, NG3K and can be found at <www.ng3k.com> (fig. 4). The "NG3K Amateur Radio Contest/DX Page" is packed with a wide variety of resources for DXers, contesters, and QSLers. Because there is so much information provided on the website, it is difficult to completely describe it in just a few words. My two favorite features of the site include the ADXO (Announced DX Operations) and Contest Announcements (DX Operation Announcements for Forthcoming Contests).


NG3K Home ADXO Contest DXCC

Announced DX Operations

Start Date	End Date	DXCC Entity	Call	QSL via	Reported by	Info
August						
2007 Aug23	2007 Sep28	Namibia	V5	DJ8VC	DXMB 20070815	By DJ8VC as V5/DJ8VC; 160-10m; CW Day
2007 Aug24	2007 Sep03	East Kiribati	T32GW	WB6NOA	425DXN 20070825	By WB6NOA fm Fanning Is (OC-084); s
2007 Aug27	2007 Sep04	Crete	SV9	G3URA	ADXB 20070823	By G3URA as SV9/G3URA; mainly CW
2007 Aug27	2007 Sep18	Minami Torishima	JD1BMM		425DXN 20070714	By JA6GXK fm OC-073; 80-10m; CW S
2007 Aug28	2007 Sep04	Fiji	3D2MT	LY1DF	VK2CCC 20070628	By VK2CCC; 80-17m; mainly CW; QRV
September						
2007 Sep01	2007 Sep03	Leichtenstein	HB0	Home Call	425DXN 20070811	By IZ2DPX IW2NEF as HB0/homecall f
2007 Sep01	2007 Sep08	Turks & Caicos	VP5	W1AI	425DXN 20070811	By W1AI as VP5/W1AI fm Providencial
CQ World Wide DX RTTY (Sep 29-30, 2007) Check here for p						
2007 Sep29	2007 Oct12	Niue	ZK2	DL2AH	DL2AH 20070330	By DL2AH; 40-10m; SSB RTTY; FT897
2007 Sep30	2007 Oct05	Papua New Guinea	P29NI	G3KHZ	SM6CVX 20070709	By SM6CVX G3KHZ G4EDG CT1AGF stns, 2 linears, verticals, dipole
2007 Sep30	2007 Oct13	Maldives	8Q7AK	G7COD	QPDX 20070716	By G7COD fm Embudu Is (AS-013); 30 OK via Burn or direct

Fig. 4– Screen shot of this month's Amateur Radio Website of the Month, <www.ng3k.com>, showing the ADXO page.

Here is a description of ADXO in Bill's own words: "In its broadest sense, ADXO is a collection of tables containing information about special amateur radio DX and contest operations. In ADXO you'll find details of future and current DX operations, previous operations for the current year, past operations covering earlier years beginning with 1996, as well as operations conducted as part of major contests (CQ World-Wide, ARRL DX, CQ WPX, and IOTA) starting with 1996's CQ World-Wide."

I always make it a point to visit the Contest Announcements page before I work any contest. It gives me an idea of some multipliers I should be on the lookout for as I search the bands.

NG3K also provides links to some great resources, including DX Call Books & QSL Info, DX Tools, DX-related Software, and Packet Cluster Resources. With links to over 35 DX Callbooks, "The "DX Call Books & QSL Links" is a must for serious DXers and QSLers.

Wrap-up

That is all for this month's column. Thanks for the feedback e-mails from last month's column and remember, I welcome your questions and/or comments. Please feel free to use my e-mail or snail-mail address on the first page of this column.

Until next month . . . 73, Anthony, K8ZT

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.*

On the Cover

Rod Linkous, W7OM, of Seattle, Washington, is familiar to many DXers and contesters as "one of us," but he also fits right in with the people profiled in our ongoing series of *CQ Interviews* with senior military people who credit ham radio with providing the foundation for their careers (see this month's interview with DARPA Director Dr. Tony Tether, K2TGE, on page 13, pictured in the inset photo on the cover). A ham since 1949, Rod spent the first part of his working life in the U.S. Air Force, both active duty and reserve, retiring as a Reserve Major General. His final assignment was in the Pentagon as Mobilization Assistant to the Deputy Chief of Staff for Command, Control, Communications and Computer Systems.

After leaving the Air Force, Rod began a second career with Boeing Corporation, "in the electronics side of the aerospace business," working his way up to Executive Manager before retiring a second time.

Rod says his major ham radio interests are—and pretty much always have been—DXing and contesting. He has "worked them all" except for North Korea on CW, has earned 9-band DXCC and CQ's 5-Band Worked All Zones award. He says his toughest QSL was for Zone 22 on 75 meters, noting "I had to work it three times to get a card!" Rod was also *CQ*'s DX Editor for several years in the 1980s.

Rod notes that there have been two really "great things" in his ham career—first, the opportunity with the Air Force to operate from overseas, in Korea and other places, and second, "the people I've met along the way. It's a great group of people." (Main cover photo by Larry Mulvehill, WB2ZPI; inset photo of Dr. Tether courtesy Department of Defense)

BY JOE LYNCH,* N6CL

Al Ward, W5LUA First 1296-MHz WAS Recipient

It all started more than 30 years ago. To be precise, it started on January 25, 1977, when Al Ward, then WB5LUA, now W5LUA, made his first 1296-MHz contact with Leroy May, W5HN. Leroy is now a Silent Key, not having lived long enough to witness what he started and what Al ended in early September when he contacted Paul Perryman, WA5WCP/7, in Idaho. With that contact, Al went into amateur radio history for having completed the first ever WAS (Worked All States) on 1296 MHz.

Those of us who subscribe to the Moon-Net reflector were aware of certain states being activated on 1296 MHz during August and September this year. However, it was known only by a few that Al was on the final leg of his pursuit of the WAS award. First it was North Dakota in early August, when Ron Roche, KØALL, with a major assist from Barry Malowanchuk, VE4MA, came up for several QSOs on that band. One of those QSOs was with Al, thereby giving him his 47th state.

Then, between August 29 and 30, Paul activated Wyoming on 1296 and 2304 MHz. Paul's QSO with Al gave Al his 48th state on 1296 MHz. On September 1, Paul activated Utah and made contact with Al, thereby giving him is 49th state. Finally, on September 4, Paul activated Idaho and again made contact with Al, and W5LUA's historic quest was completed.

When Al received Paul's QSL cards for those three contacts, he almost immediately jumped into his car and drove from his home in Allen, Texas to Little Rock, Arkansas to meet with ARRL President Joel Harrison, W5ZN, so that he could verify Al's cards and complete the WAS paperwork. "Verifying QSL cards from 30 years of activity brought back a lot of memories of several stations active on 1296 MHz, many of whom are Silent Keys now," Harrison commented in the *ARRL Letter* of September 8, 2007.

Al freely admits that he could not have achieved his goal without help from his friends in the weak-signal community. It was that all-important assist from Barry, VE4MA, that got Ron, KØALL, on the air from North Dakota. Al and Barry have accomplished a number of firsts over the years, so it was a natural outcome of their friendship that Barry would assist Ron in making it possible for Al to make his North Dakota contact.

Next, it was Paul, WA5WCP's turn to help Al complete his quest. Paul, whose home QTH is Arlington, Texas, is no stranger to portable EME operations. His previous portable EME activation was from Belton, Texas for an EME demonstration at that city's hamfest a year ago last month. Previously, Paul gave out contacts from New England in August 2006.

e-mail: <n6cl@sbcglobal.net>

VHF Plus Calendar

Nov. 1	Last Quarter Moon
Nov. 4	Good EME conditions
Nov. 9	New Moon and Moon Apogee
Nov. 11	Very poor EME conditions
Nov. 17	First Quarter Moon and *Leonids* Meteor Shower Peak
Nov. 18	Moderate EME conditions
Nov. 24	Full Moon and Moon Perigee
Nov. 24–25	Second weekend of the ARRL 50 MHz to 1296 MHz EME Contest (See text for details)
Nov. 25	Moderate EME conditions.

EME conditions courtesy W5LUU

For Paul's August-September 2007 DXpedition, he arranged vacation time to cover the approximate week-long venture. Interspersing family time with EME activities, he operated from Wyoming on August 29–30, from Utah on September 1–2, and from Idaho on September 4–5. Each location had its particular challenges. In Wyoming he had to contend with birdies between 144.035–144.038 MHz, along with noise from the GS-15b 300-watt amplifier. In Utah he had some coax problems to contend with, along with rain and his tracking program. In addition, problems with diagnosing trouble he had on 2304 MHz limited his operations. Further complicating his stay in Utah was his lack of sleep and his inability to visually find the Moon due to the rain and overcast skies.

In Idaho, Paul had linearity issues with his azimuth readout. Also, when the water pump for the high-power amp failed, the amplifier, in his words, "was toast." Also, with the rain and higher temperatures, he was not able to operate on 2304 MHz.

With Al's 2304-MHz WA5WCP Wyoming and Utah QSOs in the logbook, one wonders if Al's next quest might be WAS on 2304 MHz!

