Emergency Communications • Public Service • International Friendship

Worldradio

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Gardner L. "Gar" Harris, W6AXM, president of AXM Inc., shows off his General Motors EV1 rigged with a Comet HA-4S antenna. *—photo by Wayne Holden*

NEWSFRONT

Worldradio

Some information has been supplied to *Worldradio* Newsfront courtesy of *Newsline*.

Henry Radio closes store

On 21 March, the longtime Amateur Radio retailer Henry Radio closed its doors. Ted Henry Jr., W6YEY, said Henry expects to continue its amplifier and commercial lines, but will no longer have a retail operation.

W6YEY said that the company will continue to sell some additional ham radio equipment via their mail order operation, but that ham radio retailing was "not a profitable business for us and has not been for a number of years." Henry Radio opened in Butler, Missouri, in 1927.

Midwest weather emergency

The flood of '97, as it is being called in Cincinnati, Ohio, caught everyone by surprise. The first rains started on Friday, 28 February and continued through Tuesday, 04 March. The Ohio River rose to a 33-year record of 64.7 feet, 12.7 feet above flood stage.

The hardest hit was Falmouth, Kentucky which was completely inundated by the flood waters from the Licking River. That river normally has a depth of six feet, but rose to the 49-foot level when the floods were at their worst.

Brian De Young, KE4HOR, Emergency Coordinator for Campbell County, Kentucky, was the first amateur called out. "We assembled a team of 14 people and responded just after midnight to the north side of Falmouth, where we set up a temporary post and started getting on the air," he said.

The assembled amateurs provided all the communications for the next several days.

"We did all the emergency communications for the town of Falmouth from the very beginning. When the flood waters started rising, all communications for police and fire dispatch were lost, along with all telephone lines in and out of the area. So for the first four days of this emergency, Amateur Radio communications was the only form of communications in town."

Even though flood waters did not reach the Dayton, Ohio area, amateurs from there also assisted. The Dayton Amateur Radio Association communications van was on scene in Kentucky to provide relief communications for Pendleton County.

Ron Moorefield, W8ILC, District 3 ARES Emergency Coordinator recounted the following: "We got a call from the Red Cross and also FEMA to take the DARA communications van down to Pendleton County, Kentucky, right across from Cincinnati. We manned Red Cross shelters, and also took care of some police departments that were wiped out. We were also quite concerned about the people who thought they could rely on cell telephones. Back down in some of those valleys, cell phones don't work. . . .

"There was no phone service at all in the Ripley, Ohio, area. The National Guard Unit from Springfield, Ohio took a satellite system down to put in operation for a telephone network. . . . They didn't know how to use it, however, so they asked for amateurs to bridge the gap for them.

"Local agencies know now that amateurs are the backbone of any communications in any disaster," Moorefield reported. (*via Amateur News Weekly, Newsline*)

Birthdates removed from FCC database

In February the FCC implemented an order that removed the date of birth information from the public records of all Amateur Radio licenses. The FCC did not say why it took this action. Now sources in Washington are saying that it was actually the result of complaints to the agency based on the Privacy Act.

It was reported that the FCC received a number of protests from amateurs who did not want their birth date made public. Rather than face the possibility of litigation, the Commission removed the date of birth information.

There have also been reports of further demands from amateurs who want most, if not all information about them deleted from the public record. Whether or not the Commission will accede to these demands and how they might do it is unknown. (*via Newsline*)

April Fool stories. . . .

We here at *Worldradio* have to have the world's best readers, and it is always fun to see which stories elicit the most comments. Last month's issue with its April Fool stories was no exception. The winner for the most attention, comments, and excitement was the little piece regarding the "licensing of computers used in conjunction with Amateur Radio," on page 7.

The story was based on an item in the always uproarious GEARVAKf, which is published by a zany bunch of folk in Ohio.

To all of you who called, e-mailed, wrote, gave me one-ringers to come up on the local repeater, etc., thank you for being such good sports when you figured out that it was a joke.

To the man who thought I shouldn't give the government any new ideas, okay, point well taken. To the two men who were really mad, weeell, you can't win 'em all. —*Lou Ann, KB6HP*

AEA deals to sell product lines

The Advanced Electronic Applications name will live on, even though the company is out of business. Company founder Mike Lamb, N7ML, has concluded two agreements that will keep most of the AEA-developed products in the marketplace.

N7ML says AEA's line of anten-

nas, antenna analyzers and cable testing equipment was sold to Tempo Research of Vista, California. Tempo will continue the AEA name under a separate division and plans to produce the products in the antenna, antenna analyzer and cable testing line that AEA did before it ceased operation late last year. For current owners of these AEA products, Tempo will also handle all technical support, warranty and after-warranty service for these AEA products. Lamb also says he will assume a primary marketing position with the new AEA division of Tempo.

Timewave Technology of St. Paul, Minnesota is buying the rights to all other AEA products, including its digital line. Timewave president Randy Gawtry, KØCBH, says a purchase agreement is in place. He says that he is in the process of making the product line transition from AEA to Timewave and hopes to be manufacturing products soon. Timewave will have the right to use the AEA name for one year. (*via AEA, ARRL*)

Severe Arkansas weather

"Severe Weather Awareness Week" in Arkansas opened with a bang as tornadoes ripped through several areas of the state on 01 March.

According to Kevin Watkins, KB5SEJ, hams from RESPOND (Radio Amateur Service Prepared On Natural Disasters) were in the Craighead County Emergency Operations Center when the first reports of a tornado in Jackson County came in. Watkins, who serves as the Northeast Arkansas Red Cross Disaster Chairman, and Henry Mitchell, N5SEB, immediately left for the affected area. There they began a damage survey for the Red Cross.

Meantime, back at the E.O.C., severe weather spotters and radio operators were closely watching the Jackson County storm as it skirted Craighead County, damaging several homes in the western part of the county.

In Northeast Arkansas over 500 homes were affected by tornadoes and flooding. Nearly 150 were destroyed. Red Cross Damage Assessment was provided by nearly a dozen RESPOND volunteers. Other RESPOND members using the club's mobile communications van, established communications at the Chapter office to provide communications with five incoming Red Cross Emergency Response Vehicles.

Club members staffed the Red Cross office daily to assist officials with communications and tactical operations until the emergency ended. (*via Arkansas RESPOND*)

Ohio, Indiana and Tennessee storms

Amateur Radio operations in Ohio, Indiana and Tennessee have wound down following severe weather that hit that area. Amateurs throughout the three states provided much of the communications during and after the emergency.

Floods, tornadoes and severe weather have been on the minds of central Indiana hams for the past few weeks. Record flooding in southern Indiana has kept many hams busy providing communications to flood-stricken areas.

As the 1997 tornado season begins, many Johnson County Amateur Radio operators and local volunteer fire fighters honed their severe weather spotting skills by attending a National Weather Service Skywarn spotting class. The annual program was sponsored by the Mid State Amateur Radio Club of Franklin, Indiana.

Dozens of hams participated in the annual tornado awareness drill. ARES Nets were activated across the state with reports flowing into the National Weather Service Office in Indianapolis. At the monthly Mid State Amateur Radio meeting in Franklin, Mike Rosemark, KA9VMR, a meteorologist with the National Weather Service in Indianapolis talked about severe weather and reviewed data and pictures of the tornado that ripped across northern Johnson and southern Marion County last spring. Hams from across the region pitched in to provide communications during this emergency. (*via Amateur News Weekly*)

Louisiana may go 20 kHz

The state of Louisiana is considering switching from its current upright 15 kHz separation bandplan over to the Pacific Northwest 20 kilohertz plan, to put it in line with other nearby states.

At the 08 March meeting of the Louisiana Council of Amateur Radio Clubs in Lafayette, a motion was made to have the frequency coordination committee look into changing the current spacing of the 146-148 MHz band from 15 to 20 kHz. If enacted, this would bring Louisiana into alignment with Texas, its large neighbor to the west. Texas switched to 20 kHz intersystem spacing in the upper 2-meter repeater subband 12 years ago.

The Louisiana Council of Amateur Radio Clubs also voted to proceed with changes in the state's UHF bandplan. These modifications add new channels for high speed packet and other digital modes. This plan is very similar to those passed by Texas some years ago and more recently by the SouthEastern Repeater Association. (*via Newsline*)

Worldradio

Features — **May 1997**

Departments

Next month's columns will include 10-10, Computers & Basic Stuff, Old-time Radio, With the Handi-Hams, and YLs on the Air

Worldradio

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Worldradio (USPS 947000) is an international conversation. You're invited to participate.

Our goal is to be a valuable resource of ideas and experiences beneficial to the Amateur Radio community. We publicize and support the efforts of those who bring the flame of vitality to this avocation. You readers are participants — an alliance of active radio amateurs concerned with reality, using radio as a communications tool to develop the skill, quality and full potential of Amateur Radio.

We emphasize the positive aspects of this great activity, and desire your contributions dealing with dramatic, personal and humanitarian uses of Amateur Radio. Articles for consideration may be submitted through the U.S. Postal Service or e-mail to kb6hp@ns.net

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Publisher's Microphone

The U.S. Marine Corps recruiting posters say that they are looking for a few good men. We found a few good men. They are the latest to become ***Worldradio*** Super-Boosters (Lifetime Subscribers):

- **Richard Jenneman, N9MEH, Stanley, WI**
- **Donald Lamont, WD5AAH, Freeport, TX**
- **John Elsemore, WA6OZZ, Anderson, CA**

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A Canadian amateur whose DXCC totals are in the high 200s (100W and a vertical) recently sent 60 rare QSL cards to the ARRL for endorsements. After processing, the League sent them back via the Post Office's Registered Mail. The package went as far as New York's Kennedy Airport and vanished.

Possibly we should start considering the use of UPS, FedEx and the like for our precious cargos.

•

As Pogo once said, we have met the enemy and they is us. In a ham club bulletin one amateur went on at great length about how we were out of the emergency business. He recounted, while traveling in another state, coming upon an accident that he had to look in a repeater directory for the local frequencies, and then program the access tones into his 2M rig. He said that a cellular phone would be much quicker.

What he neglected to consider, in a rather long-winded doom-and-gloom tirade, was that if he had lived in the local area all the necessary functions would have already been installed.

On the other hand, I was reading about a mock drill of an airport disaster. The police could not talk to the fire department. The airport could not talk to the hospitals. Which radio service came, again, to the rescue? The one where people spend their own money and do it in their spare time. As it has always been and will always be.

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It seems there is a greater incidence lately of tower mishaps. A fall of relatively few feet can result in severe injuries, if not worse. Be careful out there.

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If you are one who feels the tug of nostalgia, the book "Communications Receivers 1932-1981" may be of interest. The pictures and descriptions of the Amateur Radio gear of yesteryear can be a real grabber. (In the office here I have an NC-183D on a shelf.) The author is Raymond S. Moore and he also has a companion book on transmitters.

You may contact RSM Communication, P.O. Box 1046, Key Largo, FL 33037 for details. (I'm still looking for an S40-B [green dial] in good condition).

The other day Dave Bell, W6AQ, said "Real radios glow in the dark."

If your sentiments are similar you must get *Electric Radio,* 14643 County Road G, Cortez, CO 81321-9575. It is superbly done.

•

The weather finally became sunny (at least in California) and Peter Onnigian, W6QEU, said, "The summer is here, can Field Day be far behind?"

Field Day — the event of the year! While many participate, I've often felt that to get the true value of the Field Day experience one has to be involved in the set-up, the tear-down and stay overnight — that's the advantage of a small club. In a big club, so everyone gets time at the rig it may be a two-hour shift and go home. With a small club it's a real grind to keep a station on the air the whole time. And the max effort is where the FD fun is!

Myself, I've always enjoyed that overnight shift on 40 and 75. The signals have an interesting sound to them. After a six-hour stint you feel you've accomplished something.

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Don't forget, if your club is putting on any sort of hamfest or convention make sure that someone writes to your friends here at ***Worldradio.*** We'll be pleased to donate items that will add to the festivities at your event.

Speaking of hamfests, we will again be in our usual spot in the main arena at Dayton. Please come by our booth and say hello. And, if you have a Lifetime Subscription or have our 100 Nations Award be sure and ask for your special pin. —*Armond, N6WR*

2m/70cm Mobiles **FT-2500M/FT-7400H**

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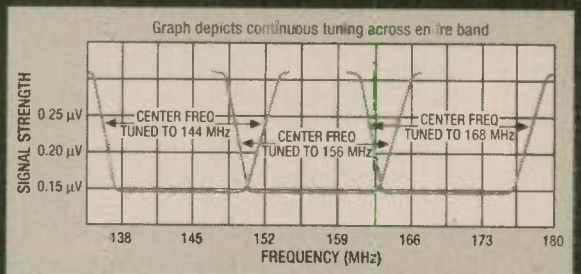
Inside, the electrical circuitry meets standards so uncompromising the FT-2500M can respond like no other radio. Built-in 3-Stage Advance Track Tuning (ATT), automatically retunes from 140 to 174 MHz permitting consistent receiver sensitivity across the entire band.

But there's more. Like alpha-numeric display capability! Lets you program a frequency or a 4-character name on any of the 31 memories. With three selectable power output levels and up to 50 watt power output, the FT-2500M extra large heat sink means forced air cooling is not necessary. And, as a bonus, Yaesu's exclusive backlit DTMF mic comes with every FT-2500M.

Experts say the FT-2500M is the only commercial-grade amateur radio available. So, for tough manufacturing standards, inside and out, with true FM clarity, and outstanding performance, the FT-2500M is your mobile.



3-Stage Advance Track Tuning (ATT) – The exclusive 3-Stage Advance Track tuning front end automatically adjusts band width sensitivity across the entire receiver range, while maintaining selectivity specifications. ATT significantly reduces interference from inter-modulation and front end overload.

Specifications

- **Frequency Coverage:**
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  RX: 140-174 MHz
  TX: 144-148 MHz
  FT-7400H
  RX/TX: 430-450 MHz
- Rugged Military Spec Design
- Advanced Track Tuning (ATT)
- Selectable Alpha-Numeric Display
- Omni-Glow™ Display, largest available
- Power Output:
  FT-2500M 50/20/5 Watts
  FT-7400H 35/15/5 Watts
- Flip Up Front Control Panel hides seldom used buttons
- Backlit DTMF Mic
- 31 Memory Channels
- CTCSS Encode Built-in
- Automatic Power Off (APO)*
- Time-Out Timer (TOT)*
- Manual* or Automatic Backlighting Adjustment
- **Accessories:**

FP-800	20 Amp HD Power Supply w/ Front Mounted Speaker
FRC-6	DTMF Paging Unit
FTS-17A	CTCSS Decode Unit
SP-4	External Mobile Speaker w/ Audio Filters

*FT-2500M

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Electric HF mobile

Gardner L. Harris, W6AXM

Who these days is not aware of the damage we have done to our environment? Certainly those of us who live and work in the Los Angeles/San Diego megalopolis know that one of the few unpleasant problems (other than crime) is the terrible air that we have to breathe from time to time. During the summer, all the impurities that transportation and industry pour into the atmosphere get bottled up from the mountains to the sea, thanks in great part to temperature inversions. Since it doesn't appear that the mountains will move or that weather patterns will change, the most we can do is to control the auto and industrial emissions.

In order to do this, California has mandated that 10% of all cars sold in the state by the year 2001 will have to be zero emission vehicles, or "ZEVs." There are currently two ways to approach this. One is to use hydrogen as a fuel. The second is to use electricity, and power the cars with batteries using nuclear powered or hydroelectric generating stations as the source of that power.

On 06 December 1996, General Motors introduced the first modern totally electric vehicle available to the general public. This car, called the EV1, is so efficient in terms of power usage and aerodynamic "slipperiness" that it only takes the electrical equivalent of two quarts of gasoline to go 50-70 miles. One owner has reported getting 104 miles before running out of electrons! That is driving very conservatively, believe me.

I have had a romantic notion of owning a virtually silent electric vehicle since I saw my first one as a 5-year-old. In my home town of Metuchen, New Jersey, two elderly ladies drove about in a Baker Electric car which looked more like a horse-less carriage than a car. It didn't even have a steering wheel. Instead, it steered with a side-mounted tiller, like a boat, but from the front seat. This was obviously not a freeway-type vehicle, but it still left me with the lifelong dream of having one.

Now, thanks to GM, I have an EV1. Being a radio amateur and leasing an EV1 (you can't buy one — yet) would appear to be mutually exclusive if one were to accept the lease conditions without negotiating. Since I knew I wanted to use radios in the car, I made certain that GM agreed that I could "install" whatever I wanted as long as, 1) no holes would be drilled in the car, inside or out, and, 2) that no connections would be made to the electrical system except via the 5 ampere rated accessory connector.

While this connection is not switched by the car's power activation system (there is no key), for my purposes it was adequate for a start. Since I operate HF primarily at less than 50 watts PEP, there was virtually no chance to overload the connector or the wiring to it. The equipment I use draws so little power in the receive mode, that even if left on, there would be no noticeable discharge of the 17 Ah auxiliary battery.

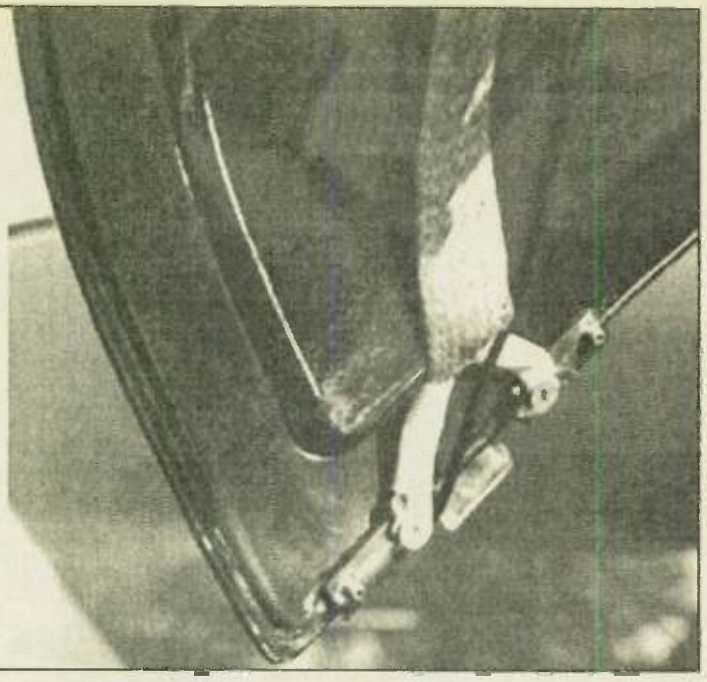
While the transceive problem seemed difficult at first, an HF antenna installation was an even greater challenge. First there was the problem of a basic antenna mount. Even if the car had not been leased, I wouldn't have considered putting a hole in it! The body panels are all non-metallic, even the hood and trunk lid; where would I get a decent ground plane for HF work?

It turned out to be easier than I had even hoped. One rainy evening I decided to shoehorn a drop light and myself into the trunk, and take a close look. To my astonishment, I found that the entire rear internal structure of the car was sheet aluminum glued, welded and riveted together and that there was a solid metallic connection to the main chassis rails. I knew then that if I could find and attach a mount to the trunk lid, I'd have an adequate ground plane available.

Now about that trunk lid — virtually nothing fit around the lip. After trying several mounts including Larsen, Motorola, Antenna Specialists and Hustler, I spied in our stock of Comet parts, their RS-820 universal heavy duty trunk lip mount. However it too was too narrow to fit around all but the thinnest corner of the trunk lip, and even there it was very tight.

I tried flexing it with a screwdriver, bending it in a vise, and cutting it with a Carborundum™ disk, but nothing worked. By the time I was through, I had completely ruined one of the RS-820s. Obviously, I needed to rethink my options! The next morning I talked with Mik Stwertnik at NCG/Comet and I had the answer. I was trying too hard!

All that was required was to get the mount to stay in place without using adhesive. I noted that if placed "just so," the outer two set screws of the remaining RS-820 would fit perfectly, leaving the inner set screw holes free to attach my



A 4' piece of 1.5" tinned copper braid, unraveled and formed into two, 3/4" x 2" flat pigtails The pigtails were flowed over with solder and drilled to fit #8 screws. The ends were then screwed down with 8-32 x 1/4" screws.

planned ground system. I still had to expand the slot to fit the available flange, but a propane torch and a pair of locking pliers did the trick. I had to get the area of the RS-820 nearly white hot to even budge, but it worked. I quenched the area to restore its temper; then, using a hand-held hobby tool, I carefully rounded all the edges that would come near GM's gorgeous paint job. Even then, the fit was still quite tight. Finally, the anchoring set screws were shortened by 50%, carefully ground flat and the edges smoothed, so the composite material of the trunk lid would not be damaged.

I then tapped out the two inner mounting holes for 8-32 screws. Access to metric hardware would have made this step unnecessary.

The grounding is simple. I used a 4' piece of 1.5" tinned copper braid from my junk box. One end was unraveled so that it could be formed into two, 3/4" x 2" flat pigtails, which then were flowed over with solder and drilled to fit #8 screws.

The ends were then screwed down with 8-32 x 1/4" screws as shown in the photo. The braid was then run parallel with the coax. They are routed down the left hand trunk lid support bracket, and attached to the forward bolt of the main hinge arm assembly. From there it goes straight down to bracket mounting screws attaching directly into the chassis rails.

For my HF antenna I initially selected the Comet CA-HV, a 40 - 2 Meter multiband which worked well in the same configuration as it does on my all-metal Volvo diesel station wagon. However, it turned out to be a bit less than garage-door "friendly," and I nearly succeeded in ripping the 20-meter resonator off the antenna assembly when backing out of the garage.

The antenna on which I settled for around-town use is the Comet HA-4S which is only 4' in length. It, too, tuned almost identically to that obtained on a metal vehicle, with the 40-meter resonator requiring only a 1/4" lengthening to achieve near unity VSWR on my favorite frequency. Of the two antennas, the CA-HV is by far superior, but I have made solid contacts with power levels down to 5 watts with the smaller antenna.

This solution to HFing in composite-shelled vehicles should be able to be applied to virtually anything that has a metallic main chassis. I know of no high-volume, commercially built, street-legal vehicles which aren't built around a metal chassis. No doubt we will see them in the future, but federal crash-worthiness standards are difficult, perhaps even impossible to meet without some steel framework.

My sincere thanks to Ric Ostrov, the local GM EV1 Specialist, and to Joe LoGrasso, KB8IXM at the GM Advanced Vehicles facility in Lansing, Michigan, for their help in resolving the questions. Thanks too, to Mik Stwertnik, of NGC/Comet for his suggestions and for providing a replacement RS-820, as well as the photographs accompanying this article. WR

Gardner L. "Gar" Harris, has been licensed since 1957, and an Advanced class ham since 1972. He is president of A X M Incorporated in Garden Grove, California. He also holds a General Radiotelephone commercial license and has been professionally involved in both two-way radio and radio and TV broadcasting since 1962.

Rules & Regs

Jack Kelleher
W4ZC

E-mail:
w4zc@macconnect.com

Little LEOs, "scene 4, take 2."

By the time you read this, it may be passé, at least in terms of the outcome of the 05 March meeting of the WRC-97 Industry Advisory Committee, so we'll just quote one paragraph from ARRL Bulletin No. 8 (1997) dated 14 February.

"Commercial satellite interests seeking access to bands below 1 GHz — including amateur allocations at 146 and 430 MHz — now have added 220 MHz to their 'wish list.' For the first time, Little LEO (low-earth-orbiting satellite) interests have proposed including 219-225 MHz in their list of desired allocations for the non-voice, non-geostationary (NVNG) mobile-satellite service (MSS). The move was contained in the industry's so-called 'flexible allocation proposal,' delivered at the 13 February 1997, meeting of FCC Informal Working Group (IWG) 2A. Little LEO targets now include 146 to 148, 219 to 225 and 430 to 450 MHz. The ARRL and AMSAT were among those objecting to the concept, and the League is urging those who agree with their position to comment to the FCC by 04 March. IWG-2A has been preparing draft proposals for the 1997 World Radiocommunication Conference (WRC-97). These will be reviewed during a 05 March meeting of the FCC's WRC-97 Industry Advisory Committee that is preparing draft proposals for consideration by the United States as it gets ready for WRC-97."

There are two very undesirable aspects of this particular activity.

One is the possibility that frequency bands now allocated to the Amateur Service on a primary basis would become victims of a *tour de force* expropriation by commercial interests. To my knowledge this has never happened before.

The other undesirable aspect has to do with the already small percentage of frequency space allocated to the Amateur Service on a Primary basis; and still less on a Primary Exclusive basis. The Amateur Service can ill-afford to lose any portion of the few bands allocated to us on a Primary basis, especially on the basis of a power play rather than on the basis of a considered, bilateral study of the factors involved.

There are three categories of allocations to the Amateur Service;

Primary Exclusive — This means that no other service is authorized on the band even on a secondary non-interference basis. These bands are: 14.0-14.35 MHz; 18.068-18.168 MHz; 21.0-21.45 MHz; 24.89-24.99 MHz; 28.0-29.7 MHz; 50-54 MHz (except not available to the Amateur Service in ITU Region 1); 144-146 MHz (146-148 Primary Exclusive in ITU Region 2, shared in Region 3, not available to the Amateur Service in Region 1); 47.0-47.2 GHz; 75.5-76.0 GHz; and 142-144 GHz.

Primary Shared — Several other services sharing the 1800-2000 kHz and 3500-4000 kHz in all three ITU Regions; 7100-7300 kHz is shared with the Broadcasting Service in ITU Regions 1 (Europe and Africa) and 3 (Asia); 220-225 MHz is allocated to the Amateur Service only in Region 2 and is shared there with the Fixed and Mobile Services; 2390-2400 and 2402-2417 MHz are now Primary in the United States but secondary NIB in the rest of the world.

Secondary NIB — (NIB means no harmful interference to the Primary Services to which the band is allocated). Ten of our bands are in this category — 10.1-10.15 MHz; 420-

Amateur Radio Call Signs

The following shows the last call sign in each group to be assigned for each VEC Region under the sequential call system as of the fourth of March 1997.
For more information contact the Federal Communications Commission, Consumer Assistance Branch, 1270 Fairfield Road, Gettysburg, PA 17325-7245, toll-free 1-800/322-1117 (or new number 1-888/CALL FCC). — *tnx, Sunnyvale VEC*

Radio District	Group A Am Extra	Group B Advanced	Group C Tech./Gen.	Group D Novice
Ø	ABØEI	KIØGY		KBØZWT
1	AA1RU	KE1HG	N1YQP	KB1CCJ
2	AB2DG	KG2KE		KC2BAN
3	AA3PL	KE3YZ	N3YUG	KB3BSG
4	AE4BD	KU4DB		KF4PMR
5	AC5LO	KM5HI		KC5ZFU
6	AC6AM	KQ6NI		KF6JHJ
7	AB7UH	KK7FU		KC7UWP
8	AA8ZJ	KI8BE		KC8GGT
9	AA9TZ	KG9JO		KBPSB
N. Mariana Is.	NHØA	AHØAX	KHØGF	WHØABG
Guam	*	AH2DC	KH2RM	WH2ANT
Hawaii	AH7Q	AH6PA	KH7CS	WH6DDQ
Amer. Samoa	AH8O	AH8AH	KH8DH	WH8ABF
Alaska	ALØD	AL7QT	KLØEC	WL7CUC
Virgin Is.	WP2Y	KP2CJ	NP2JP	WP2AIH
Puerto Rico	NP3B	KP3AQ	NP3KP	WP4NMY

*All of the Group A call signs for Guam have been assigned. Any request for a Group A call sign will now be assigned a Group B format.

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Worldradio is a two-way communication. Send in Amateur Radio information and news. Share your knowledge with your fellow amateur through ***Worldradio.*** We are most interested in your comments and suggestions. We would appreciate being placed on the mailing lists of radio club bulletins.

Subscriptions received by the 20th of the month will begin with the issue dated two months from the month of receipt, i.e., if we receive the subscription by April 20, your first issue will be June, which will be mailed to you in early May.

450 MHz; 902-928 MHz; 1240-1300 MHz; 2300-2310 MHz; 2400-2402 MHz; 2417-2450 MHz; 3.3-3.5 GHz; 5.65-5.95 GHz and 10.1-10.5 GHz.

One reason why some of our Primary Exclusive bands are targets for preemption may be because our occupancy has kept exploitation at bay.

The bottom line is, when you look at these eye-catching "band plan" charts handed out at trade shows and hamfests, keep in mind how few of the bands are allocated exclusively for the Amateur and Amateur Satellite Services.

Latest news on status of CW below 30 MHz.

As most of you are aware, a proposal arose at ITU WRC-95 (World Radiocommunication Conference 1995) to delete from ITU Radio Regulations Article S25, the requirement for demonstrated Morse proficiency to operate an Amateur Radio station in the HF band.

Early in 1996, the American Radio Relay League and the International Amateur Radio Union established fact-finding committees to assist them to determine U.S. and world-wide positions in the amateur community on S25.

The first of three regional IARU meetings took place in Tel Aviv last October. We were surprised to learn that at that meeting, IARU members in ITU Region 1 approved a proposal to maintain the status quo on S25.5, the Morse proficiency requirement.

The ARRL fact-finding committee reported to the ARRL Board meeting in January 1997. It recommended, and the Board approved, a status-quo position on S25.5.

So, within the amateur community what started out to be an assault on CW may be turning into a chorus to maintain it. Only time will tell. WRC-99 is almost 3 years away, and the final decision will be determined by a majority vote of the member administrations of the ITU.

Restructuring of U.S. Amateur Radio licensing

Another part of the ARRL Planning Committee's Report responds to its charge to review and comment on our licensing structure. Broadly, their recommendations cover these points:

- elimination of the Novice license
- creation of a new Intermediate license to replace the Technician Plus
- greater HF privileges for intermediate licensees than for the existing Technician Plus, including phone on 160, 75 and 15 Meters
- a 10-wpm General CW test (with more stringent testing standards for all CW exams)
- expanded phone privileges for General-class and higher licensees

Details of the plan, discussed during the recent ARRL Board of Directors meeting in Albuquerque, New Mexico, appear in March *QST*. ARRL members are being invited to add their ideas, comments and recommendations to those of the ARRL WRC-99 Planning Committee, with a deadline of 31 May 1997, the Board says it seeks comments from members to ensure that before any plan goes forward, it enjoys broad support from the amateur community. The Board will not act on the issue at least until its July meeting.

By the time you read this the March issue of *QST* will be out, with much more detail on the proposals (which were contained in ARRL Bulletin No. 5 for 1997, dated 31 January 1997.

We urge everyone to comment *constructively* on these proposals. Factors include the proposed subband allocations as well as the proposed licensing requirements per se, and the desirability of simplifying the license structure and the number of examination elements. **WR**

Ham named to Board

President Bill Clinton has named Alberto A. Sagues, KA4MTO, of Lutz, Florida, as a member of the Nuclear Waste Technical Review Board. Sagues, age 50, is a professor of civil and environmental engineering at the University of South Florida. *(via ARRL)*

Armed Forces Day

The Navy, Marine Corps, Air Force, and Army are co-sponsoring an Amateur Radio communications test in celebration of the 48th annual Armed Forces Day. The celebration features traditional military to amateur cross band communications test and message receiving test. These tests give Amateur Radio operators and short wave listeners an opportunity to demonstrate their individual technical skills and receive recognition from the Secretary of Defense or the appropriate military radio station for their proven expertise. The test is set for Saturday, 17 May 1997.

The proceeding will include operations in single sideband voice (SSB) and digital modes (RTTY, PACTOR, and AMTOR). There will be no CW transmissions. CW transmissions are no longer authorized on MARS frequencies. Participating military radio stations will award commemorative acknowledgment (QSL) cards to Amateur Radio operators achieving a verified two-way radio contact. Special commemorative certificates will be awarded to anyone who receives and accurately copies the Armed Forces Day digital message from the Secretary of Defense. All contacts must be acknowledged by QSL card or certificate to validate military interest in these operators.

Military-to-Amateur cross band test

Military-to-amateur cross band operations will take place from 17/1300 UTC to 18/1300 UTC May 1997. Military stations will transmit on selected military frequencies and listen for Amateur Radio stations in the amateur bands indicated below. Frequencies assigned below are the "Assigned Frequency." To derive the "Window Frequency" drop 1.5kHz from the "Assigned Frequency" for Upper Side Band (USB).

example: 4005.0 kHz (Assigned Frequency)
- 1.5 kHz
4003.5 kHz (Dial Frequency)

The military operator will announce the specific amateur band frequency being monitored. Duration of each contact should be limited to 3 minutes.

Digital Modes Transmitting Test

Digital modes broadcast will begin at 18/0340Z (RTTY, 100WPM, narrow shift); 18/0440Z (PACTOR); and 18/0540Z (AMTOR). A 10-minute call for tuning purposes will begin at 1330Z for RTTY, 0430Z for PACTOR and 0530Z for AMTOR. The Secretary's message will be transmitted from the following stations on the listed frequencies: (Note: not all stations may necessarily operate on all the frequencies listed, depending on propagation and equipment.)

AAE 7358.5
ARMY HF/MARS radio stations
Fort Sam Houston, TX

AAH 6988.0, 14488.5
ARMY HF/MARS radio station
Fort Lewis, WA

AAZ 7422.5
HQ USAISC
Command HF/MARS radio station
Fort Huachuca, AZ

AIR 13986.5
89TH Communications Squadron
Andrews Air Force Base
Washington, DC

WAR 13992.5
ARMY HF/MARS radio station
Fort Detrick, MD

NAV-2 7365.0, 14471.5
MARS radio station
North Charleston, SC

NMH 7385.0, 14385.0
USCG HF/MARS radio station
Alexandria, VA

MCL 7375.0, 14480.0
Marine Corps Base
Camp Lejeune, NC

NAV-8 7372.5, 10259.5
MARS radio station
Honolulu, HI

NUW 7380.0, 13530.0
MARS radio station
NAS Whidbey Island, WA

MQU 7346.5, 14840.0
MARS radio station
Quantico, VA

Submission of test entries

Transcriptions of the RTTY receiving test should be submitted "as received." No attempt should be made to correct possible transmission errors. Provide time, frequency and call sign of the military station copied, including name, call sign and address (including ZIP code) of individual submitting the entry. Ensure this information is placed on the page containing the test message. Each year a large number of acceptable entries are received with insufficient information, or necessary information was attached to the transcriptions and was separated, thereby precluding issuance of a certificate.

Entries must be postmarked no later than 31 May 1997 and submitted to the respective military command as follows:

a. Stations copying AIR send entries to:

Armed Forces Day Celebration
89CS/SCOJM, Alabama Ave., SCS-3
Andrews Air Force Base

Station	Military band	Emission	Amateur frequency
AAE	4030.5 kHz	LSB	80M
ARMY HF/			
MARS radio station	7358.5 kHz	RTTY/LSB	40M
Fort Sam Houston, TX	13994.5 kHz	USB	20M
78234-5000	20941.5 kHz	USB	15M
	27992.5 kHz	USB	10M
POC: Mr. Ed Valdez, DSN 471-3524/3003, Com: (210) 221-3524/3003			
AAH	4021.5 kHz	various	75M
ARMY HF/MARS	6988.0 kHz (nite)	various	40M
radio station	7312.5 kHz (day)	various	40M
Bldg 3E95	10151.5 kHz	USB	30M
Fort Lewis,	4488.5 kHz	USB	20M
WA 98433-5000	18212.5 kHz	USB	17M
	20975.0 kHz	USB	15M
POC: Mr. Chuck Verdon, DSN: 357-2502/3575, Com: (206) 967-2502/3575			
AAZ	4036.6 kHz	LSB	80M
HQ USAISC	6908.0 kHz	USB	40M
Command HF/MARS	7422.5 kHz	RTTY/LSB	40M
ATTN: ASOP-HF	13965.0 kHz	USB	20M
Fort Huachuca,	21825.5 kHz	USB	15M
AZ 85613-5000	27790.0 kHz	USB	10M
POC: Mrs. Kathy Edwards, DSN: 879-7933/8286, Com: (602) 879-7933/8286			
AIR	4025.0 kHz	LSB	80M
89th Communications			
Squadron	6896.0 kHz	USB	40M
Andrews Air Force Base	7315.0 kHz	LSB	40M
Washington, DC 20672	13986.5 kHz	RTTY	20M
	13997.5 kHz	USB	20M
	14408.0 kHz	USB	20M
POC: Mr. Van Evans, DSN: 858-4746, Com: (301) 981-4746			
WAR	4018.5 kHz	LSB	80M
ARMY HF/MARS	6997.5 kHz	USB	40M
Fort Detrick, MD			
21702-5016	7361.5 kHz	various	40M
	13992.5 kHz	RTTY	20M
	14403.5 kHz	USB	20M
	20995.5 kHz	USB	15M
POC: Mr. Ronnie Owens, DSN: 343-2727, Com: (301) 619-2727			

Station	Military band	Emission	Amateur frequency
NAV-2	4015.2 kHz	RTTY/USB	80M
MARS radio station	7365.0 kHz	RTTY/USB	40M
1050 Remount road	14471.5 kHz	RTTY/USB	20M
Bldg 3231	20680.0 kHz	RTTY/USB	15M
North Charleston, SC 29406			
POC: ETCS (SS/SW) Laverge, DSN: 563-2929, Com: (803) 743-2929			
NMH	4011.0 kHz	RTTY/USB	80M
USCG			
Telecommunication and	7385.0 kHz	RTTY/USB	40M
Information Systems			
Command	14385.0 kHz	RTTY/USB	20M
7323 Telegraph road	20375.0 kHz	RTTY/USB	15M
Alexandria, VA 22315-3940			
POC: LTJG David, Com: (703) 313-5568			
MCL	4008.5 kHz	RTTY/USB	80M
MARS radio station	7375.0 kHz	RTTY/USB	40M
Base CEO Bldg 24	14480.0 kHz	RTTY/USB	20M
Marine Corps Base	20937.5 kHz	RTTY/USB	15M
Camp Lejeune, NC 28542			
POC: SGT Biggs, DSN 484-5116, Com: (910) 451-5116			
NAV-8	4040.0 kHz	RTTY/USB	80M
MARS radio station	7372.5 kHz	RTTY/USB	40M
530 Peltier Avenue	10259.5 kHz	RTTY	30M
Honolulu, HI 96818	14393.0 kHz	USB	20M
	20625.0 kHz	USB	15M
POC: RMC (SW/AW) Dobbins, DSN: 471-0029, Com: (808) 471-0029			
NUW	4926.5 kHz	RTTY/USB	80M
MARS radio station	7380.0 kHz	RTTY/USB	40M
260 W. Pioneer FSC Bldg	13530.0 kHz	RTTY/USB	20M
NAS Whidbey Island,			
WA 98277	19956.5 kHz	RTTY/USB	15M
POC: Mr. O'Dell, DSN: 820-8038, Com: (360) 675-2823			
MQU	4021.5 kHz	RTTY/USB	80M
MARS radio station	7346.5 kHz	RTTY/USB	40M
D.C.I.D. - MCCDC	14840.0 kHz	RTTY/USB	20M
Quantico, VA 22134	20988.5 kHz	RTTY/USB	15M
POC: SSGT Harrison, DSN: 278-2455, Com: (703) 640-2455			

Washington, DC 20672

b. Stations copying NAV-2, NMH, MCL, NAV-8, NUW, and MQU send entries to:

Armed Forces Day Celebration
Chief, Navy-Marine Corps MARS
4401 Massachusetts Avenue N.W.
Washington, DC 20394-5460

c. Stations copying AAE, AAH, AAZ, or WAR send entries to:

Armed Forces Day Celebration
Department of the Army
U. S. Army Signal Command
ATTN: ASFC-OPT-BC
Fort Huachuca, AZ 85613-5000WR

MIREX contact with Florida school

John Rothert, KC4IYO

Geneva, Florida

On 09 January 1997, astronaut John Blaha, KC5TZQ, talked to students at Geneva Elementary School in Geneva, Florida. The contact took place just three days before the launch of the shuttle Atlantis on the STS-81 mission, Blaha's ride home.

During a near-perfect pass, Blaha took the opportunity to answer questions from fifth grade students about life in space and aboard the Russian space station MIR. The students were originally introduced to ham radio by their teacher Glenda Loth, KE4BEZ, when they were in the second grade and were ecstatic about their opportunity to talk to an astronaut in space. Many of the students were born in 1986 — the same year MIR's core module was launched.

Nine students were able to ask Blaha questions about life aboard MIR. During the contact the students had an additional surprise — Russian MIR 22 commander Valeri Korzun came on the radio to send his greetings to the students, in flawless English. The students couldn't ask Korzun questions, due to current Amateur Radio regulations, but were still thrilled to hear his voice.

Geneva Elementary is located in Central Florida, approximately an hour's drive from the Kennedy Space Center. Many of the students went to KSC to watch the launch of STS-81 a couple of days later, carrying John Blaha's replacement aboard MIR, Jerry Linenger, KC5HBR.

The MIREX (MIR Radio Experiment) contact was supported by the Lake Monroe Amateur Radio Society (LMARS), John Rothert, KC4IYO, and Joe Singer, N4IPV, a team which had supported previous Shuttle Amateur Radio Experiment (SAREX) contacts on the STS-37 mission with Lyman High School, STS-45 with a group of central Florida schools, and STS-65 with South Seminole Middle School. Hams participating in the contact include Fred Jarrett, N4NVW, Hal Prosser, KK1B, Bob Cumming, W2BZY, Joe Singer, N4IPV, and many others. LMARS and the team plan to continue supporting Central Florida schools for future SAREX and MIREX contacts.

The students, teachers, and hams would especially like to thank AMSAT school mentor Will Marchant, KC6ROL, MIREX Educational coordinator Miles Mann, WF1F, and the other members of the MIREX and SAREX team for their assistance which made the contact possible. Of course, much credit has to go to Rosalie White, WA1STO, of the ARRL. Thanks again to all who made a bunch of kids happy, and who also provided the public with another positive example of the abilities of Amateur Radio and its dedicated volunteers. **WR**

1x1 call signs put on hold

The FCC says that it will not be authorizing any more 1x1 Amateur Radio call signs under Special Temporary Authority any time soon, according to David Horowitz, who is the acting Chief of the FCC's Private Wireless Division.

Horowitz, who is an attorney, says that the FCC should not have issued any STAs for 1x1 call signs while a rulemaking proceeding regarding formal rules for these call signs is ongoing.

FCC Docket WT 95-57 concerns itself with 1 by 1 call signs. It has been under review but action on it might not take place for several months. *(via FCC, ARRL)*

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Full size performance . . . No ground or radials

Operate 10 bands: 75/80, 40, 30, 20, 17, 15, 12, 10, 6 and 2 Meters with one antenna Separate full size radiators . . . End loading . . . Elevated top feed . . . Low Radiation Angle . . . Very wide bandwidth . . . Highest performance no ground vertical ever . . .

Operate 10 bands -- 75/80, 40, 30, 20, 17, 15, 12, 10, 6 and 2 Meters -- with this MFJ-1798 vertical antenna and get *full size performance* with no ground or radials!

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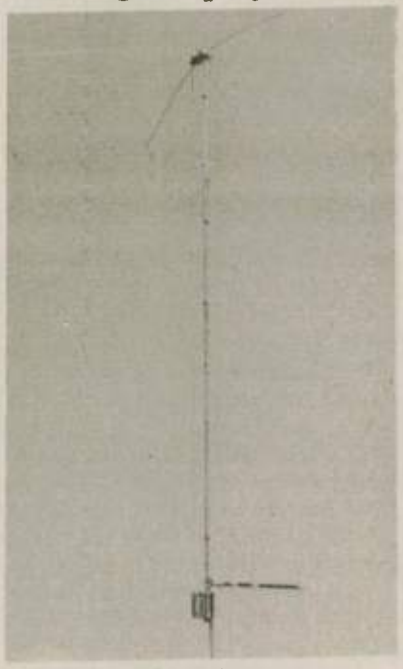
Get very low radiation angle for exciting DX, automatic bandswitching, omni-directional coverage, and low SWR. Handles 1500 watts PEP SSB.

MFJ's unique *Elevated Top Feed*™ elevates the feedpoint *all the way to the top* of the antenna. It puts the maximum radiation point high up in the clear where it does the most good -- your signal gets out even if you're ground mounted.

It's easy to tune because adjusting one band has minimum effect on the resonant frequency of other bands.