Tropo Opening Highlights Fall ARRL VHF QSO Party

The following is from Ken Neubeck, WB2AMU, and is excerpted from his sidebar that appears in the Fall 2007 issue of *CQ VHF* magazine:

The September ARRL VHF Contest fell on a weekend when a tropical storm was moving towards the east coast of the United States. There was a predicted tropo opening based on the maps from the William Hepburn website for Sunday of the weekend (September 9th). At the hilltop location on Long Island (grid square FN30) where I operated QRP portable, I saw only modest tropo activity on the VHF bands on Saturday afternoon. However, when I arrived at the site early in the morning on Sunday, I saw some major tropo activity on all of the VHF bands.

When I first listened on 2 meters at 6:15 AM local time, I heard W4VHH in EM95 contacting N2RRA in FN31, and I knew that this was most likely a long tropo path. I

was not able to get W4VHH, but then some signals started coming in very strong both on 2 meters and 70 cm. Booming signals were coming from stations such as K3TUF (FN10), W4IY (FM19), KA3EJJ (FM19), KC3RE/rover (FM08), K8EP (FM09), K8GP (FM08), N3OC (FM19), and W3SO (FN00). After I worked KO4YC in FM17 on 2 meters at 8 AM, I asked him to move to 70 cm and I was eventually able to work him. I could not believe how loud some of the signals were on that band!

In my part of the country, Ron Runels, W6ZI, operating from Collinsville, Oklahoma, worked quite a number of stations on 2 meters tropo, including stations in Iowa and Nebraska to the north and Texas to the south. Your editor, operating at WRØVER/rover, gave out 2-meter contacts from the four grids (EM15, EM16, EM25, and EM26) that intersect near Sapulpa at U.S. Highway 75 and Oklahoma State Highway 117.

First ARISS Contact with School in China a Success

The following is courtesy of the Southgate Amateur Radio Club (http://www.southgatearc.org):

On Sunday, August 26, the first Amateur Radio on the International Space Station (ARISS) contact with a Chinese school was performed with youth from Nanjing No. 3 High School in Nanjing, Jiangsu.

Twenty students spoke with astronaut Clay Anderson, KD5PLA. Twenty questions were asked and answered, as approximately 300 students and parents looked on. A vice director of MII (Chinese FCC) was present during the contact, as well as a vice mayor of Nanjing and a group of 60 local government officials.

Mr. Chen, BA1HAM, and Mr. Tong, BA1AA, two of the veterans of the Chinese Amateur Radio Society, also attended. Local hams and businesses supported the students with the contact.

ARISS Chairman Frank Bauer, KA3HDO, was invited to speak via teleconference to the students and other participants prior to the contact.

Ten television stations, including local, provincial, and national stations, as well as another television team from Hong Kong, reported on the event. The news story was also picked up by several radio stations, and was broadcasted live in several provinces across China. It was also covered by 30 newspapers.

Live video of the contact was also available on sina.com and qq.com, which are two major internet news portals in China, and they also put the contact on their front pages as featured reports. A headline about the upcoming school contact in China was posted on the MSN startup window, so every Chinese MSN messenger user would see this notice.

Many other websites published their own press releases. Through all media avenues, more than 100-million people were reached!

The audio for this event was fed into EchoLink AMSAT (101 377), JSDXC (337 784), and JK1ZRW (277 208) servers, receiving 106 connections from ten countries, five of which were repeater nodes. (A fourth server in Bangkok was also used, although it was not monitored for connections.) The audio was also fed into the IRLP Discovery Reflector 9010 and received five connections and another nine picked up on the streaming audio.

GAREC-07

My wife Carol, W6CL, and I were among the nearly 100 participants at the Global Amateur Radio Emergency Communications Conference (GAREC-07) held in August in conjunction with the Huntsville Hamfest. This was the third such conference, and the first one to be held in the U.S. (the other two were held in Europe). Among the participants were representatives from the IARU, the ARRL, Army MARS, American Red Cross, Southern Baptist Disaster Relief, Department of Homeland Security, The Salvation Army, a Coast Guard auxiliary, as well as many appointees from the ARRL field organization. International participants came from Ireland, France, Bulgaria, Finland, The Netherlands, South Africa, Brazil, Canada, and Trinidad & Tobago.

Presentations were made on ALE (automatic link establishment), EchoLink/IRLP, D-Star, Winlink 2000, and TSSG, an advanced system being developed in Ireland. Presentations were also made by ham radio operator representatives from the various non-governmental organizations mentioned above. In many respects, it seemed to be a way for a lot of these hams to have some debriefing in the aftermath of their participation in Hurricane Katrina. The take-away impression your editor got was that this debriefing was both positive and constructive. It was positive, in that recognition was given for what indeed worked. It was constructive, in that ideas were presented for future emergency situations, including the incorporation of newly developed equipment and technology.

Other items of interest to me were the many emergency vehicles and trailers on display. One that caught my attention was a former FEMA trailer that the husband and wife team of Richard, KB4BSA, and Christi, KB7BSA, Mentone modified to be a communications trailer. Other emergency communications vehicles present were from Alabama Homeland Security, Alabama

Baptist Disaster Relief, The American Red Cross, The Salvation Army and the Tennessee Emergency Communications Association.

Many of the participants agreed that the conference was most beneficial and that a similar conference should again take place in the days preceding the next Huntsville Hamfest.

Queen Wilhelmina Hamfest

Representing *CQ* and *CQ VHF* magazines, your editor was pleasantly surprised at the large attendance at the Queen Wilhelmina Hamfest in Mena, Arkansas in early September. Held at the campground and the nearby lodge, approximately 1300 participants came from nearby states despite threatening weather and near-zero visibility fog on both mornings. Representatives from ICOM displayed their wares, including a working D-Star repeater. Also present were Arkansas Congressman Mike Ross, WD5DVR, and ARRL Lab Manager, Ed Hare, W1RFI.

If you live in the area of Mena, Arkansas, I would urge you to make your plans to attend next year's hamfest, which is held annually on the first Friday and Saturday following Labor Day. For more information, see the website: <http://www.qwha.org>.

Current Contest

The second weekend of the **ARRL 50 MHz to 1296 MHz EME Contest** is November 24–25. For contest rules, please see the September issue of *QST* or <http://www.arrl.org>.

Current Meteor Showers

The *Leonids* is predicted to peak around 0250 UTC on November 18. However, unlike recent showers, this year's peak may go largely unnoticed. For more information on this meteor shower, see Tomas Hood, NW7US's "Propagation" column. Also visit the International Meteor Organization's website: <http://www.imo.net/calendar/2007/>.

And Finally . . .

In my ongoing effort to bring amateur radio into the classroom within the Tulsa Public School system, I continue to wear two hats, that of pastor of Sheridan Avenue United Methodist Church, whose congregation is a ministry partner with Hamilton Middle School, and that of editor of *CQ VHF* magazine and your column editor here in *CQ*.

My congregation is not the only faith-based organization that is an education partner with Hamilton. Hope Unitarian Church is also an education partner. Recently, I had the opportunity to meet the Hope Unitarian Church pastor, Jack Bryant, N5RBI. Jack and I have become fast friends via our common hobby. In our newfound friendship we have found ways in which our congregations can cooperate in supporting Hamilton.

I am telling our story here to encourage you to consider becoming an education partner with your local school. Whatever your affiliation, you can become an education partner. Along with two other congregations, several businesses and the Tulsa Air and Space Museum are education partners with Hamilton. It is through our education partnership with Hamilton that several other community doors have been opening to us. I will be writing more about these in future columns. Among them will be a report on my attending the Western Regional Space Grant Consortium meeting in Oklahoma City at the end of September.

One unique opportunity that I will mention here came by way of my wife Carol and me attending the Hamilton football games. As some of you know, Carol has been blind since birth. In order for her to enjoy the game, I gave a crude play-by-play coverage of it. Fortunately (or unfortunately, depending on how one looks at it), the principal and assistant principal overheard me. They asked me if I wanted a job, that of doing the play-by-play announcements from the press box during the forthcoming home games. I agreed to do so, but only after serving a brief apprenticeship under Carol's brother, Don King, who is a local radio sports personality. My apprenticeship consisted of watching Don do the on-the-air play-by-play announcing for one of the high schools here in Tulsa.

There is something to the saying that you can disconnect the microphone from the radio, but you cannot remove the microphone from the dedicated ham radio operator's cold, dead hand. Such must be my case.

The moral of this story is: Should you choose to become an education partner with a local school, be prepared for any unexpected opportunities to display your skills—or in my case, the lack thereof. Whatever you might get yourself into, I will be ready to publish your story, either in this column or as an article in *CQ VHF* magazine. I look forward to hearing from you in the near future.

Until next month...

73 de Joe, N6CL

contesting

BY JOHN DORR,* K1AR

A View of Contesting in 2107

November's Contest Tip

Check for noise sources around your house. Over the years I've discovered a number of them that do not "destroy the bands" but create frequency-specific QRM, usually where you want it the least. In my case, examples have included laptop power supplies, keyer power supplies, under-cabinet halogen kitchen lamps, etc. Don't put yourself at a competitive disadvantage. Find and eliminate noise sources in your own house. Some of them might be sitting right on your operating desk.