Self-supporting and just 20 feet tall, the MFJ-1798 mounts easily from ground level to tower top -- on small lots, backyards, apartments, condos, roof tops, tower mounts.



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Separate *Full Size* Radiators

Separate full size quarter wave radiators are used on 20, 17, 15, 12, 10 and 2 Meters. On 6 Meters, the 17 Meter radiator becomes a 3/4 wave radiator.

The active radiator works as a stub to decouple everything beyond it. *In phase* antenna current flows in all parallel radiators.

This forms a very large equivalent radiator and gives you incredible bandwidths.

These radiator stubs provide automatic bandswitching -- there is absolutely *no loss* due to loading coils or traps.

End Loading

On 30, 40, 75/80 Meters, end loading -- the most efficient form of loading -- gives you highly efficient performance, excellent bandwidth, low angle radiation and automatic bandswitching.

MFJ's unique *Frequency Adaptive L-Network*™ provides automatic impedance matching for lowest SWR on these low bands.

Tuning to your favorite part of these bands is simple and is done at the *bottom* of the antenna.

No Ground or Radials Needed

You don't need a ground or radials because an effective counterpoise that's 12 feet across gives you *excellent* ground isolation.

You can mount it from ground level to roof top and get awesome performance.

No Feedline Radiation to Waste Power

The feedline is decoupled and isolated from the antenna with MFJ's exclusive *AirCore*™ high power current balun. It's wound with Teflon® coax and *can't* saturate, no matter how high your power.

Built to Last

Incredibly strong solid fiberglass rod and large diameter 6061 T-6 aircraft strength aluminum tubing is used in the main structure.

Efficient high-Q coils are wound on tough *low loss* fiberglass forms using highly weather resistant Teflon® covered wire.

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MFJ-1786 **$299.95**

MFJ's *tiny* 36 inch diameter *high efficiency* loop antenna lets you operate 10 to 30 MHz *continuously* -- including the WARC bands!

It's ideal where space is limited -- apartments, small lots, mobile homes, attics, motor homes.

Enjoy both DX and local contacts when you mount it vertically. You get *both* low angle radiation for excellent DX *and* high angle radiation for local close-in contacts. Handles 150 watts.

Super easy-to-use! Only MFJ-1786 *Super* Remote Control has *Auto Band Selection*™. It auto-tunes to your desired band, then beeps to let you know. No control cable is needed.

Fast/slow tune push buttons and built-in two range *Cross-Needle* SWR/Wattmeter lets you quickly tune to your exact frequency.

All *welded* construction, no mechanical joints, welded butterfly capacitor with no rotating contacts, large 1.050 inch diameter *round* radiator -- not a lossy thin flat-strip -- gives you highest possible efficiency.

Each plate in MFJ's *superb* tuning capacitor is welded for low loss and *polished* to prevent high voltage arcing. It's welded to the radiator, has nylon bearing, anti-backlash mechanism, limit switches and a continuous *no-step* DC motor for *smooth precision* tuning.

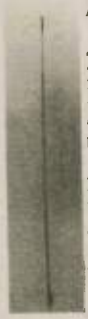
A heavy duty 1/8 inch thick ABS plastic housing with ultraviolet inhibitors protects it.

MFJ-1782, $269.95. Same as MFJ-1786 but remote control has only fast/slow tune buttons.

NEW!* MFJ-1788**, $359.95. Same as MFJ-1786 but covers ***40 Meter through 15 Meter continuous. Includes super remote control.

Super 80/40M Vertical

MFJ-1792 **$159.95**



Designed as a *high performance* antenna for 80 and 40 Meters, the MFJ-1792 features a *full size* quarter wave radiator for 40 Meters - - that's a full 33 feet of ruthless radiating power.

End loading -- the most efficient form of loading -- is used for 80 Meters. It's accomplished by a virtually lossless 4½ foot capacitance hat and a high-Q coil wound with Teflon® wire on a *low-loss* fiberglass form.

The *entire length* radiates power.

High strength 6061-T6 aluminum tubing, super strong solid fiberglass insulator, *Frequency Adaptive L-Network*™, heavy duty *swing* mount. Handles 1500 watts PEP. Requires guying and radials, counterpoises or ground screen.

MFJ-1793, $179.95. Same as MFJ-1792 but includes *full size* 20 Meter quarter wave radiator.

MFJ *halfwave* Vertical

6 bands: 40, 20, 15, 10, 6, 2 Meters . . . No radials or ground needed!

MFJ-1796 **$199.95**

Operate 6 bands -- 40, 20, 15, 10, 6 and 2 Meters -- with this MFJ-1796 *ground independent halfwave* vertical antenna! No radials or ground ever needed!

It's only 12 feet high and has a *tiny* 24 inch footprint! Mount it anywhere from ground level to tower top -- on apartments, condos, small lots, even motor homes. Perfect for vacations, field day, DX-pedition, camping.

Efficient *end loading*, no lossy traps. *Entire length* is always radiating. *Full size* halfwave on 2 and 6 Meters. High power *air-wound* choke balun eliminates feedline radiation. Adjusting one band has minimum effect on other bands.

Automatic bandswitching, low radiation angle, omni-directional, handles 1500 watts PEP. Goes together in an afternoon.

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No, it's not a fan -- it's a high efficiency portable loop antenna that's about the same size and shape as a 2x2 foot box fan, complete with carrying handle.

Carry it like a suitcase, tuck it in a corner of your car or check it as baggage on a plane.

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All welded construction, covers 14-30 MHz *continuously* including WARC bands, handles 150 watts. Remote control has fast/slow tune buttons. Separate control cable not needed.

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MFJ-418 gives you a large LCD display that reads out letters, numbers and punctuation in *plain English*. See code as it is being sent!

MFJ's proven *Beginner's Course* takes you from zero code speed to solid copy *fast!*

Realistic plain English QSO practice helps you pass your FCC code exam.

High-speed practice takes you to Extra Class and beyond . . .

Practice copying words as *one sound* -- not individual characters. Instant word recognition makes you a true, high-speed CW pro.

InstantReplay™ Check your copy *instantly*!

MFJ's interactive mode lets *you* set the pace -- *you* decide when to copy the next group and how many -- *not the tutor.*

Easy-to-use -- choose from menus on the LCD display -- no instruction manual needed!

Beginner's Course

QST rate MFJ tutors *"the clear choice for beginners"*. Follows ARRL/VEC format.

MFJ-418 takes you from knowing zero code to solid copy fast! You learn individual letter, number and prosign sets first. As you do, previously learned sets are combined with new sets to reinforce all that you have learned.

InstantReplay™

Practice copying and then replay to instantly check your copy on the LCD display.

Custom Character Sets

If you have trouble with certain characters, you can *build and save* a custom set of these for extra practice -- *an MFJ exclusive.*

Realistic Plain English QSOs

You can practice copying *realistic* on-the-air style plain English random QSOs.

They'll help get you ready for your FCC exam. When you're comfortable copying these QSOs, you're ready to pass and upgrade!

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MFJ's *Word Recognition Mode*™ gives you hundreds of commonly used words in amateur radio. Practice recognizing *entire words* instead of individual letters.

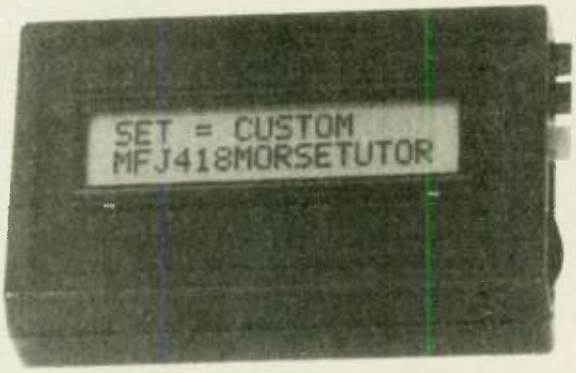
Learn to copy words without writing it down and carry on an entire CW conversation without paper -- just like pros on 40 Meter CW.

You can save 10 words of *your choice* for word recognition practice -- *an MFJ exclusive.*

You'll never run out of practice

Select letter, number, punctuation, prosign or code test sets, random call signs, random words, QSOs or combination sets for practice -- you'll never run out of study material.

You can even make up and save your own word and character sets for practice.



MFJ-418

NEW! **$79.95**

MFJ InteractiveMode™

MFJ InteractiveMode™ lets *you* decide when to copy the next or previous group and how many -- great for beginners.

Normal or Farnsworth

Select normal or Farnsworth spacing.

Farnsworth makes it easier to recognize entire characters. It stops the tendency to count individual dots and dashes that slows learning.

Farnsworth character speed is adjustable 10 to 60 words-per-minute for high-speed practice.

Fixed or Random Length Groups

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An informal 6M survey

Ken Neubeck WB2AMU

For the past couple of years I have traveled the equivalent of Main Street, U.S.A., in several towns ranging from Pittsfield, Massachusetts to Cheyenne, Wyoming. If one is using VHF "grid square speak," I have been through the grid squares FN32 to DN71. These are just two of the places I have visited on side trips while traveling on a combination of vacation and business trips. While many hams bring their 2-meter HT along on trips, I prefer bringing a portable six-meter radio such as the FT-690 in order to see how much local activity there is on six meters. To me, it is like conducting an informal survey to see how much the band is being used.

I have been in several populated areas as well as more remote areas of the country and have found that while six-meter activity is not anywhere near that of a "boom" band, it appears that there are at least one or two hams in each area who carry on as the standard bearers for the "magic band." It is a real pleasure to meet hams in person whom I have worked previously on six meters, and talk about common six meter experiences. Plus, it is fun to work the same stations from several different locations or grid squares in the country in the same year.

My home QTH of Patchogue, New York, is located in the center of Long Island. For an area that has so many amateurs and is densely populated with two-meter repeaters, one would think that there would be a number of six meter FM repeaters. Wrong! There are only one or two 6M repeaters on Long Island and one in Manhattan. There was a period of time in the past when AM and FM activity was moderate in this area. Currently, most of the activity appears to be on SSB, where about a dozen or more stations frequent the band throughout the year. Yet many stations are only active during contests or during some of the big sporadic-E openings. I know this to be the case when I get several QSL requests for my not-so-rare grid square, FN30, during the course of a year. I am at a loss to explain why there are so few stations on six meters in this area, particularly with regard to mobile work.

A visit to California revealed that 6M activity there is higher than in all of the other states. There are significant numbers of FM repeaters, as well as SSB activity. There are regular nets for SSB and FM, and even a Sunday morning AM net in Southern California! The large population center is one reason for a significant number of hams on the band, and the overcrowding of 2M FM has encouraged hams to seek out other bands, such as 6M. Southern California is also the site of frequent heat inversions that allow extended range contacts via tropospheric propagation up to a hundred miles or more. It is possible for occasional contacts into Hawaii and Mexico using variations of this propagation mode.

I have passed through a number of other western states such as Arizona, Colorado, Nevada, Utah and Wyoming, and have found that some local activity will be found in the larger cities. Repeater activity is scarce and when traveling outside the major cities, one does not expect to make many contacts on the six meter band.

As a longtime ham, I had always thought of Wyoming as a difficult contact to make on any band, let alone on six meters. In 1996, during the June VHF contest, I was in Cheyenne, Wyoming. A number of local stations made an appearance on the band. Of course, I wondered where these stations had been when I was listening from home! One of the bigger Wyoming signals that I worked was that of Dwayne Hansen, WA7KYM, who has provided many 6M operators with their first Wyoming contact. During this trip, I also worked a number of local stations in northern Colorado, including Jay Kesterson, KØGU, whom I had worked a couple times from my home. He has a location that is off of the interstate and away from the more heavily populated area of town, which helps him avoid potential RFI problems.

From what I can gather, other western states such as Idaho and Montana fall into the same situation where six meter local activity is generally light throughout the majority of the state. This is not likely to change very much in the next few years even though six meters is becoming more popular. Many of these unpopulated grid squares may be worth mounting a "grid square expedition" during the summer months!

Six meter activity is very popular, however, in the state of Georgia. At my New York home QTH, I hear many stations from there during big sporadic-E openings. I have made a lot of contacts with some of the same stations over the years and I consider them close friends, even though we have yet to meet face-to-face.

Stations such as Bob Mutchler, WB4OQX, and Fuz Tanner, W4IO, are there for any band opening; I always expect to hear them, and am rarely disappointed. I had the opportunity to visit the north Atlanta area for a week during a business trip and though I was somewhat handicapped with the kind of setup that I could lash together, I worked one local, Bill Flake, KD4HLG, on SSB during my stay. I was also able to key the area's biggest repeater using 2.5 watts, and a whip antenna. This machine inter-tied repeaters on several bands, providing excellent coverage for the northern part of the state, and neighboring Alabama. It took a while before I found out that many of the stations that I talked to using my FT-690 were actually using 220 MHz FM transceivers!

The New England area has significant pockets of six meter activity in different areas. Of note are

the Hartford, Connecticut area, the Boston, Massachusetts area and the Western Massachusetts/Eastern New York areas. There are a number of 6M nets such as the one held in the Boston area on Sundays, around 9:30 a.m. local time, on 50.175 MHz. Some of the FM repeaters in Connecticut have evening nets thoughout the week.

I had the pleasure of visiting the area of Pittsfield, Massachusetts on two separate occasions during 1996, during week-long business trips. On both occasions, I worked and visited one of the locals, Joe Pietowsky, W1BS, who is a regular on the magic band. On the second trip, I went up to nearby Mount Greylock (at 3,000') and worked a few more locals in Western Massachusetts and Eastern New York. There's nothing like being on top of a mountain to help in making contacts!

During a few VHF contests I have operated in the "rover" category in different parts of New York state, and can testify that there is nothing like a VHF contest to bring the locals out of the woodwork. The rover category allows one to travel to different grid squares; and even when the band is not open, it is a good way to work some of the lower-powered local stations which do not have the range of the "big gun" six meter stations. Sometimes it takes a repeated CQ or a radio contest to stir up some activity!

After having experienced six meter usage in different parts of the U.S., both during contest and non-contest times, I am convinced that we have to do more to make our presence known on the band. There are a lot of operators who are listening on 6 Meters, but not making that many CQs on the calling frequency. Even when there is not an obvious band opening, there are some great local contacts that can be made.

When I set up my six meter station during an exercise with the Peconic Amateur Radio Club in the northeast fork of Long Island in September of last year, I was only using 10 watts to a two-element beam. I was hoping that there was at least one local station around to give me a signal report.

I knew September was one of the quieter months for the band in terms of skip activity. I called "CQ" on the calling frequency, and to my surprise and pleasure, two stations came back to my call. Over the next hour, I worked stations in three different grid squares in New York, Connecticut and Massachusetts. Apparently, there was a little bit of tropospheric enhancement which would have otherwise gone undetected had no one given a shout on the band. So make some noise! Even when the band sounds quiet, you may get the same good results. WR

Off the air

What was missing. . .

Last fall I moved my family into a new home. For the last few months I've been slowly unpacking my belongings. Of course the HF station was operational within the first month, which was quickly followed by the VHF/UHF station. But for some reason I haven't felt "at home."

Weeks went by, and last week I figured out why my new QTH was not "home" yet. While finishing the radio room downstairs, I opened a box of ***Worldradio*** magazines. I sent in my change of address form, as well as a subscription for another year. Lo and behold, with the current issue of ***Worldradio*** sitting on my coffee table, I can now relax, put my feet up, and call my house a home. Keep up the great work!

Ray Allen, N7TEI
Salt Lake City, UT

I don't think so!

This concerns the first article on the NEWSFRONT page "All say 'yes' to Morse code," in the March issue. "All" who? There's nothing stated about a unanimous recommendation of the committee. About 10,000 members isn't *all* League members. The last I heard, much less than 63% of that figure. The entire League membership isn't even half the number of licensed amateurs in the U.S. "All" who? *Some* U.S. amateurs want to keep the code in the U.S. — would be a correct statement.

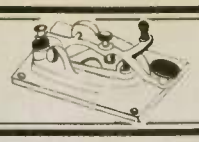
Additionally, it is not stated whether this survey asked if people wanted the code requirements as they are in the U.S. licensing procedure, to remain the same or not. How many of the *entire* U.S. amateur population want to keep the code but not at the 5, 13, then 20 wpm requirements? How many of these want the Morse code treaty requirements removed to leave it open for other countries to drop the code if they wish to? How about a *real* survey that gives us all a *real* picture of the *real* majority view of the entire U.S. amateur community. Could you try that ARRL? Somebody?

That news article was pure politics, which we all know what that's worth — nothing!

Michael McCarty, KG8XF
Galloway, OH

In the article KG8XF refers to, the figure should have read 1,000 — we regret the error. —editor

Silent Keys



Harold "Bud" Hopper, KL7CQF

Bud Hopper, KL7CQF, a native of Springfield, Oregon, died of cancer 06 February 1997. He was 75.

He served in the navy in World War II, survived Pearl Harbor and was among the first occupying forces to arrive in Japan after the atomic bombs were dropped. He also did a tour of duty during the Korean War on the USS *Rochester*, and spent a lot of time in the radio room.

Bud earned a Master's degree in science from the University of Oregon, and in 1947 married the former Nicki Cedargreen. They arrived in Wrangell, Alaska in 1954, where Bud taught math and science. Soon they moved to Haines, where the family grew to include three children.

Marty Cordes, KL7IR, encouraged Bud's interest in Amateur Radio, and he was successful in earning his ham ticket in the early '60s. KL7CQF became very active with the Coast Guard Auxiliary, forming the Haines Flotilla #6, and aided in many water emergency situations. When the alarm sounded, he responded with his boat and Amateur Radio, a welcome sight to a stranded boater in distress.

During the great Alaska earthquake of 1964, when communications were almost nonexistent between the state capital of Juneau and Anchorage, he stayed on the air 50+ hours, relaying needed information.

In addition to his Amateur Radio related hobbies, Bud was a volunteer fireman, a member of the Pioneers of Alaska, the Elks Club, the American Legion, and an active Mason. The Haines community, as well as his family and ham radio operators across the country will all miss Bud Hopper. *—contributed by George Meacock, NL7RD*

John Carlini Sr., W2XF

Long-time ham and avid CW operator, John Carlini Sr., W2XF became a silent key on 08 March 1997. He was 65 years old.

First licensed as WB2NAG, John became interested in Amateur Radio as young boy when a kind neighbor took the time to show him the power of wireless radio. Since that initial start, John spent many years as experimenter and home-brew advocate. His passion was Morse code and his love was operation in the HF bands.

In his professional life, John started as a broadcast station engineer for a small radio station near Burlington, Vermont and spent the remainder of his career working for WVOS, located in the Catskill Mountains of New York.

W2XF is survived by his wife Giulietta, daughter Ann Marie, and sons Vincent, N2TUP, and John Jr., K2JN. *—contributed by John Carlini Jr., K2JN*

Bob Vota, WB1FDY

It is with deep regret that I inform you of the recent passing of John (Bob) Vota, WB1FDY, of Centerdale, RI after a long bout with cancer. Bob was the American Radio Relay League's Section Manager for Rhode Island from 1985 to 1987.

An Extra Class licensee, Bob enjoyed CW and contesting and was very involved in many Amateur Radio activities. A past president of the Providence Radio Association (W1OP), Bob also founded the North Providence Radio Club and later became the trustee of the Northern Rhode Island Radio Club. He was a trustee of the Quahog Repeater Network and was instrumental in the construction and development of this large network of repeaters in Rhode Island. It is a linked system providing wide area access through 222, 440, and 900 MHz repeaters as well as a 1.2 GHz repeater.

Bob was very dedicated to the Army MARS (Military Affiliate Radio System) program and served as its Rhode Island Director for many years.

The New England Spectrum Management Council benefited from Bob's service as its Rhode Island Director. NESMC is the organization set up to provide administrative support for the New England frequency coordinators (excepting Connecticut).

Bob had an all ham family, and is survived by his wife Elaine, KA1PID, and two sons Bob, KA1QYF, and Bill, KA1QYE. He leaves a large pair of shoes to fill in the Rhode Island Amateur Radio community . . . he will be missed. *—contributed by Rick Fairweather, K1KYI*

Special Events

Civil War Battle

The Rappahanock Valley ARC will operate NJ4F on 03 May from 1500-2100 UTC, to commemorate the Civil War Battle of Chancellorsville. Operation will take place from "No man's land," within the original battlefield transmitting in the General portion of the 20 and 40 Meter bands. For a special 8½ x 11-inch certificate, send QSL with large SASE to RVARC, P.O. Box 1496, Fredericksburg, VA 22402.

Battle of Manila Bay

The Olympia ARC will operate WA3BAT from 1300 UTC 03 May until 2000 UTC 04 May to commemorate the 99th anniversary of Admiral Dewey's triumph over the Spanish fleet at the Battle of Manila Bay. SSB/Phone — 3.898.5, 7.248.5, 14.248.5, 21.368.5, 28.368.5, 145.270 FM; CW — 3.710, 7.030/7.110, 14.030, 21.040/21.110 and 29.025. For certificate, send QSL and 9 x 12 SASE to Olympia ARC, Independence Seaport of Philadelphia, 211 South Columbus Blvd., Philadelphia, PA 19106.

Samuel F.B. Morse

The Poughkeepsie ARC will operate W2CVT at Samuel F.B. Morse's home from 1200 UTC until 2000 UTC 03 and 04 May. Operation will be on 3.703, 7.103, 10.103 and 14.265 MHz. Send SASE to D. Stein, 3 Little Rd., Wappingers Falls, NY 12590 for 9" x 12" certificate.

FAIRS

The Foundation for Amateur International Radio Service (FAIRS) will operate FAIRS Club station N4USA, US5WE, BY1QH, 8R1WD and S21AM on 10 and 11 May to celebrate the 6th anniversary of FAIRS. Operation will be on the General portion of 40, 20, and 15 Meter bands. For certificate send QSL and 9 x 12-inch SASE to FAIRS, P.O. Box 341, Floyd, VA 24091.

Cheese Hollow Cheese Festival

The Cheese Hollow ARS will operate W3HAM from 1300 UTC 10 May until 0100 UTC 11 May to commemorate the Inaugural Cheese Hollow Cheese Festival. Operation will take place on SSB: 3.920, 7.222, 14.250, 21.350, 28.350, and 50.150 MHz; FM: 146.58 MHz, CW: 7.130, 14.060 MHz. For certificate send QSO data and SASE to: Page Pyne, WA3EOP, 230 N. Potomac St., #3, Hagerstown, MD 21740-3813.

QCWA Banquet

The southwest Ohio Chapter of the Quarter Century Wireless Association will hold its annual banquet in conjunction with the Dayton Hamvention on Friday, 16 May at Alex's Continental Restaurant. C.O.D. bar at 7 p.m., banquet at 7:30 p.m. Charles Stinger, W8FGA, former manager of Voice of America Radio Station at Bethany Ohio will give us an inside look at this powerful transmitting station. Reservation deadline is 14 May. QCWA membership is not a requirement for attendance. For tickets ($15 each) make check payable to Robert L. Dingle, Treas. Chapter 9, and mail to 1117 Big Hill Rd., Kettering, OH 45429-1201.

Disaster Fair

New Port Richey, FL: Pasco County RACES, 31 May 1300-1700 UTC. Operation will be on 14.225, 28.400 ± QRM. Certificate: Michelle Baker, EOC, 8744 Government Dr., New Port Richey, FL 34654.

Lincoln Highway Bridge Festival

The South Tama Amateur Radio Society will operate WDØGAT on 17 May from 1500-2300 UTC to celebrate Lincoln Highway Bridge Festival held in Tama, Iowa (Tama County). Operation will be in the General phone portion of 40 through 15 Meters, and Novice phone 10 Meters, and 2 Meters. For certificate, send 9 x 12 SASE to: STARS/WDØGAT, P.O. Box 94, Montour, IA 50173.

Chestertown Tea Party

The Kent Amateur Radio Society will operate AA3CJ from 1400 until 2100 UTC, 24 May from Chestertown, Maryland to celebrate the 1997 reenactment of the 1774 Chestertown Tea Party. Operation will be on 7.040, 14.240, and 28.340. For certificate send QSL and 9 x 12 SASE to William H. Rogers, N2UYW, P.O. Box 427, Chestertown, MD 21620. **WR**

Amateur "Hi"

Ever had a funny or strange experience with Amateur Radio, either on or off the air? If so, type it up (or print neatly) and send it to us for consideration in our monthly AMATEUR "HI" contest. You could win a free year's subscription to ***Worldradio!***

A funny thing happened on the way...

Vic Black, AB6SO

The day for the January, 1997 VHF Sweepstakes finally arrived. All of my gear was packed and at the last moment before leaving for the mountain, I put on a button with my call sign, AB6SO, because there are usually other hams at my favorite operating site. On the way out of town I stopped at a grocery store to buy some snacks to munch on during the contest. While checking my groceries, the clerk glanced up and said, "I totally agree with you."

I must have looked a bit puzzled because she went on, "I'm happy you're supporting that new law." I asked what law she was talking about. She replied, "You know the one. It's the new California law that requires proof of insurance coverage to register your car. You're wearing the button right there, for the Assembly Bill, AB650!"

It gave me a chance to explain Amateur Radio to another neophyte. **WR**

Station Appearance

John W. Swancara, WA6LOD

*Send **Worldradio** a picture of your shack and the staff will choose a winner to receive a free one-year subscription to **Worldradio**!*

Stations will be judged by neatness (wires tucked away, etc.) and accessibility of equipment. Monetary value of equipment is not a consideration.

I became interested in Amateur Radio in 1946, when our pastor, (W2VNZ, now a Silent Key) in Little Falls, New York got tons of radio equipment after the war. He had "donated" his station to the Coast Guard at the start of WWII and they repaid many hams with choice equipment.

I joined the Air Force in 1951, passing all of the aptitude tests which got me into Electronics Fundamental School. One interesting note about the school — if you flunked — you became a cook or baker. This was quite an enticement to pass. The Air Force, a new job, getting married and raising two boys kept me out of Amateur Radio for several years.

I got my first amateur license as WA4GJC in 1961, while working as a Technical Representative for Hughes Aircraft Company at Tyndal Air Force Base in Panama City, Florida. The "WA" prefix in 1961 was quite exciting, as many "old-timers" insisted I was on some "rare" American possession in the Caribbean.

My first station was a DX-100 and Drake 2B, finally building a Heathkit SSB rig and a "Twoer." I operated as WA6LOD from El Segundo, California for over 23 years while "touring the world" for Hughes, installing and operating satellite control systems (and sometimes operating ham stations) at DX locations such as: XE, G, I, AH2, KH6, OX, VK, VE, ZS, 5N, YB, OM and JA. I managed to complete WAS 10-10, DXCC on RTTY and SSB, despite the heavy travel.

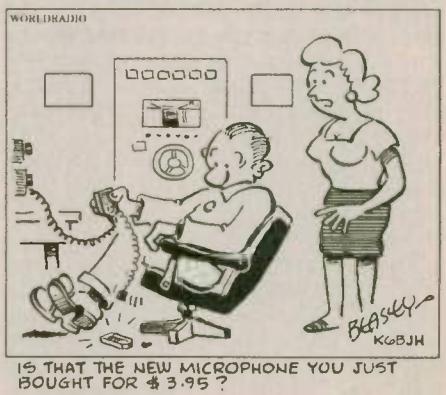
I am now retired in Brevard, (Transylvania County) North Carolina after 32-plus years with Hughes. The new station is in my basement where the XYL has allocated a mere 14 x 25 foot, paneled room, to this hobby. To eliminate many "honey do" delays in my ham operating, there is no grass to mow. The ground is covered with natural growth (leaves, logs, black berry bushes and weeds). The house is on a .79 acre lot on a hill, surrounded by large 60 foot oak and pine trees which do a nice job holding up the dipoles.

Operating equipment

A Tandy 1000 computer and KAM unit provide all-mode operation via a Henry VHF-1 on 2 Meters and a Kenwood TS-940S for HF operation. The HF system output is boosted by an old, reliable Collins 30L1 amplifier with extra cooling via a muffin fan. A 12 volt at 10 ampere Astron power supply is mounted under the desk for the VHF gear. A separate Kenwood TR-751A multimode VHF rig is used for local communications.

All of the coaxes, a heavy ground wire and controls enter and exit through a hole in the wall. A metal, well-grounded weatherproof switch box outside the house contains a remote-controlled coaxial switch. This allows selection of an 80/40 dipole, a tri-band beam or dummy load, thus requiring only one RG-213 coaxial cable to the outside for HF operation. Separate "Transi-Trap" surge protectors on each coaxial cable help protect the system.

I have only a couple of comments about retirement — it's great and I wouldn't go back to work for anything. And, buy all of the best gear *before* you retire! WR



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Product Review

Log-EQF logging software

John D. Carlini, K2JN

Log-EQF is an electronic logging program used to maintain an accurate station log. About two years ago, I first came across the program while testing some shareware logging software. The "try before you buy" concept of shareware allowed me to compare several logging programs without incurring a significant hit on the budget. After experimenting with a dozen programs, Log-EQF came out as my favorite choice for all around logger. Soon after, I became a registered user and have since made several version upgrades.

Log-EQF is the brainchild of Thomas Dandrea, N3EQF. In 1989, Tom developed the program as a personal logger after being disappointed with many of the commercial products available at the time. Eventually, the members of his local club saw his program and prodded him to market it. The rest is history. Log-EQF has been evolving ever since, mostly due to the continuous input received from users.

There are currently two variants of Tom's logging software. Log-EQF is the full-featured logger containing packet and rig control features, and Log-EQF Junior is a subset of Log-EQF with all the features found in its big brother, except there is no radio control or TNC interface capability provided. Logbooks are 100% compatible between the two programs. My club uses Log-EQF for day-to-day operation and I use Log-EQF Junior on my laptop for both field and home operation.

Both Log-EQF and Log-EQF Junior are DOS-based programs and will run on all IBM PC compatible computers using DOS 3.0 or higher. Each require about 512k of memory and will work with any video mode. No special graphics adapter is required, and use of a mouse is optional. Since both programs are small in size, there is very little performance degradation on older machines. In fact, both programs run fine on my "nostalgic" laptop. Both Log-EQF and Log-EQF Junior are very similar in function, so I'll focus the remainder of my review on the big brother.

Installation of Log-EQF is fairly easy. You just place the disk in your floppy drive, enter "A:INSTALL" at the DOS prompt and answer a few questions. The installer will ask you into which directory to place the program, whether you want to unpack the utilities, and if you wish to print out a user's manual. For those who are computer literate, you can manually copy and uncompress each of the self-extracting files as an alternative to using the installer. Instructions are also included for use with Windows™ and Windows95™.

Once you install Log-EQF, you'll discover that interface is simple and clean. When I first tried the software, it immediately passed one of my fundamental criteria for good software, which is being able to use it without reading the manual. For those obscure and special shortcut keys, a help option is available from the logging screen.

Log-EQF has two basic modes of operation available: routine logging and contest operation. Routine logging takes the place of a traditional paper log by providing standard fields for Call sign, RST, Name, Address, Frequency, Date, Time and QSL status. Two unique fields labeled "Track," and "Info," can be customized to handle specialized entries such as counties and 10-10 numbers. There is also a provision to enter up to 6 lines of note pad information with each contact. The note pad is handy for taking quick reminder notes during scheduled QSOs.

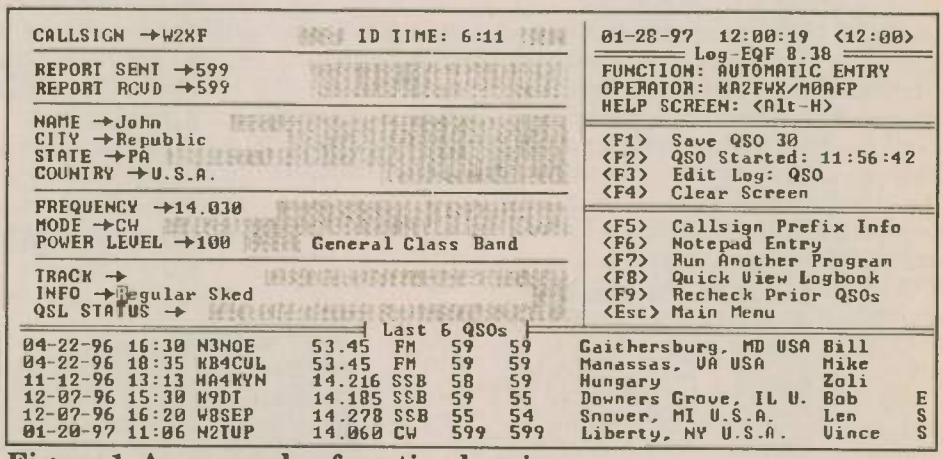


Figure 1. An example of routine logging.

Once you build up a number of QSO entries, you can search and sort them, as well as print out a listing. The program will also interface with several of the popular CD-ROM-based call sign databases, including RAC, Hamcall, SAM and my personal favorite, QRZ!. If you have a call sign CD-ROM mounted,

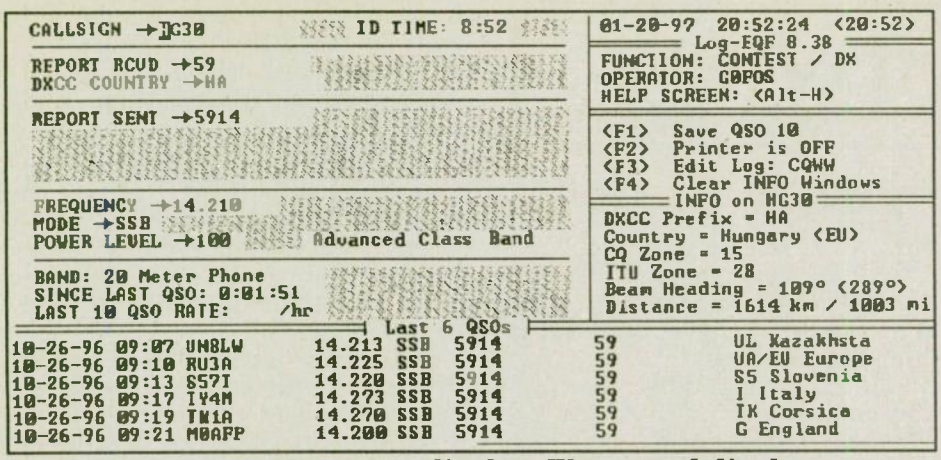


Figure 2. An example screen display. The actual display on your computer will be a black background with white letters.

Log-EQF will interrogate the database after a call sign is entered and retrieve the needed information. You can also create a "master" log, a self-made database of QSO information, useful for net operations. The program has many other features including grid square lookup and a 10-minute ID timer.

The contest mode, as the name implies, is used for contest operations. An example screen display is shown in Figure 2. This mode reduces the amount of data entry to just the essential information, to support rapid input. Contest mode, useful for DXpeditions, can automatically generate serial numbers for exchange, check for dupes, provide QSO rate and elapsed time. It will also compute QSO and multiplier totals and provide a partial call sign check. A number of popular contest templates such as CQWW and Field Day are provided, and you can create your own as well.

Although some users prefer logging programs specifically built for contesting, some of these programs do not keep track of long-term awards. Log-EQF, however, does provide registered users with utilities to keep track of two special awards, DXCC and WAS. In addition, users receive a file conversion utility which will import many popular logging program formats.

Data backup is fairly simple. The program comes with compression routines to allow you to backup and restore your logs. Each routine is available as a menu option under the program shell. The same menu also permits the merge of two logs as well as deletion of a log.

Hardware interface is provided in several methods. You can hook up a TNC as a split-screen terminal or just take in input for PacketCluster. ASCII file upload and download is supported. In addition, there are rig control provisions for many of the popular transceivers that have digital control. Log-EQF will talk to Icom, Kenwood, Yaesu and Ten Tec rigs, providing features such as VFO control by directly typing into the logbook field. The program will also store frequency and mode for computer-ready radios, and there is a built in CW keyer with the capability of storing up to 8 memories.

User support is fantastic. During one of my software upgrades, I noticed a minor bug in one of the displays. I reported the problem to Tom and he replied via e-mail that he would look into a possible fix when he got a chance. I thought nothing more of it. A few weeks later, I received an e-mail with a new version of software attached — the bug was fixed. Now that's what I call service! In addition to direct support via phone and e-mail, Tom has a well maintained Internet site available for dialog with other users; updates, bug reports and the latest patches.

Program weaknesses are few. However, other users in my club are quick to point out that although this program can run under Windows (in a DOS window), it is not designed specifically for Windows or Windows95™. If you are using Windows, you won't get the nice touch-n-feel you may be accustomed to having with a standard Windows program. Some folks also felt that a hard-copy manual would have been nice to have. The user manual is currently available only as a file you print out yourself.

Overall, Log-EQF is a great workhorse for general all-around logging and contesting. There are just too many good features to mention in this review. The best way to evaluate it is to try it out for yourself. Log-EQF lists for $39.95 and its little brother, Log-EQF Junior, is just $25. Both are a bargain in the current software market. For further information on EQF software products contact Tom Dandrea via e-mail at n3eqf@usaor.net, on the web at http://www.itis.net/eqf or via snail mail at 396 Sautter Drive, Coraopolis, PA 15108. **WR**

Field Day alert!

This is a reminder that Field Day is next month (June). Send your stories to ***Worldradio*** and let others know how your Field Day went. Be sure to include lots of photos!

Awards

100 Nations Award

In an effort to encourage personal communications among peoples around the world via Amateur Radio, ***Worldradio*** offers the *Worked 100 Nations Award* to those confirming two-way amateur communications with permanent stations in 100 distinct countries having a permanent, native population.

The purpose of the ***Worldradio*** *Worked 100 Nations Award* is to demonstrate the unique opportunity Amateur Radio offers for communications between international borders to further worldwide understanding.

The *W-100-N* is not a radio sport award as such, but a token of achievement in communication. At the same time, it offers all Amateur Radio enthusiasts several features not found in other awards.

1. W-100-N virtually eliminates the need to work geographic areas heard only during DXpeditions. Almost all national entities have amateur stations consistently on the air.

2. W-100-N, then, will be of perennial interest. The advantage to those stations having worked a national entity long absent from the air will be minimal.

3. W-100-N is difficult to achieve, yet is within reach of all moderately well- equipped stations whose operators utilize good communication skills.

Rules

1. The *Worked 100 Nations Award* is available to any licensed Amateur Radio operator who can prove confirmation of two-way communications with government-authorized Amateur Radio stations in at least 100 different nations of the world.

2. No contacts with stations using reciprocal calls will count toward this award, such as N6JM/UL7.

3. All contacts must be with land-based stations. Contacts with ships, at anchor or otherwise, and aircraft cannot be considered.

4. All contacts shall be made from the same country.

5. Only contacts made on or after 01 January 1978 will count.

6. The application shall include the following:

a. Letter requesting W-100-N.

b. List of contacts in alphabetical order by prefix showing nation, station call, date, band and mode.

c. A signed statement by two other licensed radio amateurs, General class or above that they have inspected the required QSL cards.

d. A fee of $5 to cover the cost of the award.

7. All applications and requests shall be addressed to:

W-100-N Award Manager
Worldradio
2120 28th Street
Sacramento, CA 95818

8. There are no special endorsements to this award, however, endorsements may be made if the achievement bears such recognition. All modes and bands may be used.

Upon approval of an application for W-100-N, a certificate will be issued and the issuance of the award will be noted in a future issue of ***Worldradio.***

W-100-N nations list criteria

1. In all cases each "nation" will be both a political and geographical entity at the same time.

2. In all cases each "nation" will be a geographical and political entity independent enough to issue distinctive postage stamps acceptable in international mail.

3. In all cases each "nation" will be a geographical and political entity whose amateur stations are

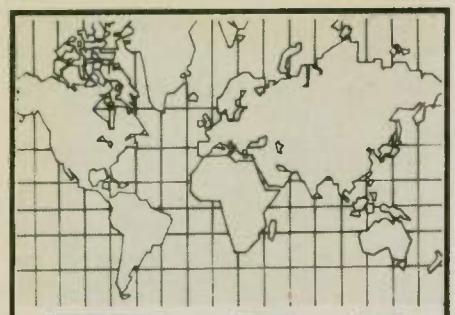
a. identifiable by a specific call sign prefix series allocation assigned to that entity by the International Telecommunications Union, or

b. identifiable by a specific call sign prefix or suffix series normally used in the issuance of amateur licenses to new amateur licensees under ITU prefix allocations by the sovereign government of the entity.

4. No geographical or political entity lacking a permanent, native population will be considered for status as a nation.

5. Geographical and political entities which do not issue distinctive postage stamps but have permanent, native populations will be considered to be part of the same entity that issues postage stamps for use in that area.

6. Geographical and political entities which issue postage stamps but do not have permanent, native populations will not be considered "nations" for the purposes of this award. WR



DX WORLD

John F.W. Minke III, N6JM
P.O. Box 310, Carmichael, CA 95809-0310
• E-mail: n6jm@pacbell.net •

W-100-N

The following DXer completed the requirements for ***Worldradio***'s *Worked 100 Nations Award:*

518. Ron Herrold, K6LLQ
27 Jan 1997

Don't forget Armond's new famous CATZ Award. Who will be the first one to qualify for this award? All contacts count since 01 July 1996.

Mauritania (5T)

DX News Sheet reports that 5T5QQ was heard working Europeans on 30 January at 1600 UTC, at the low end of 20 Meters SSB, 14.120 MHz.

Kenya (5Z)

Activity from Kenya has been a bit more frequent, although most of it reported in Europe. At the end of January, 5Z4RL was quite active on 40 Meters, between 7.002 and 7.017 MHz from 0145 UTC.

Other activity includes the following, by order of frequency:

5Z4SS	3.501 MHz	2115 UTC
5Z4RL	10.101 MHz	1915 UTC
5Z4FV	14.240 MHz	2115 UTC
5Z4PL	14.267 MHz	1515 UTC
5Z4FM	18.073 MHz	0945 UTC
5Z4LL	18.130 MHz	1500 UTC
5Z4FV	21.278 MHz	1700 UTC
5Z4PL	21.248 MHz	1300 UTC

Sierra Leone (9L)

This year at least two stations have been reported busy on the bands from Sierra Leone. The first of the two is 9L1IS, who has been working Europeans on 40 Meters SSB near 7.044 around 2100 UTC. Try 20 Meters SSB between 14.189 and 14.212 MHz from 1730 to 2145 UTC; or 15 Meters SSB between 21.199 and 21.211 MHz after 1645 UTC.

Also look for 9L1KA who prefers CW. His reports include 7.009 MHz at 0600 UTC, 10.102 MHz at 0715 UTC, 14.015 MHz at 2000 UTC, 18.077 MHz at 1345 UTC, and 21.020 MHz at 1130 UTC.

Other calls reported during January and February include:

9L1IK	7.043 MHz	2100 UTC
9L1MA	14.011 MHz	2100 UTC
9L1SL	14.240 MHz	1000 UTC

The latter call is that of the country's national society, the Sierra Leone Amateur Radio Society.

Pakistan (AP)

Only six calls were reported from Pakistan recently. These include:

AP2AR	7.045 MHz	2100 UTC
AP2BJ	14.273 MHz	0915 UTC
AP2JZB	18.145 MHz	1200 UTC
AP2KSD	7.045 MHz	1715 UTC
AP2N	3.800 MHz	2315 UTC
AP2RP	7.044 MHz	1415 UTC

All of the above have been European reports with the exception of AP2N, who had worked a DXer in Illinois on 10 February.

Scarborough Reef (BS7)

This one should be on right now as you read this. Scheduled for the period 30 April through 07 May, the DXpedition to Scarborough Reef is sponsored by the Chinese Radio Sports Association (CRSA) with the call BS7H. Included with the team are three American DXers.

San Andreas & Providencia (HKØ)

From San Andreas Island HKØER has been reported at least three times and on three different bands. On 26 January he was on 7.006 MHz at 0215 UTC and 10.105 MHz at 0145 UTC working the deserving DXers on the east coast of North America. Then 07 February he went to 17 Meters and worked Europe at 1630 UTC on 18.075 MHz.

Also reported was that of HKØOEP on 02 February working Europeans on 40 Meters SSB after 2300 UTC on 7.057 MHz.

Saudi Arabia (HZ)

From Dhahran, HZ1AB comes on the bands now and then. A club station, this one has been on 80 Meters between 3.503 and 3.508 MHz. Try looking for this one around 0230 UTC. Also, check 20 Meters near 14.007 MHz after 1330 UTC.