Recently I decided to put in some operating time in the Worked All Europe contest. I've always had some affection for that contest because it's a great one to operate from my part of the world. It has been a part of my annual contest experience since the beginning. And, yes, despite the fun I've had with the contest over the years, I'll be the first to admit that I don't get the QTC ("How many messages have you to send?") concept and really don't like it.

For some reason, as I operated I found myself reflecting on the changes in contesting over the years (you get a lot of spare time to reflect while operating in the solar cycle minimum with small antennas). Although I don't have the insight of some of the real old timers, I marvel at the enormous differences in the "contesting model" of today when compared to 30-plus years ago.

When I started contesting in 1969, the world had not even invented the personal computer, much less integrated it as an essential part of a contest station. We didn't have digital VFOs, memory keyers, electronic voice recorders, digitally controlled rotators, computer-controlled amplifiers and antenna switching, packet radio, or interference with our neighbor's entertainment systems that replicate the local movie theater! It was a simpler world for the casual or serious contester.

Today, contesting is largely influenced by the availability of technology. It's been that way for at least 25 years, if not more. Few contesters, for example, use paper logs anymore. In the last CQ WW DX Contest, paper logs accounted for only 0.5% of the total submissions! Thus, we know the contesting world of today, but what about the future, the future around the year 2107? Why the year 2107? I don't know exactly, except that 100 years from now seems to be a good number and there is 100% assurance than anyone reading this column today (or writing it) will not be around.

All kidding aside, many contesters feel that it is conceivable that not only will ham radio contesting disappear by 2107, but so will the hobby itself, as we know it. I tend to take the optimistic view, however, and have fun thinking about how different it might be.

*2 Mitchell Pond Road, Windham, NH 03087
e-mail: <K1AR@contesting.com>

Calendar of Events

All year	**CQ DX Marathon**
Oct. 20–21	JARTS WW RTTY Contest
Oct. 20–21	ARCI Fall QSO Party
Oct. 20–21	Worked All Germany Contest
Oct. 20–21	W/VE Islands QSO Party
Oct. 21–22	Illinois QSO Party
Oct. 27–28	**CQ WW SSB Contest**
Oct. 27–28	ARRL EME Contest
Nov. 3–4	Ukrainian DX Contest
Nov. 3–5	ARRL CW Sweepstakes
Nov. 10–11	Worked All Europe RTTY Contest
Nov. 10–11	JIDX SSB Contest
Nov. 10–11	OK/OM DX Contest
Nov. 10–11	Kentucky QSO Party
Nov. 17–18	LZ DX Contest
Nov. 17–19	ARRL SSB Sweepstakes
Nov. 24–25	**CQ WW CW Contest**
Nov. 24–25	ARRL EME Contest
Nov. 30–Dec. 2	ARRL 160M Contest
Dec. 8–9	ARRL 10 Meter Contest

For starters, in 2107 none of us contesters will be around. This means that all of our efforts in recruiting contest operators hopefully will have paid off with a new group of enthusiastic competitors.

I think that we can barely imagine the layout of ham shacks in 2107. My guess is that the only similarity to today will be the fact that no one will yet have figured out how to make a reliable rotator that costs under $1000 (in today's dollars)! The radio of 2107 will be much simpler and easier to use. Most of the features we employ today will either be irrelevant or encapsulated in the computers and emulation packages.

There will, indeed, be the emergence of the radio and computer combination. Sales outlets will be advertising the "new $20,000 compuradio—your link to the world of amateur radio."

The environment of the early 22nd century will be QRM-free. Traditional contest QSOs will be replaced with the concept of "linking up" as receivers and transmitters intelligently scouring the bands looking for one another to work. In many respects, the skill of contesting will have transformed into strategy and knowledge of propagation rather than copying weak signals in the noise.

Receivers, in fact, will have become so sophisticated that many of the features we demand now will not be needed at all! You won't need an RIT, because everyone will always call you perfectly on your frequency as executed by the computer portion of your "compuradio" system. The contest computer will, of course, exceed the power of today's super-computers. Indeed, your contest computer actually will be totally integrated with the same device that controls your house and other aspects of life.

The logistics of contest meals will be a breeze in 2107, as pre-packaged, ARRL-approved contest meal kits (customized for geographic differences)

will be prepared and waiting for you as the weight of the contest wears you down.

The children of today's Win-Test software programmers will be carrying forward their dad's tradition as Win-Test Release 23.01 (small bug in 23.00) starts to ship. Speaking of large crowds, the Dayton Hamvention® will have grown to larger proportions than we see today, as the hobby sees a resurgence of interest driven by technology. The flea market will remain mostly as it is today—50 rows of computer equipment and a single table of used R4Cs near the exit. With contest popularity at an all-time high, the traditional contesters' hospitality suite will be replaced by a three-day contest dinner, as a ceremonial cutout of K1AR is placed in front of the room.

Also, there is the matter of contest scores and clubs. Contest clubs in 2107 will still exist but will have changed dramatically in character. The Yankee Clipper Contest Club will be celebrating its 133rd consecutive win in the CQ WW club competition. The Potomac Valley Radio Club, on the other hand, will have evolved into the Mid-Atlantic Regional Computer Club (replacing the current Maryland Computer Society).

Nevertheless, clubs and individuals will continue to submit scores. Of course, the results will be processed and communicated within seconds after the close of the contest. In 2107 there will be over 700 DXCC countries, so the establishment of record scores will continue. It is expected that there will be as many as 50 DXpeditions involving scaffolding on random rocks around the globe that will fuel multiplier totals in every contest. Hard copies of contest results will be available, albeit collector's items. Because of the ever-growing popularity in contest operating and the high scores, any single-operator score under 20-million points will be listed as a check log.

With the advancement of technology, the CQ WW Contest Committee and ARRL Communications Department will become obsolete. Now, all attempts to modify your compuradio's firmware to transmit simultaneously as a single operator on two or more bands or utilize packet spots will easily be detected and dealt with accordingly.

Finally, through the miracle of modern medicine, Tim Duffy, K3LR, will break all geriatric records and still be alive in the year 2107 at the ripe old age of 148, building yet another 200-foot tower at his multi-multi station in Pennsylvania. At last count he would be up to 306 towers, taking into account his current status. Tim's Dayton "Contest University" will be run over the internet, and in fact, there will be one that can be viewed from the comfort of your compuradio during every contest.

Well, so much for the view of contesting in 2107. In fact, most of the fun this month is a little far-fetched. The future of contesting is a matter I have dealt from a variety angles over the past few years. On a more serious note, what do you think about the future of contesting? I would love to hear your views. If you feel so inclined, send them along to me.

Final Comments

Next month I'm going to report on a little surprise that took place among a great group of contest friends. Stay tuned for more in just a few weeks. Until then, see you in the next contest!

73, John, K1AR

The WPX Program

CW

None

SSB

None

CW

None

CW: 2050 7K3QPL.
SSB: 1950 DL8AAV.
Mixed: 500 K3JHT.

80, 40, 20, 15, 10 meters: 7K3QPL

Asia: 7K3QPL
Europe: 7K3QPL
N. America: 7K3QPL
S. America: 7K3QPL

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, KBØG, 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, WX3N, 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.

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, KBØG, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YBØTK, K9QFR, W4UW, NXØI, WB4RUA, I1EEW, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, YU1AB, IK4GME, WX3N, 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.

Complete rules and application forms may be obtained by sending a business-size, self-addressed, stamped envelope (foreign stations send extra postage if airmail desired) to "CQ WPX Awards," P.O. Box 355, New Carlisle, OH 45344 USA. Note: WPX will not accept prefixes/calls which have been confirmed by computer-generated electronic means. *Please Note: The price of the 160 meter bar for the Award of Excellence is $6.50.

5 Band WAZ

As of September 1, 2007, 735 stations have attained the 200 zone level and 1561 stations have attained the 150 zone level.

New recipients of 5 Band WAZ with all 200 zones confirmed:
NN1N

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

N4WW, 199 (26)
W4LI, 199 (26)
K7UR, 199 (34)
W2YY, 199 (26)
IK8BQE, 199 (31)
JA2IVK, 199 (34 on 40m)
IK1AOD, 199 (1)
DF3CB, 199 (1)
GM3YOR, 199 (31)
VO1FB, 199 (19)
KZ4V, 199 (26)
W6DN, 199 (17)
W3NO, 199 (26)
HB9DDZ, 199 (31)
RU3FM, 199 (1)
N3UN, 199 (18)
OH2VZ, 199 (31)
W1JZ, 199 (24)
W1FZ, 199 (26)
SM7BIP, 199 (31)
SP5DVP, 199 (31 on 40)
N4NX, 199 (26)
N4MM, 199 (26)
EA7GF, 199 (1)
N6HR/7, 199 (37)
JA5IU, 199 (2)
NØIJ, 199 (21)
RU3DX, 199 (6)
N4XR, 199 (27)
WØPGI, 199 (26)
HA5AGS, 199 (1)
EA8AYV, 199 (27)
VE3XN, 199 (26)
YU7GMN, 199 (10)
K7LJ, 199 (37)
RA6AX, 199 (6 on 10m)
RX4HZ, 199 (13 on 80m)
KG9N, 199 (18)
EA5BCX, 198 (27, 39)
G3KDB, 198 (1, 12)
JA1DM, 198 (2, 40)
9A5I, 198 (1, 16)
K4CN, 198 (23, 26)
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)
OE2LCM, 198 (1, 31)
HA1RW, 198 (1, 31)
WK3N, 198 (23, 24)
W9XY, 198 (22, 26)
KZ2I, 198 (24, 26)
W7VJ, 198 (34, 37)
WØCP, 198 (18, 40)
K9MIE (18, 21)

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

J68AS (152 zones)

5 Band WAZ updates:

None

****Please note: Cost of the 5 Band WAZ Plaque is $100 ($120 if airmail shipping is requested).**

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, 17 Green Hollow Rd., Wiggins, MS 39577. 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 tower in the center of this photo was rebuilt earlier this year and topped with a 3.5-MHz OptiBeam. Mike, KH6ND, says this is the site of former KH6XX and KH7R operations. It now belongs to Alex, KH6YY. Look out for some big signals this contest season. (Photo courtesy of KH6ND)

The WAZ Program

6 Meters

82.....W4UM

20 Meter SSB

1166.....W4VIC

160 Meters

249.....LA3MHA

All Band WAZ

Mixed

8468.....9A3ST
8469.....K6TV
8470.....JA2FRC
8471.....NN1N
8472.....4X6KF
8473.....ES1GO
8474.....SM5RN

SSB

5043.....W7CT
5044.....KF4MH
5045.....W4VIC
5046.....JA7ANQ
5047.....DH7SA
5048.....7K3OWM
5049.....DM1DK

CW

521.....DM3FZN
522.....K3STX

RTTY

175.....N7MQ
176.....KF4MH
177.....W7CT

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, 17 Green Hollow Rd., Wiggins, MS 39577. 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>.

Radioexperimentadores), says that the previously announced DXpedition will be a month long, from November 15 to December 15. The callsigns 6E4LM and XF4YK have been requested. Operators will focus on 160 and 6 meters, where they feel XF4 is most needed. They will be on all bands with a goal of at least 25,000 QSOs.

Operating Events

The contest season has already started. The CQ WW DX Contest is half over now, the SSB portion history, but the WW DX CW is yet to come at the end of November. It is one of my favorites. Lots more events follow that, with the ARRL 10 meter contest, CQ WW 160 Meter Contest (CW January 2008 and SSB February 2008), the ARRL DX tests, and many others from which to choose. If you can't find one that suits you, well, I don't know what to say, because there

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 337 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

K9BWQ 336	WB4UBD 336	PY2YP 335	NC9T 334	N5ZM 333	G3KMQ 329	N7WO 325	CT1YH 320	KT2C 300
N7FU 336	K9MM 336	N6AW 335	W2VJN 334	K8LJG 332	N5HB 329	YV5ANT 324	YT1AT 317	K4IE 291
N4JF 336	N5FG 336	K4JLD 335	G4BWP 334	K5RT 332	K1HDO 329	KE3A 323	W6YQ 315	G3DPX 284
K4IQJ 336	K4CN 336	K9OW 335	W1JR 334	YU1AB 332	K7JS 329	KF8UN 323	UA9SG 310	DJ1YH 281
K2TQC 336	W7CNL 336	K2JLA 334	I4LCK 334	HB9DDZ 332	W6OUL 329	F6HMJ 323	W9IL 309	XE1MD 280
K2FL 336	W8XD 335	F3AT 334	K9IW 334	K3JGJ 332	W7IIT 328	IKØTUG 321	EA3ALV 309	WD9DZV 277
N4MM 336	F3TH 335	WA4IUM 334	K7LAY 334	VE3XN 331	KA3S 328	W3II 320	WA4DOU 309	W2JLK 277
K4MQG 336	W4OEL 335	EA2IA 334	N4AH 334	K2JF 331	SM5HV/HK7 327	IKØADY 320	YU7FW 306	
N7RO 336	N4CH 335	PA5PQ 334	WØHZ 333	WA8DXA 331	K6CU 326	WG5G/QRPp 320	LU3DSI 302	
W7OM 336	WØJLC 335	K3UA 334	W4MPY 333	K8SIX 331	W4LI 325	F5OIU 320	N1KC 302	
K2OWE 336	OK1MP 335	DL3DXX 334	K5UO 333	W2UE 330	N4OT 325	PY4WS 320	RA1AOB 300	
NØFW 336	K4CEB 335	K2ENT 334	KA7T 333	W4UW 329	K1FK 325	OZ5UR 320	VE7KDU 300	

SSB

K6YRA 337	XE1AE 337	K2JLA 335	I4LCK 335	WA4WTG 334	CT1AHU 331	HB9DDZ 326	W6NW 314	K7SAM 300
IK1GPG 337	N5FG 337	IK8CNT 335	ZL1HY 335	4N7ZZ 333	EA3JL 331	YV4VN 326	WØROB 313	YC9WZJ 300
K5TVC 337	DU9RG 337	OE7SEL 335	W4UW 335	VE1YX 333	K1HDO 331	WR5Y 325	EA3ALV 313	WA1ECF 295
NØFW 337	PY2YP 337	VE3MR 335	W2FKF 335	W2JZK 333	K7HG 331	KC4MJ 325	W7GAX 312	KW1DX 295
KZ2P 337	N6AW 337	VE3MRS 335	VE2GHZ 335	K8LJG 333	K3LC 331	PY2DBU 325	KA1LMR 312	W4EJG 295
K4MZU 337	OZ5EV 337	ZL3NS 335	AB4IQ 335	VE4ACY 333	AE5DX 330	YT1AT 325	WA5MLT 310	XE1MW 293
N4JF 337	K4JLD 337	K7JS 335	W7FP 335	VE2WY 333	KB2MY 330	KE4SCY 325	RW9SG 310	K1RB 292
W4WX 337	OZ3SK 337	YU1AB 335	W7BJN 335	WB3DNA 333	K3PT 330	K6GFJ 324	XE1RBV 310	W9ACE 291
K2TQC 337	K9BWQ 336	PY4OY 335	WDØBNC 334	K9PP 333	WS9V 329	KD5ZD 324	IØYKN 310	W5PVE 288
K5OVC 337	WB4UBD 336	VE3XN 335	WØYDB 334	DL3DXX 333	W9OKL 329	W6WI 323	AA1VX 308	KKØDX 285
W6BCQ 337	K2FL 336	IØZV 335	W4NKI 334	EA3EQT 333	W2FGY 329	EA3CYM 323	KK4TR 306	VE7HAM 285
DJ9ZB 337	W8AXI 336	EA2IA 335	OE2EGL 334	YV1KZ 333	CT1CFH 329	WA4ZZ 322	WB2AQC 305	N8LIQ 284
W6EUF 337	VE2PJ 336	IN3DEI 335	WA4IUM 334	KE3A 333	EA1JG 329	WN9NBT 322	K3BYV 303	WØIKD 283
K4MQG 337	W3AZD 336	EA4DO 335	K5RT 334	ZL1BOQ 333	W9IL 329	W6OUL 322	JR4NUN 303	KBØRNC 282
N7BK 337	OK1MP 336	PA5PQ 335	W6SHY 334	YV1AJ 332	F6HMJ 329	CT1ESO 321	YV2FEQ 303	XE1MEX 282
N4MM 337	EA3BMT 336	XE1VIC 335	W5RUK 334	KSØZ 332	KF8UN 328	KD2GC 321	KU4BP 303	IK8TMI 281
XE1L 337	K9HQM 336	K2ENT 335	EA3KB 334	LU4DXU 332	WØULU 328	SV3AQR 321	VE7KDU 302	F5INJ 279
4Z4DX 337	W9SS 336	IK6GPZ 335	K3UA 334	VE4ROY 332	K1EY 328	N1KC 320	W5GZI 302	WD9DZV 278
W6DPD 337	KE5K 336	NC9T 335	AA4S 334	CT1EEN 332	K4DXA 328	W5GZI 320	W4PGC 302	W5GT 276
N4CH 337	K3JGJ 336	K1UO 335	CT3DL 334	N2VW 332	LU5DV 328	KD2GC 320	N2LM 302	HSØ/EA4BKA 276
N7RO 337	W4UNP 336	I8KCI 335	VE7WJ 334	K5UO 332	N1ALR 328	LU3HBO 317	AC6WO 301	K9DXR 275
K7LAY 337	N5ZM 336	I8LEL 335	YZ7AA 334	N7WR 332	XE1MD 327	WB4GMR 317	4X6DK 301	AD7J 275
W7OM 337	K8SIX 336	DU9RG 335	CT3BM 334	DL9OH 331	DK5WQ 327	N8SHZ 316	4Z5FL/M 301	
OE3WWB 337	K4CN 336	DU1KT 335	WS9V 334	YV1JV 331	CP2DL 327	XE2NLD 315	N5WYR 300	
K9OW 337	VK4LC 336	CT1EEB 335	W2CC 334	K3JGJ 331	NI5D 327	VE7SMP 315	K4IE 300	
K9MM 337	KØKG 336	W1JR 335	K9IW 334	N5ORT 331	K7TCL 326	IZ6CST 314	RA1AOB 300	