Other calls found during the first two months of this year include the following:

HZ1FL	14.214 MHz	1430 UTC
HZ1HZ	21.270 MHz	1515 UTC
HZ1MM	3.799 MHz	0015 UTC
HZ4RL	14.020 MHz	1515 UTC

As most of the calls seen have been the HZ1 prefix, the HZ4RL call may be questionable. Perhaps it was really 5Z4RL that was worked. The date was 25 January and he was on the air that day. But then, check this month's QSL Routes for HZ4RL.

One other call was reported on 14 February and that being the other prefix of Saudi Arabia. This was 7Z5OO on 14.009 MHz at 1433 UTC. The *Callbook*™ indicates that this call is assigned to Mike Manato.

Jan Mayen (JX)

Per Dahlen, LA7DFA, finishes his operation from Jan Mayen (EU-022) as JX7DFA this April. Much of his activity is concentrated on the lower bands with such reports from the middle of February: 1.839 MHz at 1945 UTC; 3.501 MHz at 1845 UTC; 3.789 MHz at 1500 UTC; 7.015 MHz at 1530 UTC; 14.233 MHz at 1515 UTC; 18.073 MHz at 0830 UTC; and 29.440 MHz at 1930 UTC. Hopefully, he may still be here, and on those frequencies mentioned.

The only other call we have is that of JX5EN who worked a DXer in Nova Scotia on 25 January at 0045 UTC near 7.002 MHz.

Southern Sudan (STØ)

John H. Fung Loy, PA3CXC, recently operated from Southern Sudan signing with PA3CXC/STØ. He collected some 1,200 contacts.

Heard Island (VKØIR)

According to *DX News Sheet* the return voyage between Heard Island (AN-003) and Kerguelen Is-

land had been very rough with 30-foot waves with all of the 20 team members, with the exception of one, becoming seasick. The total contacts made by the team amounted to a record breaking 80,673. Of that amount 35,846 contacts were with Europeans.

Of the U.S. call areas, the 4th led with 3,621 contacts with the 7th call area making only 1,479. The poor suffering sixes only collected 1,805 contacts. The total stateside contacts amounted to 20,986.

It is interesting to note that despite the bottom of the cycle, the DXpedition set an all-time record on accumulated contacts. *The DX News Magazine* compiled a list of past DXpeditions that ranged from 30,000 contacts. Shown below are the top ten, not including VKØIR, by position, call, DXCC country, date and total contacts.

1	4J1FS	M-V Island	May '92	74,495
2	ZA1A	Albania	Oct '91	69,500
3	3YØPI	Peter I Isl.	Feb '94	60,000
4	AH3C/ KH5J	Jarvis Isl.	Apr '90	55,000
5	AH1A	Howland Isl.	Jan '94	52,000
6	FOØCI	Clipperton Isl.	Mar '92	50,100
7	XYØRR	Burma	Aug '91	50,000
8	3Y5X	Bouvet Island	Jan '90	49,000
9	XF4L	Revilla Gigedo	Apr '89	47,943
10	3D2AM	Conway Reef	May '90	45,000

The Burma DXpedition was associated with Romeo Stepanenko, UB5JRR/3W3RR, and recent developments indicate that the DXpedition may never have taken place in that country. The same applies to his P5RS7 DXpedition to North Korea in December 1991 with 36,000 contacts.

This has been a very expensive DXpedition, roughly $320,000. Each of the 20 participants was required to pay $10,000 in addition to travel to Reunion Island. So, please help out with your donations. Please refer to last month's column for the address to send contributions. Remember, these DXers paid a lot for our fun, all 80,000 of us!

According to *QRZ DX* Bob Schmieder, KK6EK, would like to hear from those of you who were not successful in working VKØIR. He wants to know they could reach more people the next time. He says if there is something the DXpedition team could do better to let him know about it.

Macao (XX9)

Martti Laine, OH2BH, and two other Finnish DXers, were busy the latter part of January signing with XX9TR. However, later reports have this activity well into the middle of February. Reports have this one on 15, 20 and 40M, mostly CW.

Other reports from Macao:

XX9AW	18.137 MHz	1000 UTC
XX9BB	7.053 MHz	2015 UTC
XX9KC	14.195 MHz	1145 UTC
XX9Y	21.024 MHz	1815 UTC

As with Hong Kong, Macao will revert back to China at the end of this century.

IOTA

Frank, KL7FH, anticipates activity from several Alaskan island groups this coming spring and summer and will include the following:

- NA-010 Kodiak Island
- NA-028 Pribilof Islands
- NA-037 Semichi Islands
- NA-040 St. Lawrence Island
- NA-042 Gulf of Alaska Centre group
- NA-050 Beaufort Sea Coast group
- NA-059 Fox Islands
- NA-074 Nunivak Island
- NA-087 Sumagin Islands

Note that Fox Islands (NA-059) is not to be confused with Fox Island (NA-197).

Here is a selection of various IOTA islands reported during February 1997:

AN-012	Palmer Island	KC4AAC
NA-008	Ellsmere Island	VE8RCS
NA-026	Staten Island	KB2PFP
NA-027	Newfoundland Island	VO1XC
NA-036	Vancouver Island	VE7IM
NA-058	Cumberland Island	K1HT/P
NA-088	Bocas del Toro Archipelago	HP2CWB/HP4
OC-025	Manus Island	P29VIG
SA-022	Gama Island	LU5EWO/D
SA-032	Wellington Island	CE7AOY/8
SA-067	Frances Island	ZZØZ

If you are new to IOTA and were in the February ARRL DX bash be aware that JA1/JA2/JA3/JA7/JAØ, JA4, JA5, JA6, and JA8, will count for at least five different IOTA island groups.

Antique QSL Department

This month's collection of antique QSL cards is provided by Cam Marie, W3EPR, and date back at least 60 years. The first card is that of FB8C, operated by F.P. "Paul" Bour, of Tananarive, Madagascar. If you refer to the cover of our February issue this is the station that goes with the card. Date of this contact was 27 August 1935.

Jules Wenglare, W6YO, worked FB8C almost a year earlier on 05 December 1934. He also provided a similar photo. If you will refer to the cover again you will see Jules' card on the wall. It is the one fourth from the bottom and second row in from the left. It's the one with DVS, his former call of W8DVS.

Cam says that he was only running 60 watts to a long wire antenna in those days. Another one of his cards is VS1AA of Malaya, operated by J. MacIntosh. The date of the contact was 22 September 1937 on 10 Meters.

Does anyone have a pre-war QSL

DX Prediction — May 1997

Maximum usable frequency from West Coast, Central U.S. and East Coast *(courtesy of Engineering Systems Incorporated, Box 939, Vienna, VA 22183).*

The numbers listed in each section are the average maximum usable frequencies (MUF) in MHz for contacting five major areas of the world centered on Africa-Kenya/Nairobi, Asia-Japan/Tokyo, Oceania-Australia/Melbourne, Europe-Germany/Frankfurt, and South America-Brazil/Rio de Janeiro. Chance of contact as determined by path loss is indicated as bold *MUF for good, plain MUF for fair, and in parentheses for poor. UTC in hours.

WEST COAST

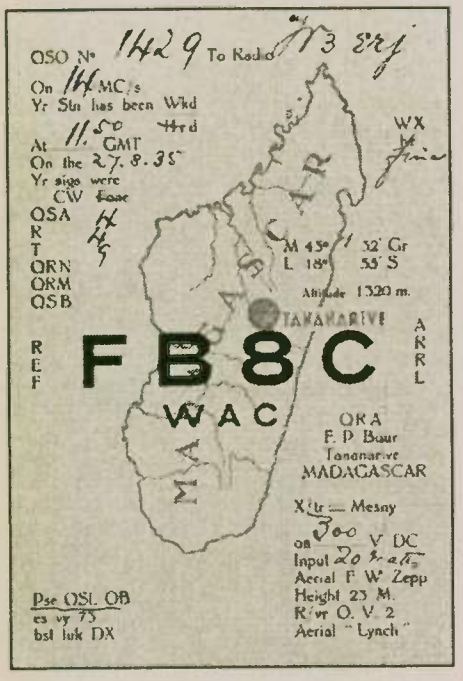
UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	*(13)*	*17	*15	*(11)*	*17
12	*(16)*	*13	*13	*(14)*	*(15)*
14	*(20)*	*16	13	17	20
16	*(22)*	15	*(12)*	19	24
18	24	*(13)*	*(12)*	18	26
20	24	17	23	16	28
22	20	21	28	13	*27
24	*(17)*	23	29	*(11)*	22
2	*(15)*	*24	29	*(10)*	*18
4	*15	*24	28	*15	*16
6	19	22	24	16	*14
8	*(16)*	*20	*17	13	*13

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	*(15)*	13	*16	12	*13
10	*(19)*	11	14	*(12)*	*14
12	24	*14	13	15	18
14	27	17	*(12)*	18	22
16	29	15	*(12)*	19	*25
18	*29	*(13)*	*(12)*	18	*27
20	23	*(18)*	23	17	*29
22	20	20	27	*(14)*	*28
24	17	20	29	12	*23
2	*15	19	29	*10	*19
4	*15	*(17)*	28	*15	*16
6	20	16	24	15	*15

EAST COAST

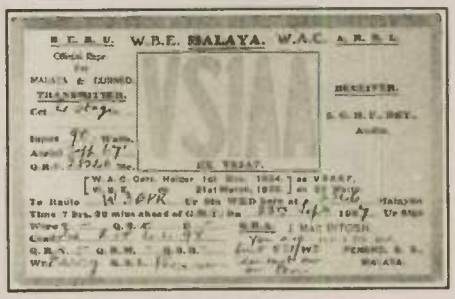
UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	17	13	*19	*(11)*	*14
9	*(18)*	*(11)*	15	14	*15
11	23	*14	14	16	17
13	26	16	*(13)*	*18	22
15	28	*(13)*	*(12)*	*19	*25
17	28	*(10)*	*(12)*	*19	*27
19	*26	*(13)*	*(17)*	18	*28
21	21	*(16)*	25	16	*28
23	18	*(18)*	28	14	*26
1	*16	19	29	*11	*21
3	*13	*(17)*	28	*14	*18
5	18	16	24	*13	*16



card for SP3RN, operated by Maximilian Kolbe? He was the Roman Catholic priest who was killed by the Nazis at Auschwitz and later cannonized a saint. Thaddeus A. Figlock, W1HGY, is interested in obtaining a copy of such a card.

Miscellaneous

The Southern California DX Club has elected the following DXers to serve as officers for the 1997 term: Larry Shipiro, K6RO, President; Will Angenent, KN6DV, Vice President; Jim Zimmerman, K6KZ, Secretary; Rich Bongeorno, WU6T, Treasurer; Harvey Shore, K6EXO, Membership Chairman; Dan Magro, W7RF, Director; and Harvey Laidman, N6HL, Director. The SCDXC has a new web site at http://www.primenet.com/~scdxc/.



After many years of editing and publishing *Inside DX,* Art Hubert, N2AU, has decided to call it quits. Art has had multiple sclerosis for the past 20 years. During the past few years he has had tried to prevent the disease from dictating his lifestyle but has found it extremely difficult. There was a period that Art could not put together a paper without some assistance from a non-ham.

Thus, one more DX newsletter has gone. The other one was the long running *The DX Bulletin* that ran through three owners. We wish Art well, and will miss the DX reports. Art had published 401 issues.

QSL Addresses

3B8GF	—Patrick Randany, Allee Brillant, Vacoas, MAURITIUS
4L7AA	—P.O. Box 32, Warsaw 00906, POLAND
6Y6A	—M.H. Kozu, P.O. Box 8202, C.S.O. Kingston, JAMAICA
9M2OM	—Ray Gerrard, 16 Jln Bkt Antarabangsa, Tmn Bkt Mewah, 68000 Ampang, WEST MALAYSIA
9Q5PA	—Frank Patris, c/o American Embassy Kinshasa, Unit 31550, APO 09828
CX5CW	—Pedro Cano Pereira, P.O. Box 10, 15000 Lagomar, URUGUAY
DK1RV	—Hans-Georg Goebel, P.O. Box 1114, D-57235 Netphen, GERMANY
DK7PE	—Rudolf Klos, Im Kirschgarten 17, D-55263 Wackernheim, GERMANY
DS5RNM	— P.O. Box 49, Nandaegu, 705600, SOUTH KOREA
E22AAA/8	— P.O. Box 104, Banqsue, Bangkok 10800, THAILAND
EK6GC	—P.O. Box 25, Charentsavan 378562, ARMENIA
F5RQQ	—Jean-Marc Vigier, 4 impasse des Lys, F-63800 Goumon d'Auvergne, FRANCE
HP2CWB	—Jose Ng Lee, Direct Distribution Ldt, Pty-201, P.O. Box 02-5275, Miami, FL 33102-5275
HS1RU	—Tawatchai Sriprasert, P.O. Box 73, Bangkok 10150, THAILAND
JA6NL	—P.O. Box 1679, Truk Lagun, MICRONESIA
JR5XPG	—Hidnori Uemura, 550-25 Korehiro Zoto, Nagao-Okawa-gun, Kagawa 769-23, JAPAN
LU1ZI	—Direccion Nacional del Antartico, Cerrito 1248, Buenos Aires, ARGENTINA
OD5VT	—Adel Dagher, P.O. Box

QSL Routes

These QSL routes come from several sources and cannot be guaranteed. Please report any errors.

3A/DJ7RJ	—DJ7RJ	9M2EU	—JA2EJI	EM1HO	—I2PJA	KHØV	—JJ1KZI	V26NA	—KX9X	XX9TRJ	—JH2MRA
3B8FQ	—RW6HS	9M2RC	—GW3JGQ	EM1HU	—I2PJA	KH4/N1VXT	—JA3IG	V47CA	—VE3BW	XX9TSO	—JA1RUJ
3DAØNX	—JM1CAX	9M2RY	—N4JR	EM1KA	—JA2JPA	KNØE/KH3	—K9UIY	V47KP	—K2SB	XU5AM	—W7AAM
3EØS	—HP2CWB	9M6NA	—JE1JKL	EN100IM	—UT8IT	LZØL	—LZ1KCP	V51GC	—W3HCW	XY1U	—JA8RUZ
3F2A	—HP2CWB	9M8CC	—PBØALB	EY8/K4YT	—K4YT	MMØPKX	—GMØPKX	V63AS	—JA3JA	YB1AQT	—DL2SDS
4K4QQ	—RA1QQ (*2)	9M8HIM	—JH3GAH	FG5GZ	—F6FNU	MUØASP	—F5SHQ	V63KU	—JA6NL (*2)	YC8TZR	—YB5NOF
4L1DX	—OZ1HPS	9N1RHM	—KV5V	FG5HR	—F6BUM	OD5/N4MUJ	—N4JR	V63MN	—JR1TNE	YI1AU	—WB3CQN
4S7BRG	—HB9BRM	9U5T	—F2VX	FT5ZG	—F5RQQ (*2)	OHØM	—OH3LQK	V73JA	—JA3JA	YI1US	—WA3HUP
5B4AGI	—N4JR	9V1ZW	—JA9IFF	GB100FI	—GWØANA	OHØMEP	—OH3LQK	V73RF/MM	—N3RF	YS8ZKK	—DK6KK
5H3ES	—DF9SU	A35AK	—W7TSQ	GB100LP	—GWØANA	OT73PL	—ON4RAT	V85HG	—JH7FQK	YV4JJ	—W3HCW
5K3SB	—HK3DDD	A35RK	—W7TSQ	GI/EI7NET	—EI6FR	OX3GL	—K6DC	V8AGT	—JH3GAH	Z24S	—W3HNK
5N4BHF	—OE6LAG	A92GD	—K1SE	H32A	—HP2CWB	P29VIG	—JA3IG	VA3NJ	—VE3SJL	ZB2/G4ZVJ	—G4ZVJ
5N8NDP/8	—1K5JAN	AH1A	—K1ER	H82A	—HP2CWB	P49V	—AI6V	VKØIR	—W4FRU	ZC6MPT	—JA1UT
5R8FH	—I1PIN	AH3C	—K9UIY	HF0POL	—SP3FYM	P40WA	—K9UWA	VK4WGL	—KB5GL	ZD8DEZ	—GØDEZ
5T5U	—JA1UT	AJ2U/VP9	—N2KJM	HH2WL	—KF6CN	PA3CXC/STØ	—N4FN	VK9PG	—JR5XPG (*2)	ZF2AH	—WA6VNR
5X1N	—SM7KOJ	AP2MY	—OM2SA	HL3ERJ	—HL1XP	PA6W	—PAØCKV	VK9XZ	—VK6UE	ZF2AU	—K5RV
5Z4SS	—JA1SQI	AP2N	—DF8WS	HP1XBI	—F6AJA	PJ5AA	—W1AF	VP2EV	—K7BV	ZF2EB	—K5RV
6O5DX	—F5PYI	BS7H	—JA1BK	HR8/KA2DIG	—KA2DIG	PJ9/W1WEF	—W1WEF	VP2V/WB8ZTY	—WB8ZTY	ZF2EP	—K5RV
6YØA	—K3DI	AX9XZ	—VK6UE	HS9AL	—I4LCK	PJ9C	—K1CPJ	VP5/N9CK	—N9CK	ZF2FT	—K5RV
6Y4A	—WA4WTG	C56XX	—GØUCT	HZ1AB	—K8PYD	PW8LF	—PY2VA	VP5/WJ2O	—WJ2O	ZF2LB	—K5RV
6Y5XX	—JE3MAS	C6A/N4RP	—N4RP	HZ1HZ	—N7RO	PYØFF	—W9VA	VP5CK	—N9CK	ZK1DI/P	—DK1RV (*2)
6Y6A	—JE3MAS (*1)	C91CO	—W4DR	HZ1TA	—OE6EEG	PYØZFO	—W9VA	VP8CTR	—UX1KA	ZL7ZB	—DJ4ZB
7O1A	—JH1AJT	CP8XA	—DG9NB	HZ4RL	—N2AU	R1ANF	—RK1PWA	WH0ABC	—JR6OCL	ZP9NX	—WØSA
7S3EYO	—SM3CER	CV2USA	—CX1SI	IQ4FE	—I4JEE	R1ANZ	—UW1ZC	WH2N	—JA7FMZ	ZPØV	—ZP5WYV
8P9AP	—K2EW	CX8DX	—F1NGP	IQ4FEI	—I4FEI	R420A	—RV6LFE	X5BYZ	—YU7KMN	ZP65V	—ZP5WYV
8P9EM	—G3VBL	CYØSAB	—VE1CBK	IU4Q	—IK4HLQ	RA2FBT	—DJ1OJ	X5SO	—YU1KN	ZS5UZ	—W4DR
8Q7AF	—I8RIZ	DU/W1DV	—KO7V	IU4U	—I4AUM	S21XX	—DL3NEO	XT2AW	—DF2WO	ZS9C	—ZS6BRH
8Q7BC	—OE1HBC	DU1A	—NK2U	J28YC	—F6EJI	S21XY	—DL3NEO	XT2DB	—F5LGQ	ZV5E	—PP5ZYZ
8Q7CR	—DF5JR	EA1BTL	—EA5TL	J69MV	—J6LMV	S21XZ	—DL3NEO	XU2FB	—N4JR	ZV8KL	—PY4KL
9G5BQ	—PA3GBQ	EA4ENK/P	—EA5OL	J75T	—DL6LAU	S79DQW	—SM7DQW	XX9KC	—JH2MRA	ZWØZ	—PY1NEZ
9H1PF	—K5YG	EA5HT/P	—EA5HT	JG8NQJ/JD1	—JA8CJY	T32BS	—L9UIY	XX9TEL	—JH2KAG	ZW1B	—PY1OB
9J2TF	—JA2BOV	ED3IFF	—EA3GII	JX7DFA	—LA7DFA	T42FRC	—CO2FRC	XX9TQY	—JA1OGX	ZXØB	—PY1VLF
9K2ID	—9K2RA	ED4MVH	—EC4AGG	K3DI/6Y5	—K3DI	T88YY	—JA1BRM	XX9TR	—OH2BH	ZZØZ	—PY1NEZ
9L1KA	—WØHSC	ED9MAG	—EA9PB	KC4AAC	—K4MZU	T9/WA5IKQ	—KH6BZF				
9L1MA	—WØHSC	EF4MVH	—EC4AGG	KC6DO	—JE8XRF	T94B	—N9JR				
9L1SL	—9L11S			KC6VW	—JA6BSM	T98P	—9A4SP				
				KC6YZ	—JA1BRM	TN6X	—DJ6SI				
				KE6DI/KHØ	—JA1BRK	TT8ED	—F5SEC				
				KG4ML	—WB6VGI	TT8WL	—DL3IAW				
				KHØ/KM5BW	—JA6CM	UE1QQQ	—RA1QQ				
				KHØDQ	—JF1SQC	V21PL	—DJ5KX				
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Notes:

*1. Two routes have been given for this one, direct or via a manager.

*2. Refer to addresses.

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Alex Zotov (EX: UA9JDY)
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626448 Raduzhny
Western Siberia, Russia

73,s
PSE QSL TNX

Meet Alex Zotov, RX9JN (ex-UA9JDY), of Raduzhny in Western Siberia. N6JM worked Alex last year when he was UA9JDY. My card went via the Bureau system, but the card from Alex came direct! *—photo courtesy of RX9JN*

PP8BV — Rubin Figueira, P.O. Box 1204, Manus-Amazonas, ZC, 69006-970, BRAZIL

PZ1DR — P.O. Box 396, Paramaribo, SURINAM

RA1QQ — Nick A. Smerdov, P.O. Box 24, Cherepovets 162627, RUSSIA

RAØCY — P.O. Box 7, Sovgavan 682880, RUSSIA

RU6BV/3 — Serge W. Guryew, Kadoshs-kay str. 13/1, Tuapse 352803, RUSSIA

S92JR — F. Fernandes, P.O. Box 173, SAO TOME & PRINCIPE via Portugal

SUØERA — E.A.R.C., P.O. Box 78, Heliopolis, Cairo 11341, EGYPT

T9DX — Sarajevo Contest Group, P.O. Box 61, 71000 Sarajevo, BOSNIA-HERZEGOVINA

T93M — Daniel Horvat, Grbavicka 53-6, 71000 Sarajevo, BOSNIA-HERZEGOVINA

TF3GC — Hal Christenen, P.O. Box 1058, Reykjavik, ICELAND

UR8LV — Vlad Shedovsky, P.O. Box 9909, Kharkov 310070, UKRAINE

VKØTS — Simon Trotter, VK1AUS, G.P.O. Box 600, Canberra, ACT 2601, AUSTRALIA

XW2A — P.O. Box 2659, Vientiane, LAOS

YI1FLY — Azahr, P.O. Box 55072, Baghdad, IRAQ

ZA1AZ — Ervin, P.O. Box 1501, Tirana, ALBANIA

ZD7BG — P.O. BoX 157, Jamestown, ST HELENA ISLAND

Many thanks to the following contributors: N6KZ, W7CF, Western Washington DX Club (WAØRJY), Northern Arizona DX Association (W7YS), American Radio Relay League (K5FUV), *The DX Magazine* (ND4X), *Island News* (W5IJU), *425 DX News* (I1JQJ), *The Ohio/Penn DX Bulletin* (KB8NW), *The Low Band Monitor* (KØCS), *DX News Sheet* (G4BUE), *QRZ DX* (N4AA), and *Inside DX* (N2AU).

The band conditions are still not the way they used to be. Conditions for the February ARRL DX Competition could have been better. I can't complain, though, as I worked five new ones on 80 Meters. Two more and I'll have 100 on that band. I heard those two but couldn't work them. I only run 100 watts to a dipole. I'm lucky if I get one contact per year! Just plain lazy I guess.

Our two-week winter visit to Alaska was quite interesting. It rained! Very 73 de John N6JM. **WR**

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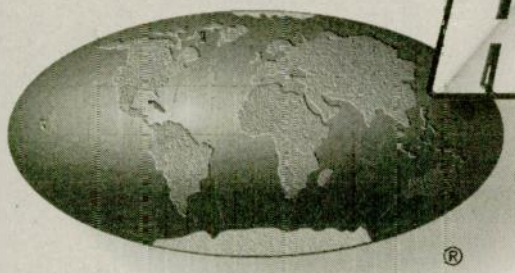

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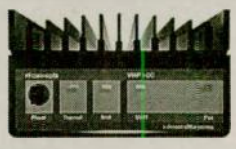

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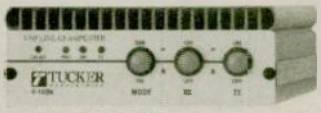

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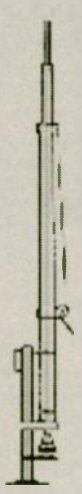

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DU9RG — Robin U GO, Tukananes, Cotabato City 9301, Philippines

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JY3ZH — Zedan Hussein, Box 11020, Amman, Jordan

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KC6OK — Association, P.O. Box 88, Wellston, OK 74881, U.S.

KG4AN — Guantanamo Bay ARC, Box 73, FPO , AE-09593, U.S.A.

KHØA — JF1MIA Takashi Sugawara, 1-12-14 Kamisueyoshi, Tsurumi-ku, Yokohama, 230 Japan) also through the bureau.

KHØA — JF1MIA or bureau (which will be much appreciated).

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KHØI — Hilario P. Feliciano, Box 7670 Svrb, Saipan MP 96950, Mariana Isl.,U.S.A.

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KH6FKG — Harry K. Nishiyama, 1990 Hale Hooko St., Hilo, Hawaii, HI 96720, U.S.A.

KP2BH — James Soto, Box 803, Frederiksted, Saint Croix, VI 00840, U.S.A.

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TA2J — S Fazil Turkan, Etemefendi Cad 12 1 D-18, Erenkoy, TR-81080 Istanbul

TA3J — Bureau or TA3YJ Nilay Mine Aydogmus, P.O. Box 876, 35124 Izmir, Turkey

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TR8JCV — Jean Claude Villard, Box 4110, Libreville, Gabon

TU2XZ — EA5KB (Spain only) or HH2HM/F

TZ6VV — Larry Erwin, P.O.Box 395, Segou, Mali or AAOGL

V31MX — KØBCN from Caye Cauker (NA-073)

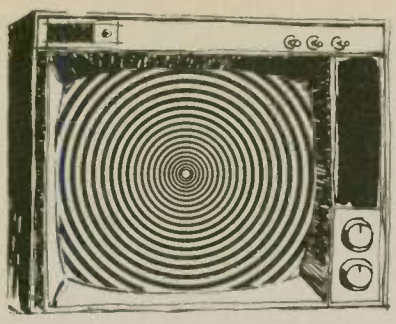
V51GB — Gerhard Bruns, Box 1165, Tsumeb 900, Namibia

V85HG — JH7FQK (CQWW SSB 1996 only).

VB9DH — Bureau VE (VE9DH)

VK1DX — VK1PJ Philip Rayner, 33 WilloughLy Crescent, Gilmore, ACT 2905, Australia

VP2E/Z — WB5CRG CBA for the contest WB5CRG only. w5robert@blkbox.com Box 66, Tirana, Albania



RFI & you

Jack Althouse, K6NY

Question

I am having a tremendous RF problem, the result of my new installation. This past weekend I installed a new 80-meter full wave delta loop near the house. It works well — in fact I'm getting out a lot better than with my old vertical — about 15-20 dB better. It was worth the effort to spend most of the day outside, although the temperature never got over 15° F.

Unfortunately there is so much RF in and around the shack that I can't actually use the thing without first disconnecting everything. Mostly phone lines, 12V lamps, etc. I think I can actually *smell* the ozone when I operate CW.

The delta loop is 270 feet in diameter and resonates at 3975 kHz. It is bottom corner fed (35 ft. from the house, 16 ft. high) with a little over 50 ft. of 450-ohm ladder line to a 4:1 balun to a little over 50 ft. of coax into a tuner. The apex is at 72 feet.

I once had a small sloper near the house and it did the same thing on 80 Meters.

Is this just a matter of too much RF too close to the house? Or am I missing something? What can I do?

Answer

The balun. Before I go into the RFI problem, I want to tell you that I'm worried about that 4:1 balun. Full wave loops have a feedpoint impedance of about 100 ohms. Your 50+ ft. of 450-ohm ladder line is close to a quarter-wave (quarter-wave at 3950 kHz is 62 ft.). Using the transformation equation from the *Antenna Book*, the impedance seen by the balun would be 2,000 ohms.

Baluns are made for specific impedance levels, usually 200 to 50 ohms for a 4:1 ratio. Be sure you have a balun designed to work at high SWR (Palomar SB-4 for example).

If the balun does work properly at this high impedance level the transformation will be from 2,000 to 500 ohms, so you have 10:1 SWR on the run of coaxial cable. If you ran the coax all the way you'd have only 2:1 SWR on it at resonance. Maybe there is a good reason for the cable setup because of the physical layout and, anyway, high SWR by itself does not cause RFI. It's easy to find out if you have a balun problem: Run full power key-down for a few minutes then check to see if the balun is hot. If it's not, you're alright.

The SOURCE. The first step in solving any RFI problem is to find the SOURCE of the RF. Where is the RF coming from? Of course it's being generated in your transmitter. But the transmitter is shielded and so are your antenna tuner, SWR meter, etc. It is almost certain that the RF is coming from the loop antenna. But it's possible that it could be coming from the feedlines. Why not check this? What could it hurt? It's easy — just disconnect the antenna from the feedline and replace it with a dummy load. So the antenna is 100 ohms and the dummy load is 50 ohms — the test is still valid. If the RFI goes away then you can be *sure* the SOURCE is the antenna.

The SOLUTION. If the SOURCE is the antenna you have at least two choices. The first is to move the antenna, not necessarily away from the house, but to rotate it in azimuth. Loops have sharp nulls at right angles to the plane of the wires; maximum radiation is in the plane of the wires. Depending on the location of your support towers or trees it might be possible to get a 20 dB drop in signal level by a small rotation of the loop.

If you can't do that then you have to look at the PATH that takes the radiation from the SOURCE (the antenna) to the RECEPTORS (the telephones, the 12V lamps, etc.). The PATH may be different for each RECEPTOR so look carefully at your physical layout for each RECEPTOR.

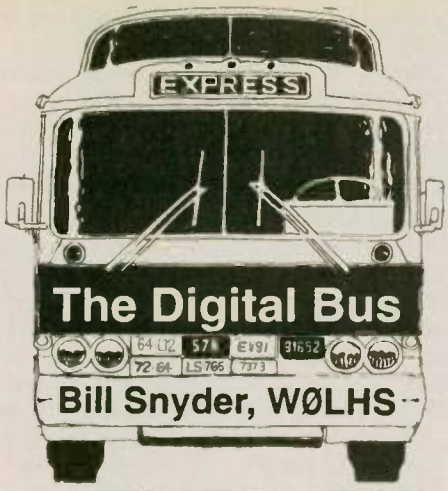
For example, let's look at the telephone RFI. Do the telephone lines come into the house near the antenna? If so, you could try ferrite toroids on the line as it enters the house. This might be the *cure* for all the telephones in the house. Or is the telephone wiring in the house closer to the antenna? If this is the case, you may have to put ferrite toroids or plug-in filters near each telephone.

The PATH to the 12V lamps probably is through the power lines. Ferrite toroids near the lamps are the most likely SOLUTION here. Put them around the power cord just as it enters the lamp. For 80 Meter band RFI use Mix 77 ferrites. They work well at these lower frequencies. Remember, there are many different ferrite types; not all will be effective at 4 MHz. Don't use any unknown toroid core you find at the flea market. Be sure you have the right ferrite for the frequency of the radiation causing your RFI. Otherwise you may just be wasting your time.

There is no magic way to get rid of an RFI problem like yours. You have to look carefully at each SOURCE, PATH, and RECEPTOR of the RFI. Then analyze each one, treat it with ferrites, filters, or bypass capacitors, measure the results, if you can, by reading your "S" meter, your RF current meter, or listening to the telephone interference, etc. If it's not completely gone try again until you have the final SOLUTION. It just takes intelligent application of the basic principles of RFI elimination and, above all, patience and persistence.

Correction

Worldradio subscriber Bob Wanderer, AAØCY, spotted an error in the March RFI column. Here is the correct information about field strength. Closer than about a wavelength from the antenna it falls off as the square of the distance (the near field). Further away (the far field) it falls off linearly with distance. **WR**



One of the hardest things in this digital world is trying to keep up with the technology. I gave up a few years ago, but the bug keeps turning up every now and then, and I think about it, but do very little otherwise.

The other morning I went down to my ham shack and right away. I knew something was wrong with the BBS that has been running night and day for a bunch of years — how many I can't recall, but it's a lot. The hard drive was buzzing louder than ever, and all I could think of was that the hard drive was saying good-bye to me after all these years.

The BBS computer was an old XT with a V-20 chip in it to speed it up a bit. No Windows, no CD-ROM, and now no BBS. I tried to back up the BBS directory and I am not sure of the success. Right in the middle of the backup operation the sound of the hard drive did a couple of dips in frequency; guess the old Sanyo 885 computer was singing its swan song.

My writing and publishing computer is a 486 job with 16 megs of RAM, a one-speed CD-ROM player, a Zip drive, and two hard drives which I bought new about 5 years ago. It is about to be replaced with a new Pentium job with 64 megs of RAM, a Zip drive, a 4 Gig hard drive and a 12-speed CD-ROM. I'm taking the plunge because in our family we have a chain of hand-me-down computers, with grandpa making the initial purchase. Besides this column, I have been writing a couple of books, and, more importantly, my memoirs for our grandkids to read some day.

So I'm hammering on the computer almost every day. Even if I never get the books finished, my grandkids will have a ball reading about what "old grandpa did for a living."

This very morning I dashed out 1,800 words about my two newsfilm shooting experiences with President John F. Kennedy. The first was when I made a trip on the press plane while JFK was running for the White House in 1960, and the second was when he came to Grand Forks, North Dakota to receive an honorary degree from the North Dakota University in 1963. Here's a summary of the incident:

My assistant and I were set up to film the arrival of JFK at the Grand Forks Air Base, while another crew of ours was 15 miles away at the University to cover that part of the ceremony. Air Force One arrived and President Kennedy, accompanied by North Dakota Governor Bill Guy and North Dakota Senator Quentin Burdick, all climbed into a helicopter for the quick trip to the University.

Just before they shut the door of the helicopter, a newspaper photographer, an elderly gentleman wearing an overcoat and hat, and carrying an old-fashioned Speed Graphic 4x5 camera, walked out on the field and right up to the window of the helicopter. He started hammering on it to get their attention.

"Hey you guys," he hollered, "come on out here so I can get a picture of you all!"

I was completely dumbfounded.

The Speed Graphic guy, with his press card tucked in his hat band like the movies of the 1920s, sounded like he was half drunk. I didn't know him, and I have never seen him since. But I was so aghast that I didn't start the motion picture camera (this was in the years before video cameras did the news) until the Secret Service crew with the president grabbed the photographer and hauled him off the tarmac. If I remember correctly, his feet weren't hitting the pavement as they lugged him away. It was a funny scene and I was asleep at the switch. I never did find out what happened to him for doing that, but I'll bet he had a hangover.

Less than two months later, President Kennedy was assassinated in Dallas, Texas.

Telegraph tales

My father, Joseph W. Snyder, born in Bohemia in 1882, worked for the Northern Pacific Railway as a telegrapher and wire chief for 48 years until his death in 1949.

In looking through his paper files, I discovered a few notes he had written in 1908 about the early days of the railroad telegraph system. The completed transcontinental Northern Pacific Railway was only about 25 years old at that time, so the communications equipment was rather primitive.

Telegraph circuits in my father's time were ground return, so only one wire was required to make it work. Because the resistance of the overhead wire increased with every mile traveled, each Morse code circuit had to be regenerated every so often. It was done by electronic relays that retransmitted the key pulses along the system. Copper wires had less resistance than iron, so they didn't require relaying as often, but iron wires were often used because they lasted better in sleet and ice storms, and sleet was a problem in our northern tier of states.

Here are excerpts from father's notes:

"A generation ago, the Northern Pacific had only one through telegraph circuit, St. Paul, Minnesota to Tacoma, Washington, and it was copper wire. Helena, Montana was a large relay office, employing 20 operators. Every message had to be relayed to the west coast.

"Helena was also a large and important relay office for the Western Union telegraph company. W.U. had

only two copper wires from St. Paul to the west coast on the N.P. poles alongside the track.

"I distinctly remember when the first N.P. Chicago-Seattle circuit was put in operation. It was a polar side of a quad (a method of multiplexing circuits) between St. Paul and Helena.

"During the San Francisco earthquake in 1906, all the telegraph facilities on this northern route were in continuous operation, day and night, for two whole weeks. The N.P. loaned one side of their only quad to alleviate the conditions. Messages transmitted were brief, but they quieted many aching and anxious hearts.

"Shortly after the Seattle Exposition began, Western Union business increased immensely. Two copper wires were strung from Chicago to Seattle on N.P. right-of-way, and shortly after that the N.P. was compelled to string one copper wire from St. Paul to Seattle. After the wire's installation, 20 relay operators were dispensed with in the Helena office. It gave St. Paul railway headquarters direct communication with the important divisional offices like Glendive, Billings, Livingston, Missoula, Spokane and Tacoma.

"It shows that an exposition (called a world's fair in later days) has a healthy influence upon a city and country.

"....Two iron wires, 6 gauge, were strung from Chicago to the coast on our northern route. I consider this one of the great feats that I have witnessed. The wires were sturdy and always the last to go down in an ice storm.

"With the construction of additional wires, the railroads elaborated on telephones, fitting them so as to be practical for train dispatching. Selectors on the telephone circuits make it possible for the proper handling of grain and other important rush business.

"When the telephone made its first appearance in train dispatching in 1907, many of the old-time telegraphers were of the opinion that wrecks would be numerous, and the money expended in the layout would be a waste; however, their guess was wrong. Since the advent of telephone dispatching the accidents have been reduced considerably. I venture to say that railroad travel nowadays in the safest and most dependable in the history of transportation.

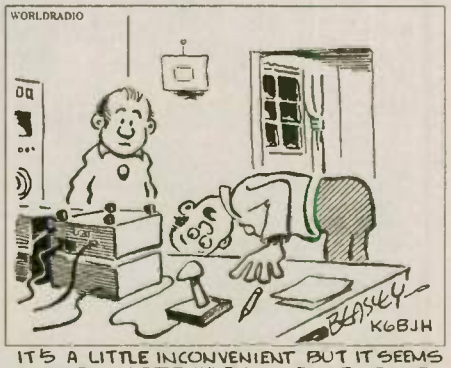
"The use of telephones had cut down the railroad telegraph talent, therefore it requires an experienced and tactful Morse operator in the commercial office to work with some of these beginners. Still the telegraph is an absolute necessity on the railroad, particularly for handling commercial business. People do not like to have their telegrams phoned within earshot of other people.

"The telegraph message is quite essential in railroading for speeding important diversions, like fruit, automobiles, etc. It is rapid, dependable and a record is obtained of every transaction."

Across the prairies of North Dakota sleet storms were a menace to communication lines. The ice would build up on the wires, the wind would cause the wires to swing and break. The heavy ice load on a number of wires would even cause poles to break, and the "domino effect" would take down miles of lines. The railroad used two double-guyed "H" fixture poles at about half-mile intervals to try and keep the domino effect from going too far.

When railroad and telephone company lines went down in an ice storm, ham radio was called on to dispatch the trains. As my father noted above, train dispatching was by telephone conversation, not Morse code. Right after World War II, I twice hauled my Collins 32-V transmitter and Hammarlund HQ-129 receiver up to the railroad dispatcher's office after an ice storm. Our local ham club members helped run the railroad for three days. The ham club in Jamestown, ND, about 100 miles away, operated the other end of the radio circuit.

My father used to complain about the northern lights, or aurora borealis. Every time the northern night sky would light up with the aurora visual display, earth currents, as Dad called them, would wreak havoc with the telegraph system. The various multiplexing system (used to put more than one circuit on telegraph wires) were highly susceptible to the effect of the aurora. All kinds of strange things would cause the relays to garble, and no wire traffic could be moved.

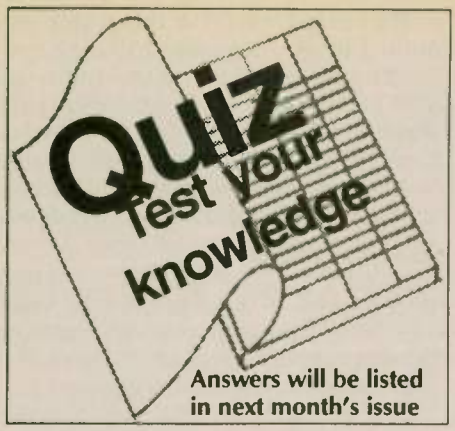


IT'S A LITTLE INCONVENIENT BUT IT SEEMS TO WORK BETTER WHEN I TURN IT UPSIDE DOWN

Eavesdropping

TO THE BEST OF MY KNOWLEDGE, I DON'T KNOW. . . I MISSED WORKING THAT VKØ STATION BUT DON'T CARE, I FIGGERED IF THEY NEEDED COLORADO THEY WOULD GIVE ME A CALL, THEN I'D WORK 'EM. . . OTHER HOBBIES INCLUDE MUSIC, STEEL GUITAR (PLAY ONLY THE BETTER HOTEL LOBBIES AND SALOONS) AND RADIO CONTROLLED AIRPLANES TO CHASE THE BASS FISHERMEN AROUND THE LAKE WITH. WORKING ON A RADIO CONTROLLED DUCK THAT WILL SHOOT BACK AT HUNTERS. . . GAVE UP ON A DEER THAT WOULD CHASE HUNTERS. . . HAVE HAD GOOD LUCK WITH SKUNKS THAT WILL SURROUND A DEER STAND ON COMMAND.