RTTY

WB4UBD 334	NI4H 333	N5FG 331	N5ZM 324	EA5FKI 320	PA5PQ 311	K8SIX 300	W4EEU 297	K4CN 283
K2ENT 333	K3UA 332	G4BWP 325	OK1MP 323					

The "cable room" at K4SV. It looks like something in a commercial radio installation. Dave is a real "stickler" for doing things right with all the lightning protection he can build into his station in the North Carolina mountains. (Photo courtesy of K4PZT)

is something for everyone from 160 meters all the way through VHF/ UHF. There are stateside QSO parties, EME and RTTY contests, and the list just goes on. The "Contesting" column by K1AR in each issue of *CQ* will give you the list of who, what, and when. When the contests are on the air, the DX is there for the taking.

The Challenge

After the BS7H DXpedition, I began to hear from a lot of folks who said, "That's it. I've got 'em all now." Well, I'm curious as to just how many DXers can now lay claim to that statement. I'm sure there are still a lot of folks who need one or more on some mode or band. What happens to a DXer when he or she has "worked 'em all"? Is that all there is? Is there still a challenge? If you have worked all 337 entities mixed mode, is that enough? Do you still have the desire, the drive, to go for 337 on CW and/or phone, knowing that it might not happen in your lifetime? What do you do in the meantime, while you are waiting for something to happen to allow an operation from North Korea so you can get a CW contact? Will Yemen ever allow an operation suitable for credit?

Wow! That's a lot of questions, but then again, someone has to ask them. Are there any answers? Comments?

Most Wanted Survey

The DX Magazine annual 100 Most Wanted Country Survey

CQ DX Awards Program

SSB

2504 .....SV3GKT 2505.....EA2BCJ

CW

1083.....K5QK

SSB Endorsements

330 .....K4JLD/337
330 .....OZ3SK/337
330 .....OZ5EV/337
330 .....VK4LC/336
330 .....KØKG/336
330 .....W7BJN/335
330 .....AB4IQ/335
330 .....W7FP/335
330 .....VE2GHZ/335

CW Endorsements

330.....W7CNL/336
330 .....K4JLD/335
320 .....CT1YH/320
310.....W6YQ/315
300 .....WA4DOU/309
150.....K5QK/150

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. Currently we recognize 337 active countries. Please make all checks payable to the award manager.

was conducted in September/October. This is one of the most widely accepted surveys used by DX foundations, clubs, and other groups who fund DXpeditions. It is also widely accepted by DXpeditioners looking for a productive place to go. This survey began back in 1989 and has continued each year since then, gaining in popularity each year. A web-based format was created a few years ago and has proven to be very popular around the world. The results are broken down by continent, including the four time zones for North America. A further breakdown by mode is also available. This gives DXpeditioners information they can use to establish operating schedules to provide those precious contacts with the areas of the world where they are most needed and also on the modes most needed. The overall results will be posted to the internet site <http://www. dxpub.com> in mid-January. The full breakdown is published in the January/February and March/April issues of *The DX Magazine*.

QSL Information

B4X via BA4XA
B4XA via BA4XA
BA4VE/4 via BA4VE
BA4XA/4 via BA4XA
BA4XYL/4 via BA4XA
BD1DRJ/3 via BD1DRJ
BD4XA via BA4XA
BD4XYL via BA4XA
BG4XAA via BA4XA
BI4F via BA4XA
BI4N via BA4XA
BV2FA via DJ9ZB
BX3AC via G3SWH
BY1QH/G3SWH via G3SWH
BY4XSL via BA4XA
C21RH via VK4AAR
C3ØLY via DJ9ZB
C31LY via DJ9ZB
C56C via G3SWH
C56VZ via G3SWH
C5ACO via K4YT
C5Z via K6VNX
C6A/G4VXE via G3SWH
C6AWF via G3SWH
C91J via NI5DX
C91VB via UA4WHX
C91VB/4 via UA4WHX
C9RJJ via NI5DX
CEØFQU via DJ9ZB
CEØY via K6VNX
CJ7EWK/3 via WD9EWK
CM6CAC via EA5KB
CN8LI via ON4IQ
CN8LI/B via ON4IQ
CO2WF via N1KI
CT3/DL1YFF via DL1YFF
CU2/EA1FCH via EA1FCH
D20VB via UA4WHX
D68C via G3SWH
DC1DT via DK3DM
DJØPX via K4YT
DJ9ZB via DJ9ZB
DK1CE/H44 via DJ9ZB
DK1CE/KH8 via DJ9ZB
DL4ØRRDXA via DL1YFF
DL4YT via K4YT
DM4A via DL1YFF
DP4K via DK3DM
DQ3M via DK3DM
DR8ØAMA via DK3DM
DU1ZB via DJ9ZB
DU9ZB via DJ9ZB

(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>.)

The Holy Grail of DXing, the ARRL Honor Roll plaque.

And Finally . . .

Rumors abound as we look forward to the new solar cycle. It sometimes takes years to put together a major DXpedition to some of those *very* rare places such as Heard Island, Bouvet, or the French Islands off the east coast of Africa—Crozet, Glorioso, Amsterdam, Kerguelen, Tromelin, etc. Sure I've heard the rumors, but they are just that, *rumors*. I'm not going to say anything until I get some "official" notification that an operation is going to be attempted. I can't remember who once said, "loose lips sink ships," but the same applies here. An offhand comment in the wrong place could easily kill an opportunity for an operation to happen, so don't look for things such as that from me, as it won't happen.

Until next time, enjoy the chase, Have Fun, and I'll see you in the pile-ups along the way. Oh, by the way, I can say, "That's it. I've got 'em all now." Well, Mixed anyway! 73, Carl, N4AA

awards

BY TED MELINOSKY,* K1BV

Short-Term and DX Awards

If you've wondered why a group of W1 and W2 stations are signing their calls with the suffix /30, you have heard some of the many members of the Yankee Clipper Contest Club helping to publicize the club's 30th anniversary. A beautiful certificate is offered at no cost. You may have some of these stations in your log already and have until the end of 2007 to complete the ten contacts needed. I'm an active member of the club and am, shall I say, a "small gun," but have fun anyway.

Short-Term Award

YCCC 30th Anniversary Award. The Yankee Clipper Contest Club is celebrating its 30th year of competing in the unlimited club contest category from the northeastern U.S. Now having close to a membership count of 400, the club has steadily been growing since its inception (1977). It offers the following on-the-air fun event for both its own members as well as fellow contesters worldwide.

YCCC members are signing their calls with the suffix /30, indicating the 30-year anniversary. A special certificate will be provided after confirming contacts with at least ten members. This confirmation and request for the special certificate can be done via e-mail at <yccc30@gmail.com>. Please send a list of contacts and indicate the date, time, frequency, callsign of the members, along with your mailing address. QSL cards may be used to confirm these contacts as well by sending them to Dave, W1CTN, who is administering the program (see address below). There is no charge for the award.A complete list of YCCC members can be found at <www.yccc.org>, and then click on "Members Only" and follow the directions to enter the site (open to all). Look up "roster" for the complete list of members active in the YCCC.

Requests for a certificate should be submitted no later than February 1, 2008. QSLs may be sent to David Arruzza, W1CTN, 32 Benz Street, Ansonia, CT 06401.

*12 Wells Woods Rd., Columbia, CT 06237
e-mail: <k1bv@cq-amateur-radio.com>

The Yankee Clipper Contest Club's 30th Anniversary Award is available for contacts through the end of 2007.