Thanks to KB8SFL, KØZL, and KF8KW. Write me: Bill Snyder, 1514 12th St. S, Fargo, ND 58103-4134. 73 de Bill, DIT DIT. WR



The answers to the quiz questions for last month are: 147. A; 148. B; 149. B; 150. A; 151. C; 152. A; 153. A; 154. C; 155. B; 156. D; 157. C; 158. B; 159. B; 160. A; 161. D; 162. A; 163. D; 164. C; 165. D; 166. A; 167. D

168. What is the half-power bandwidth of a parallel resonant circuit which has a resonant frequency of 10.1 MHz and a Q of 225?
A. 4.49 kHz
B. 44.9 kHz
C. 22.3 kHz
D. 223 kHz

169. What is the half-power bandwidth of a parallel resonant circuit which has a resonant frequency of 18.1 MHz and a Q of 195?
A. 92.8 kHz
B. 10.8 kHz
C. 22.3 kHz
D. 44.9 kHz

170. What is the half-power bandwidth of a parallel resonant circuit which has a resonant frequency of 3.7 MHz and a Q of 118?
A. 22.3 kHz
B. 76.2 kHz
C. 31.4 kHz
D. 10.8 kHz

171. What is the half-power bandwidth of a parallel resonant circuit which has a resonant frequency of 14.25 MHz and a Q of 187?
A. 22.3 kHz
B. 10.8 kHz
C. 13.1 kHz
D. 76.2 kHz

172. What is the effective radiated power of a station in repeater operation with 100 watts transmitter power output, 4 dB feedline loss, 3 dB duplexer and circulator loss, and 7 dB antenna gain?
A. 631 watts, assuming the antenna gain is referenced to a half-wave dipole
B. 400 watts, assuming the antenna gain is referenced to a half-wave dipole
C. 25 watts, assuming the antenna gain is referenced to a half-wave dipole
D. 100 watts, assuming the antenna gain is referenced to a half-wave dipole

173. What is the effective radiated power of a station in repeater operation with 100 watts transmitter power output, 5 dB feedline loss, 4 dB duplexer and circulator loss, and 10 dB antenna gain?
A. 800 watts, assuming the antenna gain is referenced to a half-wave dipole
B. 126 watts, assuming the antenna gain is referenced to a half-wave dipole
C. 12.5 watts, assuming the antenna gain is referenced to a half-wave dipole
D. 1260 watts, assuming the antenna gain is referenced to a half-wave dipole

174. What is the effective radiated power of a station in repeater operation with 120 watts transmitter power output, 5 dB feedline loss, 4 dB duplexer and circulator loss, and 6 dB antenna gain?
A. 601 watts, assuming the antenna gain is referenced to a half-wave dipole
B. 240 watts, assuming the antenna gain is referenced to a half-wave dipole
C. 60 watts, assuming the antenna gain is referenced to a half-wave dipole
D. 379 watts, assuming the antenna gain is referenced to a half-wave dipole

175. What is the effective radiated power of a station in repeater operation with 150 watts transmitter power output, 4 dB feedline loss, 3 dB duplexer and circulator loss, and 7 dB antenna gain?
A. 946 watts, assuming the antenna gain is referenced to a half-wave dipole
B. 37.5 watts, assuming the antenna gain is referenced to a half-wave dipole
C. 600 watts, assuming the antenna gain is referenced to a half-wave dipole
D. 150 watts, assuming the antenna gain is referenced to a half-wave dipole

176. What is the effective radiated power of a station in repeater operation with 200 watts transmitter power output, 4 dB feedline loss, 4 dB duplexer and circulator loss, and 10 dB antenna gain?
A. 317 watts, assuming the antenna gain is referenced to a half-wave dipole
B. 2000 watts, assuming the antenna gain is referenced to a half-wave dipole
C. 126 watts, assuming the antenna gain is referenced to a half-wave dipole
D. 260 watts, assuming the antenna gain is referenced to a half-wave dipole

177. What is the effective radiated power of a station in repeater operation with 200 watts transmitter power output, 4 dB feedline loss, 3 dB duplexer and circulator loss, and 6 dB antenna gain?
A. 252 watts, assuming the antenna gain is referenced to a half-wave dipole
B. 63.2 watts, assuming the antenna gain is referenced to a half-wave dipole
C. 632 watts, assuming the antenna gain is referenced to a half-wave dipole
D. 159 watts, assuming the antenna gain is referenced to a half-wave dipole is 8-volts

178. Structurally, what are the two main categories of semiconductor diodes?
A. Junction and point contact
B. Electrolytic and junction
C. Electrolytic and point contact
D. Vacuum and point contact

179. What are the two primary classifications of Zener diodes?
A. Hot carrier and tunnel
B. Varactor and rectifying
C. Voltage regulator and voltage reference
D. Forward and reversed biased

180. What is the principal characteristic of a Zener diode?
A. A constant current under conditions of varying voltage
B. A constant voltage under conditions of varying current
C. A negative resistance region
D. An internal capacitance that varies with the applied voltage

181. What is the range of voltage ratings available in Zener diodes?
A. 2.4 volts to 200 volts
B. 1.2 volts to 7 volts
C. 3 volts to 2000 volts
D. 1.2 volts to 5.6 volts

182. What is the principal characteristic of a tunnel diode?
A. A high forward resistance
B. A very high PIV
C. A negative resistance region
D. A high forward current rating

183. What special type of diode is capable of both amplification and oscillation?
A. Point contact diodes
B. Zener diodes
C. Tunnel diodes
D. Junction diodes

184. What type of semiconductor diode varies its internal capacitance as the voltage applied to its terminals varies?
A. A varactor diode
B. A tunnel diode
C. A silicon-controlled rectifier
D. A Zener diode

FM, REPEATERS & VHF

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FM vs. weak signal: Why we have to get along

Every time I start a column using the word "war" in the title, my editor gets at least a bit annoyed. "Think positively," Lou Ann says. After hearing her words for well over three years, they are beginning to sink in. That message was loud and clear in my mind the evening of 21 February when I read the following message on the VHF Reflector. It dealt with what appears to be a well orchestrated incursion by FM interests into what a long standing "gentlemen's agreement" has determined to be the "weak signal" region of 2 Meters:

"Subj: Repeater on 144.200
Date: 97-02-21 00:53:05 EST
From: (Kenneth J. Hendrickson)

"Today in Los Angeles, somebody put a cross-band repeater up — which put the N6ENV repeater (447.025 and/or 224.52) on 144.200 MHz. This operation caused interference to several people in QSO at the time. Worse yet, this was blatantly *illegal*, because repeaters are only allowed on 2M in the segments 144.5-145.5 and 146-148 MHz . . . . I don't know who did this, or exactly where they were, but the operation ceased about 20 minutes after a few of us complained.

"I understand that there is a group preparing a petition to the FCC requesting a change in the rules to make wide-band emissions illegal in the weak signal portions of the band(s). I would like to join this effort, and lend my support in whatever way I can. If anybody knows about this effort, rumored to be occurring someplace on the Internet, please let me know."

Well, the action of putting a repeater — more accurately a "remote-base" running in the FM mode on 144.200 is not "illegal," but it definitely is an immoral act. At least it is to me and a lot of others. It wasn't installed by anyone connected with the N6ENV repeater. In fact, when made aware of the situation, the system's owner, Frosty Oden, N6ENV, was quite dismayed. He also agreed with the assessment that the incursion was probably the work of one or more radio amateurs who are obviously a bit lower in the food chain than the rest of mankind.

Be that as it may, the question of the legality of such a system remains. Here is where semantics protect the perpetrator. The key is the title that the unwanted systems owner has given his relay device.

Was it a repeater or a remote?

The Part 97 rules provide that only 144.00 to 144.100 MHz is truly mode restricted. The rules also restrict in-band repeaters to a pair of subbands that run from 144.5 to 145.5 and 146.0 to 148.0 MHz. But a remote-base has no such restriction. It can output in the FM mode in any spectrum that FM emissions are permitted. Unless the frequency allocation has drastically changed since January, FM is permitted above 144.1 MHz! This means that any "idiot" with a bent for causing mayhem and who has achieved a Technician or higher license has the legal right to operate a remote base anywhere on 2 Meters except the area from 144.00 to 144.100. It does not make it the right thing to do, but no laws have been broken.

For you FMers out there reading this, it is a good time to stop and say: ". . . hey guys and gals — we are not alone! I may own a piece of equipment that can receive and transmit from 144 to 148 MHz — or 223 to 225 MHz — or the entire band from 440 to 450 MHz in the FM mode. This does not mean that my mode is the 'mode of choice' for everyone else using these bands."

If you were to come and visit the shack of WA6ITF you would find 2

Meters, 220 and 70 cm FM transceivers. You will also find 6-meter and 2-meter multi-mode radios tuned to the "recognized calling channels." Yes FMers, the secret is now out.

I am one of those "weak signal types" who actually enjoys chatting with other hams without the need of FM or repeaters. I am one of those who will sit for hours waiting for the "band to open" so that I can work DX on 6 Meter SSB that is commonplace on 75 through 10 Meters — and I do it because it is fun!

I am beginning to believe that one of the things we hams have lost sight of as a result of the so-called "FM revolution" is that ham radio is a hobby/service that we are supposed to enjoy. It was *73 Magazine*'s Wayne Green, W2NSD, who dubbed FM to be the "Fun Mode" but as the number of FM-only operators has grown, the "fun" seems to have been forgotten. In some cases, the "fun" has been replaced by hams suing hams with their lawyers laughing all the way to the bank. When "fun" is forgotten, all of us are the losers.

As noted in Ken Hendricksons' posting to the VHF Reflector, there is a move by the non-FM community to gain legal protection for itself from the users of FM. Specifically, the non-FM interests want to have legally protected subbands established on all bands above 50 MHz where any wide band mode would be prohibited.

Non-FM to file for UHF/VHF protection

As noted above, weak signal and other non-FM users of the VHF and UHF spectrum are saying it will be full speed ahead in preparing a rule-making request to the FCC to protect their turf from encroachment.

The move by weak signal, CW, SSB, EME, Amateur Television, satellite enthusiasts and even AM users to legally protect their subbands from encroachment by users of FM began on the Internet Usenet about three months ago. These hams say that they are very concerned about the memorandum signed between the ARRL and the NFCC because previous gentlemen's agreements dealing with protected spectrum may no longer be honored by the FM community. The loose-knit group will ask the FCC to legally designate certain portions of all amateur bands from 50 MHz to 13 centimeters as being off limits to any FM signal — be it simplex or repeated in any way. In other words, incidents like that described above would be made a regulatory violation.

Both 6 Meters and 2 Meters already have protected segments for Morse-only operation. The coalition will request additional band segment protection based on current ARRL bandplans. No protection is being asked for spectrum above 13 centimeters because there is not yet any mode standardization nor many users of these super high frequency bands.

Without enforcement — why bother?

With more and more incursions by FM into what is generally agreed upon as non-FM spectrum, I really cannot blame the non-FM interests for pursuing this course. But I also have to ask if new laws that will not be enforced are really the answer. Here is why.

As you know, I live in the place where FM and repeaters began almost four decades ago. For two decades the hams of Los Angeles have done everything possible to get the FCC — or any government agency — to act against these self professed ham "radio animals" that inhabit a particular repeater and who delight in making what amount to "electronic military incursions" to other repeaters and/or other areas of the band so as to make life miserable for all. And for two decades, the FCC has flatly refused. So, do you really think that if the FCC will not clean up this mess, that making new rules to supposedly "protect" other modes will really protect other modes? Don't bet on it.

To have that kind of "protection" you need a regulatory agency with teeth. You need an FCC that will go out, pull licenses, hand out suspensions and tell the "bad guys" to go "sue us if you don't like it!"

No more pirate coordinators — maybe

With the ARRL/NFCC Memorandum of Understanding now signed, and negotiations presumably underway for FCC recognition of the NFCO "SPOC" There are still several issues left unanswered. One is a question I posted over a year ago in my initial report on the St. Charles national coordinators meeting. The question is "What does all this mean to you and me?" There are several answers. Let's deal with only one this month. That of doing away with so-called "Pirate" and "Instant" coordinators.

This agreement will eventually lead to a clear delineation of where we as hams go to get local community approval to put up a new repeater. The people who put together this MoU are the coordinators currently listed in the *ARRL Repeater Directory*. As noted above, these are the so-called "recognized coordinators" — most of them "recognized" because of their longevity and the support they have from most of the "repeater owner-operators" in the communities where they serve.

Note that the operative words here are "recognized" and "repeater owner-operators." While not in the text of the "MoU" it is generally accepted that repeater coordination councils primarily serve the needs of repeater owner-operators.

If you ever attend a repeater council meeting, you will find that in most places, there are only two kinds of people who attend. There are those who come trying to get channel pairs on which to establish new repeaters, and others who are there to "protect" their system from any interference caused by a potential new repeater — even if it means voting to keep the new repeater from being sanctioned to an operating pair. It is rare that "repeater users" attend these meetings. When they do they are normally relegated to being observers who are forbidden to take part in any discussion or to vote on any issue.

While no announcement has been made, I suspect that one of the first

orders of business will be to "freeze" that list, thus eliminating most problems with "pirate coordinators" or "instant coordinators." The latter are usually individuals or very small groups who want to put up a repeater, but find that there is no available band-space for them. So, under current FCC lack of regulation, they exercise the prerogative of establishing themselves as a "coordinator" and simply taking what they want — even if it causes harm to the rest of the local ham community.

If nothing else, the day of the "pirate coordinator" will be gone once the NFCC, through the NFCO is recognized by the FCC as the single point of contact to the agency on all repeater related matters.

All of this hangs, however, on the willingness of the FCC to recognize and deal with the NFCO. It also means that the FCC must get off its bureaucratic "duff" and begin enforcing its own rules. More than anything else, this latter point could be what puts a hold on the concept of a SPOC. Without regulatory enforcement, no document or agreement is worth the paper it's written on.

The best repeater in town

This month we honor Southwest Louisiana where Jim Yorke, N5JDB, says that the best repeater is the KC5PNH Sulphur Amateur Club machine on 145.35(-). The system does require a CTCSS (PL) 103.5 Hz access tone.

All the world is a circle

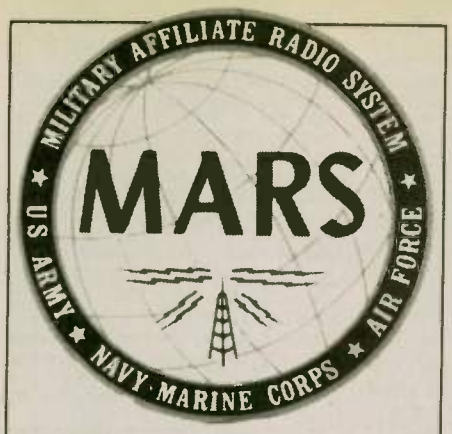
Last October we featured the new version of the old halo antennas that were once very popular with 6-meter mobile enthusiasts. The unit we discussed was made by Advanced Electronic Applications which went out of the ham radio business late last year. But to all of you halo enthusiasts, don't feel that the bottom of the world has fallen out. There is yet another source of halo antennas. Bob Earl, KD6UIH, sent me the following information to pass along to you:

"I just read your column the ***Worldradio*** October issue and your mention of the AEA 6M horizontal omni loop antenna they now have. I would like you to know there is a far better VHF loop antenna out there.

Norm Pederson, KB6KQ, in Bellflower, California has been crafting his Mini-Loop antenna for some time now at his home QTH. His antennas are used by serious weak signal operators all over the country. He makes loops for 6M, 2M, 222 MHz, and 70cm. They come completely assembled and tuned, so there is no assembly or tuning required of his antennas. They have been proven by many mountain-toppers in the VHF contests. I run a stacked pair at home to run a 2M SSB net on Wednesday nights. I also run a single loop mobile, but there are many who run stacked pairs mobile on 2M.

If you attend the Western States Weak Signal Society Conference, 28 and 29 September at KC6WLC's ranch, you will see many of Norm's loops on the mobiles at this get together."

If you'd like to contact Norm he can be reached via e-mail at: KB6KQNORM@aol.com. His address and phone number are: Norm Pedersen, KB6KQ, 14019 Charlemagne Ave., Bellflower, CA 90706, 310/925-0733. **WR**



Lorraine S. Matthew, N4ZCF
MARS call AAA9PR

Scuttlebutt — definition: rumor, gossip, grapevine. Add speculation, and that gives us quite a complete definition. Military veterans and current service personnel all know the scuttlebutt syndrome.

This phenomenon is also widely found in the civilian ranks.

Where is Army MARS today? That depends upon whose grapevine is currently in vogue.

Army MARS is undergoing great changes in all facets of operation. Earlier great changes in management operations have already occurred, and adjustments there are still being made in an effort to do more with less. By adapting and utilizing innovative techniques of operation and new technologies, management is doing much more with fewer assets.

Among the projects being completed are:

1. A new CONUS Regional Network Plan.

2. A new CONUS Emergency Operations Plan 3. A replacement document for the existing field manual — the operations guide under which Army MARS operates.

Many portions of these documents and other interoperability agreements must also be screened by the chiefs of the other service MARS and the service authorities under whom they operate. This all takes time and no one is more aware of that fact than Chief Army MARS and the Area Directors with whom he works.

These documents interact with each other and all differences and contradictions must be found and resolved. This final screening and writing can only be done at the management level.

Does this mean that Army MARS operations have come to a grinding halt? Of course not.

Standing operational protocols remain in place and are well known to every Army MARS member. Daily state nets still meet on schedule and are properly run. Special nets are still authorized and coordinated when they are needed.

Emergency nets are encouraged to be opened at the state level and have been opened during the many emergencies that have arisen across the country this year. States are encouraged to interact with each other if this becomes advantageous. There are many instances on record in which one state assisted another state because of propagation needs or the encroachment of the emergency across state lines. The only time that Army MARS HQ needs to become directly involved is when a massive potential emergency is approaching, such as a hurricane, or when a federal need is expressed by DOMS or other federal command entities. All of the weather-related emergencies, thus far, have been handled on a local level as called for in the standing operating procedures.

This month will give everyone who can attend the Dayton Hamvention (16-18 May) an opportunity to visit the Joint MARS booth and to attend the general meeting, the MARS Forum, which is usually held during the Saturday morning session. This meeting is open to everyone and is most informative. The host of the MARS activities at the Dayton Hamvention rotates among the three services. This year's MARS host is NavyMarineCorps MARS. The MARS Forum has featured excellent keynote speakers in the past and this year should be no exception. Stop by and meet the MARS chiefs in person. Find out more about the fine MARS programs which will only get better when all the new documents under which we will work are issued.

Armed Forces Day 1997 also occurs this month during the Dayton Hamvention (Saturday, 17 May). While most of the stations that participated last year will be on hand, there are certain to be other new facets to this great day.

This is the day during which we honor all the fine men and women in our Armed Forces. This is the day when military stations interact in crossband activities with civilian amateur operators all over the country. A highlight has always been the special message from the Secretary of Defense honoring not only the military personnel but also the Amateur Radio community and all that these fine people accomplish. Since CW in no longer used on MARS frequencies other digital modes will take its place to broadcast the Secretary of Defense message for a special certificate. Let's tune up our radios and find out what happens next.

Army MARS news out of Korea, sent by Andy Lamb/ABM4KOR the Korean Army MARS Director, includes the fact that for the first time Army MARS was included in an NEO (Non-combatants Evacuation Operation) which was run by the Army. It is these operations which will promote the safety of non-combatants in Korea should that area become violently active again. Army MARS is setting up VHF networks nationwide and is developing a highly mobile system with the issuance of 28 handheld transceivers. The base station is an Alinco DR-112.

Repeaters have been set up and are linked for uninterrupted service. A military unit has been using the system on a non-interference basis for routine missions. The MARS system has already assisted in locating a disabled vehicle on the Korean roadways.

The military MARS stations in Korea are using digital software to forward MARSgrams to/from the United States utilizing the Army MARS global network. All MARS sites in Korea have their digital systems set up for automatic forwarding and reverse forwarding of digital traffic. Approximately 3,000 MARSgrams are processed to/from Korea on a monthly basis.

All of us in Army MARS salute Mr. Lamb and the soldiers who are operating the MARS stations and the leadership supporting MARS in Korea. Bottom line — Army MARS is alive and well in Korea.

Army MARS continues to function well worldwide. Any scuttlebutt to the contrary is just that. Everything is in place for Army MARS operations to continue with the fine quality that has been our hallmark for many years.

Army MARS continues its march: Proud, Professional, and Ready. WR

Visit Your Local RADIO CLUB

For information on how to get your club listed in "Visit Your Radio Club," plus receive many other benefits, write to: Club Liaison, ***Worldradio,*** *2120 28th St., Sacramento, CA 95818.*

ARIZONA

Arizona Repeater Association. P.O. Box 35758, Phoenix, AZ 85069-5758. Operates 20 VHF & UHF rptrs. in AZ. Meets 4th Thurs./monthly, 7:30 p.m., 1515 E. Osborne, Phoenix. Info: (602) 631-4879 9/97

Cochise Amateur Radio Assn., (CARA). Meets 1st Mon./monthly, 7:30 p.m. at club facility on Moson Rd., Sierra Vista, AZ. WA7KYT/R 146.76(-) rptr. 5/97

Old Pueblo Radio Club, (OPRC). P.O. Box 42601, Tucson, AZ 85733. Meets 2nd Wed./monthly, 7:15 p.m., YMCA Lighthouse Cntr., 2900 N. Columbus (So. of Ft. Lowell). 2/98

Tucson Repeater Assoc., P.O. Box 40371, Tucson, AZ 85717-0371. Meets 2nd Sat./monthly, 7:15 p.m., Dept. of Emergency Mgmt., 130 W. Congress. Net Thurs. 7:30 p.m. 146.82(-), 146.88(-), 147.08(+), 448.550(-) & 145.15 Packet. 3/98

CALIFORNIA

Amador County Amateur Radio Club. P.O. Box 1094, Pine Grove, CA 95665. Meets 1st Thurs./monthly, 7:30 p.m., Jackson Sr. Cntr., 229 New York Ranch Rd., Jackson, CA. Info: call 146.835(-). 5/97

Amateur Radio Club of Anderson, (ARCA). Meets 2nd Thurs./monthly, 7:30 p.m. Amer. Legion Post #746, 1709 Bruce Dr., Anderson, CA. Net every Tue., 7:30 p.m. on 146.64. http://www.snowcrest.net/bgorski/index.html 4/98

Contra Costa Communications Club, Inc., WD6EZC/R. P.O. Box 20661, El Sobrante, CA 94820-0661. Meets 2nd Sun./monthly (except May & Dec.), 0630, Baker's Square Restaurant in Richmond, CA. Info: Ed Caine, KA6OFR, (707) 996-0962. 1/98

Downey Amateur Radio Club Inc., W6TOI. Meets 1st Thurs./monthly, 7:30 p.m., So. Middle Sch. cafetorium, 12500 S. Birchdale, Downey, CA. (Summer exception: contact Doug, N6WZI, (310) 929-1441). VHF net W6GNS rptr. 146.175(+) Thurs., 7:30 p.m. 5/97

East Bay Amateur Radio Club, Inc. Meets 2nd Fri./monthly, 7:30 p.m., Albany Sr. Cntr., 846 Masonic Ave., Albany, CA. Info: S. Primbsch, (510) 741-8227. 145.110 MHz. 6/97

Fresno Amateur Radio Club. Meets 2nd Fri./monthly, 7:30 p.m., Ernie Pyle School, 4140 N. Augusta, Fresno, CA. 146.94(-) 223.94(-). 11/97

Fullerton Radio Club, Inc., W6ULI. P.O. Box 545, Fullerton, CA 92632. Meets: 3rd Wed./monthly, 7:30 p.m., Sr. Citizens Ctr., 340 W. Commonwealth, Fullerton. Net ea. Tue., 8 p.m. 147.975(-). Info: Bob Hastings, K6PHE (714) 990-9203. 6/97

Garlic Valley Amateur Radio Club (GVARC). Meets last Sat./monthly, 8:30 a.m., Dimitri's Gilroy Inn, 1st and Wayland St., Gilroy, CA. Info: Hal, AC6LK, (408) 779-7787. Net Tues., 7:30 p.m. Club rptr. K6THR, 147.825(-). 6/97

Golden Empire Amateur Radio Society, (VEC). P.O. Box 508, Chico, CA 95927. Club call W6RHC, rptr. 146.85(-). Meets: 3rd Fri./monthly, 8 p.m. at 1528 Esplanade, Rm. 101, Chico. 9/97

Golden Triangle ARC, (GTARC). Meets 4th Mon./monthly, 7:30 p.m., Sharp Health Care Activities Rm., 25500 Med. Ctr. Dr., Murrieta, CA 92562. 6/97