USA-CA Special Honor Roll

James Emery, K4AMC
USA-CA All Counties #1153
July 27, 2007

Lowell S. Tennyson, KBØBA
USA-CA All Counties #1154
August 1, 2007

Eugene Cummings, WB4KZW
USA-CA All Counties #1155
August 6, 2007

William Nowicki, NS4C
USA-CA All Counties #1156
August 22, 2007

USA-CA Honor Roll

500
K4AMC....3410
S50O.....3411
KBØBA 3412
WB4KZW 3413
KØRCJ.....3414
NS4C.....3415

1000
K4AMC....1735
S50A 1736
KBØBA 1737
WB4KZW 1738
KØRCJ.....1939
NS4C.....1740

1500
K4AMC....1455
KBØBA 1456
WB4KZW 1457
KØRCJ.....1458
NS4C.....1459

2000
K4AMC....1347
KBØBA 1348
WB4KZW 1349
NS4C.....1350

2500
K4AMC....1267
KBØBA 1268
WB4KZW 1269
NS4C.....1270

3000
K4AMC....1177
KBØBA 1178
WB4KZW 1179
NS4C.....1180

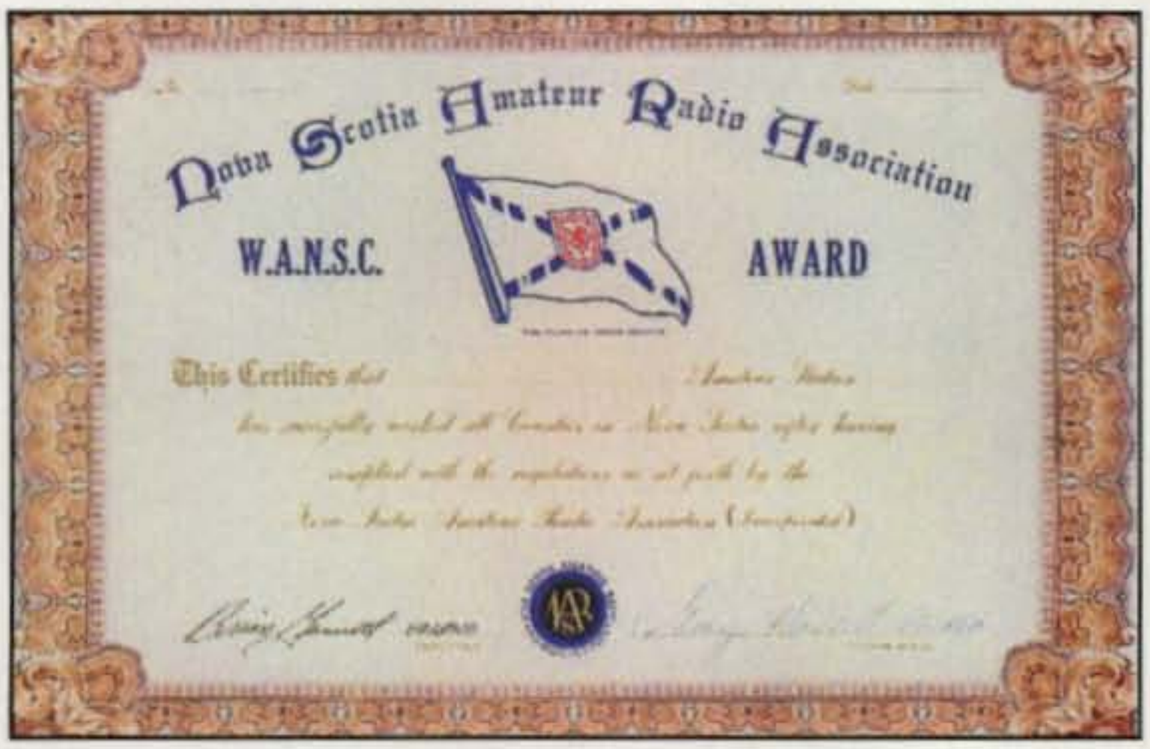
Correction: In the August awards column, the correct USA-CA award issued to HB9AUS should have been shown as #3407.

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

Worked All Nova Scotia Counties Award. The Nova Scotia ARA of Canada offers this award for contacting each of the provinces' 18 counties on or after September 11, 1993. Note that only contacts with fixed or portable operations count for the award. While makes the award more difficult to achieve, there is no charge for the certificate.

The basic award is for mixed modes, HF bands only. Stations making a "clean sweep" in the NSARA contest each March will also qualify for the award without submitting QSL cards. Endorsements



Contact each of the 18 Nova Scotia, Canada counties to earn the Worked All Nova Scotia Counties Award.

are available for single mode. Actual cards must be submitted and a certificate and your cards will be returned postpaid by NSARA. Only base-station to base-station contacts count. Portable operation contacts are accepted, but not mobile. Send the 18 cards plus the official application form to: Awards Chairman, 279 Pumping Station Rd., Brookdale, NS, B4H 3Y3, Canada. Internet:<http://www.auracom.com/nsara/wansc.htm>; e-mail:<jhannon@cumberlandcounty.ns.ca>.

Nova Scotia counties: Annapolis, Antigonish, Cape Breton, Colchester, Cumberland, Digby, Guysworth, Halifax, Hants, Inverness, Kings, Lunenberg, Pictou, Queens, Richmond, Shelburne, Victoria, and Yarmouth.

Isle of Wight County Award. The Isle of Wight lies in the English Channel just off the southern coast of England across from Cherbourg, France. It is a popular vacation destination known for its 500 miles of foot paths, biking, historic farms, thatched villages, coastal trails, and woodlands. It was also Queen Victoria's favorite seaside home. The requirements of the award are modest, and if you check out your QSL collection, you may already have fulfilled them.

The award is sponsored by the Brickfields ARS for contacts with Isle of Wight stations on or after January 1, 1985. SWL okay. The headquarters stations referred to in the rules are GØBAR and GXØBAR.

HF: Contact five stations on the Isle plus one contact with a headquarters station of BARS.

VHF/UHF: Contact ten stations plus one contact with the headquarters station of BARS.

Packet: As above, appropriate to band.

Send GCR list and fee of UK£3.25 or $US5 to: Awards Manager, Brickfields ARS, Newnham Road, Binstead, Ryde, Isle of Wight, England PO33 3TH. Internet: <http://www.b-a-r-s.org.uk/page6.html>

Italian Castles Award. Let's just say that there are a lot of castles in Italy. In the rules below, I have omitted the references that provide endorsements from 2000 and up to the 6000 castle level. You can discover these on your own if you aspire to this level! Thankfully, the beginning level for this handsome certificate requires contacts with 20 castles, which may be difficult, but is doable for North American stations.

The award is issued by the Section A.R.I. of Mondov (Cuneo) to publicize castles and the geography and history of Italy. SWL okay. The applicant must contact and confirm castles as follows:

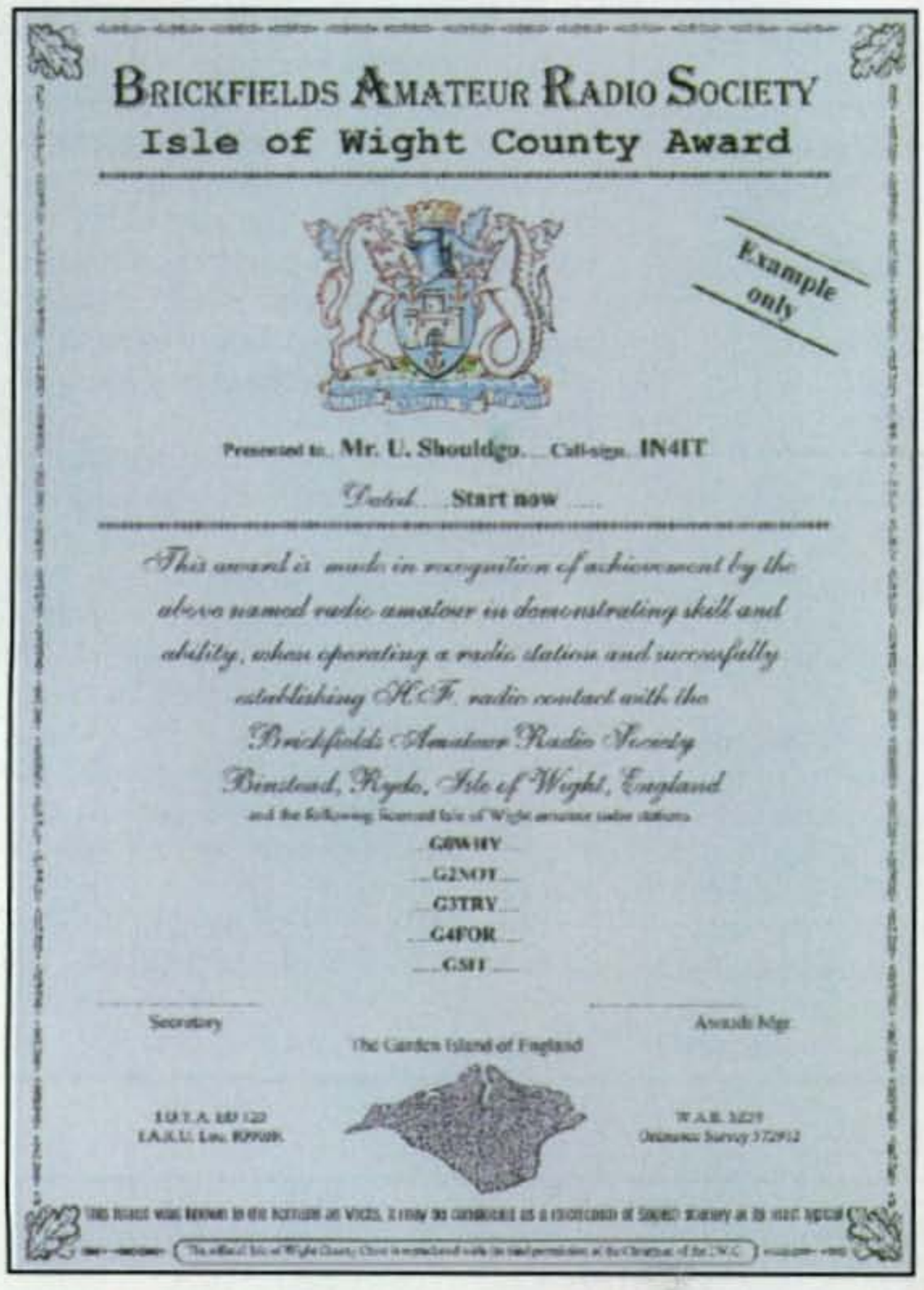
HF: Italian stations need 30 Italian castles in at least 5 different regions. All others need 20 castles in at least 5 different regions.

VHF (6 meters and up): Italian stations need 10 castles in at least 2 different regions.

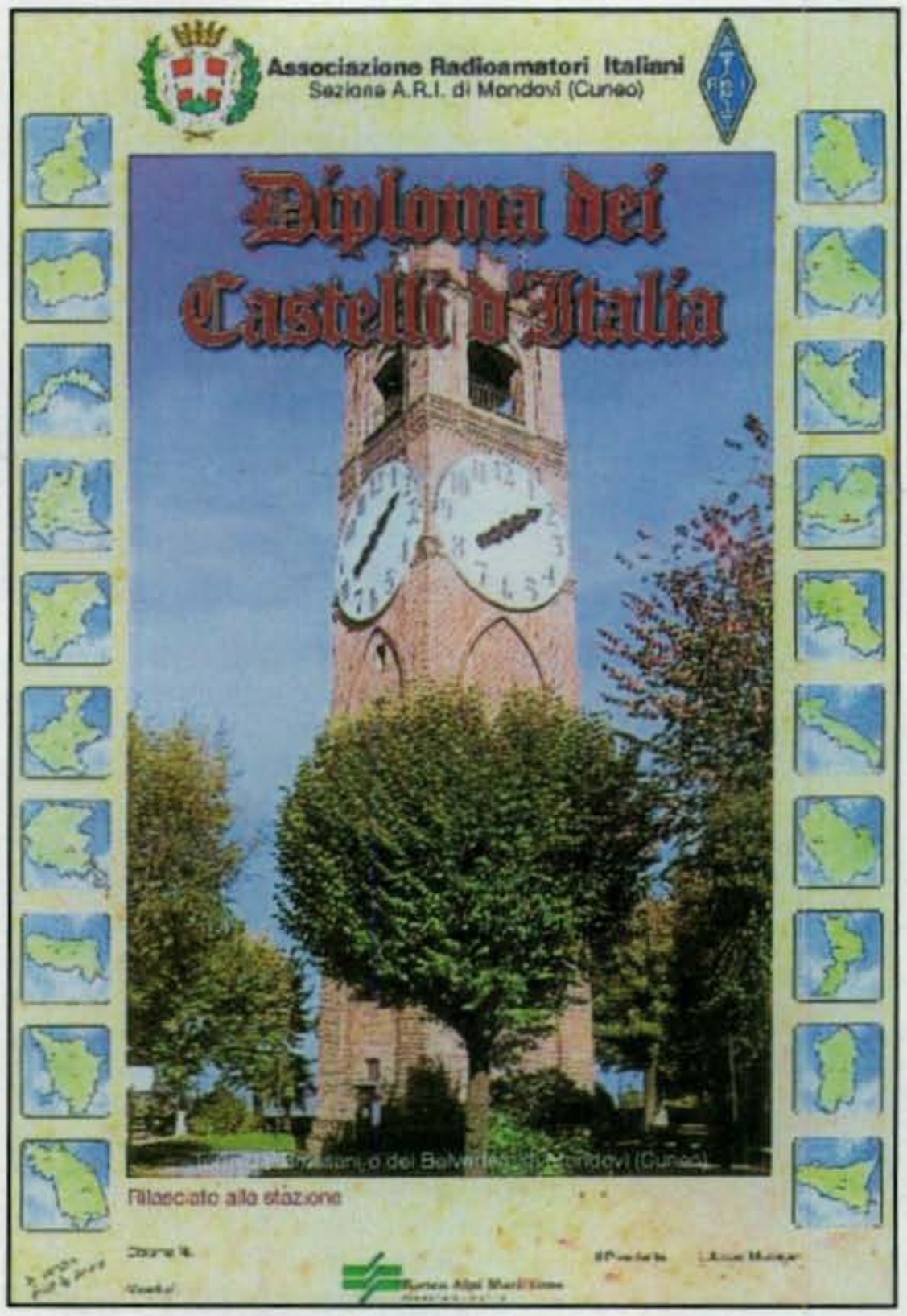
Honor Roll: Contact and confirm 1000 different castles in at least 100 provinces.

One contact with a castle in the Province of Cuneo is required for the HF award. All bands, from 2 to 160 meters, and SSB, CW, and RTTY modes are valid. No endorsements for all one mode or band. Contacts are considered valid after January 1, 2001.

Send GCR list with all QSO details plus the name of the castle *and the actual card.* The cards may be validated by sending them to a checkpoint in



The Isle of Wight County Award is sponsored by the Brickfields ARS.



Contact castles in Italy to achieve the Italian Castles Award.

The Olsky Biosphere State Nature Reserve Award commemorates the 70th anniversary of this reserve in Russia.

your country. This list is shown in the online rules. Apply to Award Manager IK1NPP or Technical Award Manager IK1GPG of the Section A.R.I. of Mondov, P.O. Box 4, I-12084 Mondov (Cuneo) Italy.

The award rules and complete list of castles that are valid for the award are available online at <http://www.dcia.it/>. The award fee is $US8 or 8 Euros. Honor Roll 15 Euros for Italians, all others $US15. Endorsements are free. The special application is available for SASE or SAE and IRC.

Oksky Biosphere State Nature Reserve Award. Like many countries, Russia has established a system of national parks and nature reserves to protect wildlife for future generations. This handsome certificate features the critically endangered Siberian Crane, which has been known to live for over 80 years.

The award was established to honor the 70th anniversary the Oksky Biospheric State Natural Reserve with the support of PRIO-Vneshtorgbank of Ryazan. To obtain the award it is necessary for radio amateurs or SWLs to contact the following numbers of stations who are within the borders of the reserve: Russia 10, Europe 5, DX 2.

Contacts are valid on or after January 1, 1997. The same station may be worked for credit on different bands and different modes, and also at different times, but not less than month between each QSO.

Stations valid for the award: UE3SFF, UE3SDA, RA3SX, RC150KTS, RK3SWB, RK50SAB, RN1NU/3, RN3RAM/3, RN6LGX, RU3SD, RU3SO, RU3ST, RV3SFF, RW3SJ, UA3SDX, UA3SDY, and all expeditions UE3SFF/. Send GCR list and fee of 10 IRCs, 6 Euros, or $US8 to Vasily Bardin, P.O. Box 1, Ryazan, 390000, Russia. E-mail: <ru3sd@rrc.ryazan.ru>.

We're always interested in hearing from clubs, special interest groups, and individuals who sponsor an award. You can contact me at the e-mail or snail-mail address shown on the first page of this column. 73, Ted, K1BV

Fair Conditions Predicted for CQ WW DX CW Contest

BY TOMAS HOOD,* NW7US

propagation

Flash!

CQ WW DX SSB Contest Conditions Look Favorable!

Since this issue of *CQ* should reach most subscribers prior to the start of the CQ World-Wide SSB Contest weekend of October 27–28, here is an updated forecast made at press time for the general propagation conditions expected. Based on the 27-day recurrence tendencies of solar and geomagnetic conditions, it continues to look like conditions will be Fair on October 27 and October 28 (using our propagation index of 2). Expect High Normal conditions on HF during the contest weekend.

Daily 10.7-cm solar flux levels are expected to be around 70 during the contest weekend. The geomagnetic planetary *A*-index is expected to be about 15 on the first day of the SSB contest and then 8 on the second day.

A Quick Look at Current Cycle 23 Conditions

(Data rounded to nearest whole number)

Sunspots
Observed Monthly, August 2007: 6
Twelve-month smoothed, February 2007: 12

10.7 cm Flux
Observed Monthly, August 2007: 69
Twelve-month smoothed, February 2007: 77

***Ap* Index**
Observed Monthly, August 2007: 6
Twelve-month smoothed, February 2007: 8

LAST-MINUTE FORECAST

Day-to-Day Conditions Expected for November 2007

	Expected Signal Quality			
Propagation Index.....	(4)	(3)	(2)	(1)
Above Normal: 3-14, 19, 30	A	A	B	C
High Normal:1-2, 15-18, 20-22, 24-26, 28-29	A	B	C	C-D
Low Normal: 27	B	C-B	C-D	D-E
Below Normal: 23	C	C-D	D-E	E
Disturbed: None	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 Nov. 1–2, good (B) on the 3–14, and then fair (C) on Nov. 15–18, and so forth.

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.

The 2007 CQ WW DX CW Contest will start at 0000 UTC Saturday, November 24 and continue until 2400 UTC Sunday, November 25. Expect Fair conditions for the entire contest weekend. With quiet conditions, the contest weekend should provide reasonable propagation consistent with a low sunspot count.

The best tool available to predict HF propagation conditions in advance is the 27-day recurrence tendencies of geomagnetic, solar, and ionospheric conditions. It is not an absolute method, but it does give a very good indication of what is expected. 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 28 and 29, since this would be one rotational period before the CW contest weekend. There is better than a 90-percent chance that conditions observed on those days will recur during the November contest weekend.

See the "Last-Minute Forecast" for additional information concerning expected day-to-day conditions for the entire month of November. An updated day-to-day forecast for the CW contest weekend will appear as a bulletin at the beginning of next month's column. December's issue should reach most subscribers before the CW contest begins. You can also see an up-to-the-day "Last-Minute Forecast" on my propagation resource center at <http://prop.hfradio.org/>.

Table I tabulates the observed sunspot count during previous CQ WW DX Contest periods since 1996, and what's predicted for the 2007 contest. Contest conditions could be somewhat like those of 1996 or perhaps 1997. With the low probability of geomagnetic disturbance during the contest weekend, the lower frequencies should be stable with quiet conditions. The higher frequencies will experience rapid changes and weaker signals.

CW Contest Tips

Overall, expect good conditions on 20 meters during most of the daylight hours. For stations in the lower latitudes, 20 meters will be usable for most of the contest period, well into the hours of darkness.

From sundown to midnight, 40 meters should be the best band for openings toward the east, north, and south. Twenty meters will close in many locations before midnight, while 80 meters will be a hot band with openings into the same areas as for 40.

*P.O. Box 9, Stevensville, Montana 59870-0009
e-mail: <nw7us@hfradio.org>

	1996	'97	'98	'99	2000	'01	'02	'03	'04	'05	'06	'07
October	9	32	71	108	115	114	91	58	36	26	10	15*
November	10	35	73	111	113	116	85	57	35	25	22	16*

**Predicted values expected during the 2007 contest.*

Table I– Smoothed sunspot numbers recorded during CQ World-Wide DX Contests since 1996 (Oct. SSB, Nov. CW).

Between midnight and sunrise the best DX band should be 80 meters, with 40 a close second. Openings on both bands should be possible to most areas of the world, with conditions peaking towards the south and west. Some good 20-meter openings are also expected during this period, mainly towards the south and west. The 160-meter band should wake up, offering some good DX openings, similar to 80 meters but with somewhat weaker signals.

Don't be surprised, though, to find activity on 15 meters from the Southern Hemisphere. However, 10 would not appear to be a useful contest band.

During the contest, be sure to check my propagation page <http://prop.hfradio.org/> for up-to-the-minute conditions. If you have a WAP/WML device, you may gather the latest propagation information, warnings, alerts, and a look at conditions by pointing your WAP device to <http://wap.hfradio.org/>. This is a special URL for wireless access to this free resource.

November Propagation

Last month's column contained a detailed review of conditions expected during October. Let's look at what we can expect this month.

160 meters: Expect an increase in DX openings on this band during the hours of darkness and into the sunrise period. Since we are at the end of Cycle 23 (or perhaps the start of Cycle 24), this season will be quite a bit more favorable for stable conditions on this and the other low bands. This winter season will be reasonably quiet. The combined effect of the decreased static levels and longer hours of darkness in the northern latitudes will make 160 a pleasurable band all winter. During this month's CQ WW CW Contest, participants should experience fair to good scores on this band. Look for openings toward Europe and towards the south from the eastern half of the U.S. and towards the south, the Far East, Australasia, and the South Pacific from the western half of the country. These openings should be strong during the contest period. Remember, 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.

80 meters: This should be a great band for DX openings to many areas of the world during the hours of darkness and into the sunrise period. Eighty meters becomes a reliable long-distance band throughout the entire period of darkness. The band should peak towards Europe and in a generally easterly direction around midnight. For openings in a generally westerly direction, expect a peak just after sunrise. The band should remain open towards the south throughout most of the night. Noise levels will be down considerably from October, and the period for band openings in a particular direction will be a bit longer. Some contest operators may take the challenge of operating exclusively on 80, an exercise in skill and patience. The conditions are expected to be favorable for high scores on this band.

40 meters: Competing with 80 meters, this should be a hot DX band during the hours of darkness, as the seasonal static levels are lower than they were during the summer. Nighttime MUFs (maximum usable frequencies) on some paths could fall below 7 MHz this month, losing some steam until the morning hours. 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. Signals should peak from an easterly direction closer to midnight, and from a westerly direction just after sunrise. Remember, just as with 80 meters, signals tend to peak as the sun rises on the eastern end of a propagation path. Working against the CW operator is the interference that increases when the propagation is excellent.

20 meters: DX openings should be possible on this band mostly during the day and somewhat during the night, depending on the path and the path end points (where you are, and where your contact is). However, because of the shorter daylight hours in the Northern Hemisphere, nighttime path openings will be open for a shorter period this month compared to October, with signal peaks from about an hour or two after sunrise and again during the late afternoon and early evening hours for those paths that may be open. Don't forget to look for long-path openings for about an hour or so after sunrise and again for an hour or so before local sunset.

15 meters: DX propagation conditions in the Northern Hemisphere will be poor to fair on this band, especially at low latitudes. A daytime band, fluctuating conditions are expected at these frequencies from shortly after sunrise through the early evening hours. The band could remain open into the evening toward southern and tropical areas.

10 meters: With an expected 10.7-cm flux no higher than about 80 on the best days of the month, and with most of the days experiencing lower 10.7-cm flux levels at around 70, 10 meters will be a poor band. Contest participants in low- and middle-latitude locations can expect rare daytime *F*-layer propagation contacts during the contest weekend, mainly on north/south paths. If open, the band will peak right after sunrise, and just a bit before sunset, local time. Openings towards Europe and in a generally easterly direction will be sparse, if at all, and should peak an hour or two before noon, while those towards South America and Africa are expected to peak during the early afternoon hours. Optimum conditions towards the Far East, Australia, southern Asia, and the South Pacific are forecast for the late afternoon and early evening hours, especially from stations in lower latitudes. This band will require a lot of skill and better-than-average antennas.

VHF Conditions

The *Leonids* meteor shower is typically the big event for November. This year it is expected to peak on November 18 at 0250 UTC with a low count of 15 or more visual meteors per hour. For those readers who will attempt to work off of the plasma trails of these meteors, there well may be enough hourly activity this year to make this a hot event. The full *Leonids* period is from about November 10 continuing through November 23.

Remember that the *Leonids* radiant is best around local midnight in the

Northern Hemisphere. Working VHF propagation off meteor tails (the highly ionized plasma trails left by the meteor) requires some reasonable power and gain, and good operating skill. With the latest high-speed burst-mode CW software, you can possibly work even the smaller meteors.

Check out <http://www.imo.net/calendar/2007/> for a complete calendar of meteor showers in 2007. Also check out *CQ VHF* magazine for more details about meteor shower activity and bouncing radio waves off the meteor plasma trails.

Current Solar Cycle Progress

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 69.2 for August 2007. The 12-month smoothed 10.7-cm flux centered on January 2007 is adjusted to 77.5, and for February the reported flux is 76.9. The predicted smoothed 10.7-cm solar flux for November 2007 is 79, give or take about 17 points.

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for August 2007 is 6.2, down from July's 10. The lowest daily sunspot value recorded was zero (0), on August 1, 2, 14, 16, 17, 18, 19, and 20. The highest daily sunspot count was 17 on August 31. The 12-month running smoothed sunspot number centered on February 2007 is 11.6. A smoothed sunspot count of 21, give or take about 12 points, is expected for November 2007.

The observed monthly mean planetary *A*-index (*Ap*) for August 2007 is 6, and the July *Ap* is adjusted to 8. The 12-month smoothed *Ap*-index centered on February 2007 is 8.4. Expect the overall geomagnetic activity to be quiet to active during most days in November. Refer to the "Last Minute Forecast" for the outlook on conditions during the month.

I invite you to visit my online resource at <http://propagation.hfradio.org/>, where you can get the latest space data, forecasts, and more, all in an organized manner. If you have a cell phone with internet capabilities, try <http://wap.hfradio.org/>.

Drop me an e-mail or send me a letter if you have questions or topics you would like to see me explore in this column. I'd also love to hear any feedback you might have on what I have written. Until next month . . .

73, de Tomas, NW7US

Looking Ahead in CQ

Here are some of the stories we're working on for upcoming issues of *CQ*:

- "CQ Interviews: Deputy Defense Secretary Gordon England, ex-W3AWO," by W2VU
- "Jeff's Walk," by WV5J
- "Christmas Cheer," by N5OP
- "Spice Up Your QSOs – Part II," by KZ1Z

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ham shop

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