Livermore Amateur Radio Klub, (LARK). Meets 3rd Sat./monthly, 9:30 a.m., City Council Chamber, 3575 Pacific Ave., Livermore, CA. Net Mon. 1900 on 147.12(+). For info: LARK Secretary, P.O. Box 3190, Livermore, CA 94551-3190. (510) 846-6513. 1/98

Marin Amateur Radio Club (MARC). W6SG. Box 151231, San Rafael, CA 94915-1231. Meets 1st Fri./7:30 p.m., Kaiser Hosp., Bldg. 2, Terra Linda, CA. (Summer exceptions; contact Pete N6IYU, 924-1578). Sun. AM Club at Red Cross, San Rafael. 9/97

Motorcycling Amateur Radio Club. Meets 2nd Sat./monthly, 8 a.m., Lake View Cafe, 2099 E. Orangethorpe, Placentia, CA, at 91 Fwy/Lakeview. Info: Ray Davis, KD6FHN, (714) 551-2010 or (714) 551-1036. 2/98

Mount Diablo Amateur Radio Club. P.O. Box 23222, Pleasant Hill, CA 94523. Meets 3rd Fri./monthly, 8 p.m., Our Savior's Lutheran Church, 1035 Carol Ln., Lafayette, CA. Net Thurs. 7:30 p.m. on 147.06(+) 100Hz PL. Info: (510) 932-6125. 7/97

North Hills Radio Club. Meets 3rd Tue./monthly, 7:30 p.m., Carmichael Elks Lodge, 5631 Cypress, Carmichael, CA. Nets 8 p.m. Tue., Wed., Thur., 145.190(-) (162.2) and 224.400(-). Contact: Bob, AC6HF, (916) 966-3654. http://www.ns.net/~NHRC 3/98

Orange County Amateur Radio Club. Meets 3rd Fri./monthly, 7:30 p.m., Orange County Red Cross, 601 N. Golden Circle, Santa Ana, CA. 146.550. Contact Bob Buss, KD6BWH, (714) 534-2995. 2/98

Poinsettia ARC. Meets 1st Thurs./monthly, 7:30 p.m., First Christian Church, Telegraph Rd. & Teloma Dr., Ventura, CA. Info: Bill Klope, KB6LJN, (805) 642-4955 4/98

River City A.R.C.S. Meets 1st Tues./monthly, 7 p.m., SMUD Bldg., Don Julio at Elkhorn, Sacramento, CA. License classes offered. For info contact Lyle, AA6DJ, (916) 483-3293. 9/97

Sacramento Amateur Radio Club. Meets 2nd Wed./monthly, 7 p.m. Sac. Blood Ctr., 32nd St. & Stockton Blvd., Sacramento, CA. Info net at noon on rptr. W6AKR 146.91(-). Steve Cates, KC6TEV, (916) 391-7341 or Les Ballinger, WA6EQQ, (916) 393-4775. 1/98

Sacramento "Old Timers" Amateur Radio Society and Sacramento Valley Chapter #169 QCWA (Quarter Century Wireless Assn.). Meets 2nd Wed./monthly, 8 a.m., Lyon's Restaurant, 1000 Howe Ave. For info contact Paul Wolf, W6RLP (916) 331-1830. 12/97

Santa Clara County Amateur Radio Assoc., (SCCARA) W6UW & W6UU. P.O. Box 6, San Jose, CA 95103-0006. (408) 249-6909. Meets 2nd Mon./monthly, 7:30 p.m., United Way, 1922 The Alameda, San Jose. Net all other Mon., 7:30 p.m. W6UU/R 146.385(+), 442.425(+) PL 107.2. 5/97

Shasta Cascade Amateur Radio Society, (SCARS). 2124 Airstrip Rd., Redding, CA 96003. Meets: 3rd Wed./monthly, 7 p.m. at the C.D.F. Conf. Rm. Grape St., near Parkview Ave., Redding, CA. Net 146.64, Wed., 8 p.m. 9/97

Sierra Foothills ARC. 1222 San Simeon Dr., Roseville, CA 95661-5365. Meets 2nd Fri./monthly, 7:30 p.m., Auburn Library (Beecher Rm.), 350 Nevada St. Thurs. nets 7:30 p.m. 145.430(-) (PL 94.8), 7 p.m., Fri. 28.415. 3/98

South Bay ARC. P.O. Box 536, Torrance, CA 90508. Meets 3rd Thurs./monthly, 7:30 p.m., Torrance Memorial Hosp., 3330 Lomita Blvd., Torrance, CA. Talk-in on WB6MYD rpt. 244.38(-). Info: (310) 328-0817. 7/97

Southern California Six Meter Club. P.O. Box 10441, Fullerton, CA 92635. USB Net Tue., 7:30 p.m., 50.150. FM Rpt. Net Thurs., 7:30 p.m., 52.86/52.36 tx. FM Smplx, call freq. 50.300. Net Sun., 10 a.m. 50.40. 4/98

Southern Sierra ARS. Meets 2nd Thurs./quarterly (Jan., Apr., Jul., Oct.), 7 p.m., Veteran's Hall, 125 East F St., Tehachapi, CA. Contact: Caroline, KD6KMN, (805) 822-5995. 147.06(-), 224.42(-), 145.090(S) Packet. 1/98

Stanislaus Amateur Radio Assoc., Inc. (SARA). P.O. Box 4601, Modesto, CA 95352. Meets 3rd Tues./monthly, 7:30 p.m., Stanislaus Co. Admin Bldg. 145.39(-) (PL 136.5), 224.14, 440.225 (PL 136.5). 3/98

Tri-County Amateur Radio Assoc. P.O. Box 142, Pomona, CA 91769. Meets: 2nd Mon./monthly, 7:30 p.m., Covenant United Methodist Church, corner of Towne Ave. & San Bernardino Rd. in Pomona, CA. 1/98

Trinity Country ARC. P.O. Box 2283, Weaverville, CA 96093. Meets 2nd Wed./monthly, County School Adm. Bldg. in Weaverville, 7:30 p.m., Rptrs: WA6BXN 146.73(-) PL 85.4, W6HOR 146.925(-) PL 85.4. 10/97

United Radio Amateur Club, K6AA. L.A. Maritime Museum, Berth 84, Foot of 6th St. San Pedro, CA 90731. Meets 3rd Fri./monthly (except Dec.), 7:00 p.m. Monitors 145.52 Simplex 10 a.m.—5 p.m. 7/97

Vaca Valley Radio Club. Meets 2nd Wed./monthly, 7:30 p.m. (Board mtg., 7 p.m.) Vaca Fire Dist. Stn., Vine St. in Vacaville, CA. Rptr. WD6BUS 145.47(-) PL 127.3. Mary Turner, (707) 451-2134. 5/97

Victor Valley Amateur Radio Club. P.O. Box 869, Victorville, CA 92392. Meets 2nd Tues./monthly, 7:00 p.m., Presidio Recreation Cntr., 11100 Apple Valley Rd., Apple Valley, CA. Talk-in 146.94(-), PL 91.5. Net Sun. 7 p.m. 146.94(-). 1/98

West Coast Amateur Radio Club, (WCARC). P.O. Box 2617, Costa Mesa, CA 92628. Meets 3rd Thurs./monthly, 7 p.m., Fountain Valley Sch. Dist. office, 17210 Oak St., Fountain Valley, CA. 145.440(-) PL 136.5. For info: Joe, KA6LPZ, (714) 963-4426. 10/97

Westside Amateur Radio Club. P.O. Box 11092, Marina del Rey, CA 90295. Meets 3rd Thurs./monthly, 7:30 p.m., Red Cross Bldg., 1450 11th St., Santa Monica, CA. Net every Tues., 8 p.m., 146.67(-). Voice mail: (310) 917-1100. 5/97

Willits Amateur Radio Society, (WARS). P.O. Box 73, Willits, CA 95490. Meets 4th Mon./monthly, 7 p.m., Brooktrails Fire Dept. (northwest of Willits). Talk-in: 145.13(-), PL 103.5. 9/97

Yolo Amateur Radio Society. Meets 1st Tues./monthly, 7:30 p.m., Training Rm. of the Davis PD, 226 F St., Davis, CA. Contact Dave Nishikawa, KC6YFG, (916) 756-6375/Talk-in 144.430. 10/97

Yuba-Sutter Amateur Radio Club, (YSARC). P.O. Box 1169, Yuba City, CA 95992. Meets 2nd Tue./monthly, 7:30 p.m., Yuba City Police Bldg., 1545 Poole Blvd., Yuba City. 1/98

CONNECTICUT

Tri-City Amateur Radio Club. P.O. Box 686, Groton, CT 06340-0686. Meets 2nd Tue./monthly, 7 p.m., St. Lukes Lutheran Church of Gales Ferry on Rt. 12. Info: Bob Dargel, KA1BB, (860) 739-8016. 10/97

FLORIDA

Gulf Coast ARC. P.O. Box 595, New Port Richey, FL 34656. Meets 4th Mon./monthly, 7:30 p.m., 3852 Prime Place, New Port Richey. WA4GDN rptrs. 146.67(-) & 145.33(-), serving all of Pasco County. 9/97

Indian River ARC, Inc., (IRARC). 597 Capri Rd., Cocoa Beach, FL 32931-3011. Meets 1st Thurs./monthly, 7:30 p.m., Community Church of the Nazarene, 400 Crockett Blvd., Merritt Island, FL. 3/98

Port St. Lucie ARA. Meets 1st Fri./monthly, 7:30 p.m., St. Andrews Church, Prima Vista Blvd., Port St. Lucie, FL. Contact: Roy Cox, KT4PA, (561) 340-4319. Call in 146.955(-). 9/97

Saint Petersburg Amateur Radio Club. Meets 1st Fri./monthly, 7:30 p.m., Red Cross Bldg., 818 Fourth St. North, St. Petersburg, FL. Nightly net 6:30 p.m., 147.06(+). Rptrs. 147.06(+), 224.66(-), 444.475(+). Info: C. Wagner, KE4EYI, (813) 896-4274. 1/98

South Brevard Amateur Radio Club. P.O. Box 2205, Melbourne, FL 32902. Meets 1st Tue./monthly, 7 p.m., Public Library, 540 Fee Ave., Melbourne, FL. 6/98

Vero Beach ARC, W4OT. P.O. Box 2982, Vero Beach, FL 32961. Meets 2nd Thurs./monthly, 7:30 p.m., Emerg. Mgmt., Indian River County Adm. Bldg., 1840 25th St. Net Mon., 7:30 p.m. 146.64. 1/98

GEORGIA

Dalton Amateur Radio Club, Inc., (DARC). P.O. Box 143, Dalton, GA 30722-0143. Meets 4th Mon./monthly, 7:30 p.m., Magistrate Court Bldg., corner of Waugh St. & Thornton Ave., Dalton, GA. Info: Harold Jones, N4OTC, 706/673-2291. 3/98

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets 2nd Tue./monthly, 7 p.m., Army Reserve Center, 470 W. Lanikaula St., Hilo. Talk-in on 146.88(-). 6/97

Emergency Amateur Radio Club, (EARC). P.O. Box 30315, Honolulu, HI 96820-0315. Meets 4th Thurs./monthly, 7 p.m., Lincoln Elem. Sch., 615 Auwaiolimu, Honolulu. Nets: nightly 7:30 p.m., 146.88 & 146.80. Rptrs: 146.76(-), 146.80(-), 146.88, 146.98(-), 146.94(-). Info: (808) 833-6944, WH6CZB. 10/97

Koolau Amateur Radio Club, (KARC). 45-145 Mikihilina St., Kaneohe, HI 96744. Meets 2nd Sat./monthly, 9:30 a.m., Hoomaluhia Pk., Kaneohe, HI. 4/98

ILLINOIS

Chicago FM Club Inc., (CFMC). P.O. Box 1532, Evanston, IL 60204. 146.76(-)(PL 107.2)/224.10/224.18/443.75 (PL 114.8). Ham help line: (773) 262-6773. Info net Tues., 9 p.m. on 146.76(-). Meets 3rd Wed./monthly, 8 p.m. 7/97

Dupage Amateur Radio Club. (DARC). P.O. Box 71, Clarendon Hills, IL 60514. Meets 4th Mon./monthly, 7:30 p.m., Holy Trinity Church, SE corner of Cass & Richmond, Westmont, IL. Net Sun., 9 p.m. on 145.25. W9DUP repeaters 145.25(-) (107.2PL), 442.55(+) (114.8PL), 224.68(-). 2/98

Fox River Radio League. P.O. Box 673, Batavia, IL 60510-0673. Meets 2nd Tue./monthly, 7:30 p.m., Old Bank Bldg., 900 No. Lake St., lower level, Northgate Shopping Ctr. & Rt. 31, Aurora, IL. 7/97

Hamfesters Radio Club, W9AA. P.O. Box 42792, Evergreen Park, IL 60805. Meets 1st Fri./monthly, 8 p.m., Crestwood Civ. Ctr., 139th & Kostner, Crestwood, IL. Nets: Sun. (local) 0100 UTC, 28.410 MHz; Mon. 9 p.m. 146.43 S., Packet Mailbox 145.65 MHz. Info: (312) 974-3291. 1/98

Peoria Area Amateur Radio Club, (PAARC). P.O. Box 3508, Peoria, IL 61612-3508. Meets 2nd Fri./monthly, Red Cross Chaper House, 311 W. John Gwynn Jr. Ave., Peoria, IL. Voice mail: (309) 692-3378. Rptrs: 147.075(+) & 146.85(-). 5/97

Schaumburg ARC. Meets 3rd Thurs./every other month, 7 p.m., Rec. Center, corner of Bode and Springinsguth Roads. Nets all other Thurs., 9 p.m., 145.23(-). Info: (708) 612-9446. 8/97

The Starved Rock Radio Club, W9MKS. P.O. Box 198, Tabor St., Leonore, IL 61332. Meets 1st Mon./monthly, 7:30 p.m. Rptr. net 7 p.m. Wed./wkly., 147.12(+). 11/97

LOUISIANA

Baton Rouge ARC. Meets last Tue./monthly, 7 p.m., Catholic HS cafeteria, 855 Hearthstone Dr., Baton Rouge, LA. Info: Norma Ramey, WD5GFD, (504) 654-6087. Club rptr. 146.79(-). 9/97

MAINE

Androscoggin Amateur Radio Club. Meets 1st Wed./monthly, 7 p.m., Auburn Police Station, 1 Minot Ave., Auburn, ME. Info: (207) 782-8699. 11/97

MASSACHUSETTS

Quannapowitt Radio Assoc., Inc. 6 Savin St., Burlington, MA 01803. Meets 4th Fri./monthly, 8:00 p.m., (May & Nov. meets 3rd Fri.), at Lynnfield-Wakefield Methodist Church, Wakefield. Info: Jim Chamberlain, N1AKG, (617) 944-5098. 3/98

Wellesley Amateur Radio Soc., & Babson Wireless Club. Meets 1st & 3rd Thurs./monthly, 7:30 p.m., Wellesley, MA (Sept.- June) Talk-in 147.03(+). Info: J. Driscoll, NV1T, (617)444-2686. 12/97

MICHIGAN

Adrian Amateur Radio Club, W8TQE. Box 26, Adrian, MI 49221. Meets 1st Fri./monthly, 7:30 p.m., Civil Air Patrol Bldg., Lenawee Co. Airport, Cadmus Rd., Adrian. ARES net Sun., 9 p.m. 145.37(-). Info: Brian Sarkisian, KG8CO, (517) 265-1537. 4/98

Eastern Michigan Amateur Radio Club, (EMARC). Meets 1st Tue./monthly, 8:30 p.m., Woodland Developmental Cntr., Kimball Township (Range @ Smiths Creek Rd.). Contact Frank Forsyth, N8XTO, (810) 987-3540. Talk-in: 147.30(+). 9/97

Edison Radio Amateurs Assoc. Meets 2nd Fri./monthly (Sept.-June), 7 p.m., Edison Western Wayne Div. HQ, 8001 Haggerty, Belleville, MI (So. of Ecorse Rd.). Net each Thurs., 8 p.m. on 145.33(-) and 442.80(+) rptrs. 4/98

Genesee County Radio Club, Inc. Meets 3rd Tues./monthly, 7:30 p.m., Genesee Area Skill Center, Torrey Rd., Flint, MI. (810) 634-6077. 3/98

MINNESOTA

Viking Amateur Radio Society (VARS). Meets last Tues./monthly, 7:30 p.m., basement EOC, Waseca, MN. Call-in 146.94(-). 7/97

MISSISSIPPI

Jackson Amateur Radio Club, Inc. Meets 3rd Thurs./monthly, 7 p.m., Am. Red Cross Bldg., Riverside Dr., Jackson, MS 39202. 10/97

NEVADA

Frontier Amateur Radio Society, (FARS). Meets: 2nd Sat./monthly, bkfst. mtg. 8 a.m., Country Inn, SE cor. W. Sunset, Valle Verde, Henderson NV. Club info: Jim Frye, NW7O, (702) 456-5396 or Bill Scarborough, WA6ASI, (702) 269-9551. 7/97

Wide Area Data Group, Inc. P.O. Box 3132, Sparks, NV 89432. Meets 1st Sat./monthly, 9 a.m., Jack's of Reno, 5485 Equity Ave., Reno. Info: (702) 356-8200. Call in on 147.30(+) MHz. 5/97

Sierra Intermountain Emergency Radio Assoc., (SIERA). Meets 2nd Tues./monthly, 7:30 p.m., Carson Valley Museum & Cultural Cntr., 1477 Hwy 395 North, Gardnerville, NV. Contact: George Uebele, WW7E, (702) 265-4278, 147.330 MHz. 11/97

Sierra Nevada Amateur Radio Society (SNARS). P.O. Box 7727, Reno, NV 89510-7727. Meets 2nd Sat./monthly, 0800, KT's Restaurant, 5485 Equity Ave. (corner Equity & Financial). 146.61(-) PL 123. 443.075(+) PL 123. Contact Swede Ohlson, WDØAXP, (702) 852-2402. 1/98

NEW HAMPSHIRE

Great Bay Radio Assn., WB1CAG. P.O. Box 911, Dover, NH 03820. (603) 749-2970/332-9107. Meets 2nd Sun./monthly, 7 p.m., Rochester Community Ctr. Talk-in: 147.57. 11/97

NEW JERSEY

10-70 Repeater Assn., 235 Van Emburgh Ave., Ridgewood, NJ 07450. Meets 1st Wed./monthly (except July & Aug.), 8 p.m., VFW, Valley Rd., Clifton, NJ. Rptrs. 146.70(-), 224.84(-), 444.15(+). 10/97

Bergen Amateur Radio Assoc., (BARA). P.O. Box 304, Hackensack, NJ 07601. Meets 1st Sun./monthly, New Milford Elks Lodge, Patrolman Ray Woods Dr., New Milford, NJ 07646. Nets: 28.350 Mon. 9 p.m., 144.40 9 p.m. Wed. 5/97

South Jersey Radio Assoc., (SJRA), K2AA. Meets Jan.-Oct., 4th Wed./monthly, 7:30 p.m. (Nov.-Dec. 3rd Wed), Bloomfield Fire Hall in Pennsauken, NJ. Talk-in: 145.29(-) rptr. 8/97

NEW YORK

Amateur Radio Assoc. of the Tonawandas, (ARATS). P.O. Box 430, No. Tonawanda, NY 14120. Meets 3rd Tues./monthly (except July & Aug.), 7:30 p.m., Sweeney Hose Co., 499 Zimmerman St., No. Tonawanda, NY. Talk-in: 146.955(-) rptr. W2PVL. 10/97

Genesee Radio Amateurs, (GRAM). N.Y.S. Civil Defense Ctr., State St., Batavia, NY 14020. Meets 3rd Fri./monthly, 7:30 p.m. 147.285(+) W2RCX. 1/98

Hall of Science Amateur Radio Club. P.O. Box 131, Jamaica, NY 11415. HOSARC, 2nd Tue./monthly, Hall of Science Bldg., 47-01 111 St., Flushing Meadow Park, 7:30 p.m. Info: Arnie, WB2YXB, (718) 343-0172. 2/98

Orleans County Amateur Radio Club, (WA2DQL). Meets at Emergency Management Office, West County House Rd., Albion, NY 14411, 2nd Mon./monthly, 7:30 p.m. 145.27(-) — WA2DQL. 12/97

PROS, Pioneer Radio Operators Society. Meets 1st Wed./monthly, 7 p.m., Sardinia Town Hall, Savage Rd., Sardinia, NY. Net 9 a.m. Thurs. 3853 kHz. 3/98

The Radio Club of J.H.S. 22, N.Y.C., Inc. WB2JKJ. P.O. Box 1052, New York, NY 10002. 24-hr. hotline: (516) 674-4072. Fax: (516) 674-9600. Non-profit org. using Ham Radio to enhance the education of youngsters, nationwide. Join us — "Classroom Net," 7.238 MHz, 7 a.m. E.S.T. PSE QSL! 9/97

Suffolk County Radio Club, (SCRC). Meets 3rd Tues./monthly, 8 p.m., Bohemia Rec. Ctr., Ruzicka Way, Bohemia, NY. Talk-in: 145.21(-) rpt. Morten Eriksen, KA2UIU, (516) 929-6911. 4/98

Westchester Amateur Radio Assoc., (WARA). Meets 1st Wed./monthly, 7:30 p.m., Am. Red Cross Bldg., 106 N. Bway, White Plains, NY. Club nets: (10 Meters) 28.420 MHz Tues., 8 p.m. (2 Meters) 145.495(-) rptr., Thurs., 8 p.m. Info: Dan Grabel, N2FLR, (914) 723-8625. 4/98

Westchester Emergency Comm. Assoc., (WECA). Meets 2nd Mon./monthly, 7:30 p.m., Westchester County Ctr., White Plains, NY. Contact WB2VUK (914) 631-7424 or WECA INFO LINE (914) 741-6606 for details. Talk-in WB2ZII/R 147.06(+) PL 114.8/2A. 10/97

Yonkers Amateur Radio Club, (YARC). Meets 2nd Sun./monthly, 10 a.m., 1st Pct., Yonkers Police Station, E. Grassy Sprain Rd., Yonkers, NY. Info: P.O. Box 378, Centuck Sta., Yonkers, NY 10710. (914) 963-1021. 146.865(-), 440.150(+). 10/97

NORTH CAROLINA

Stanly County Amateur Radio Club. Stanfield, NC. Meets 4th Thurs./monthly, 7 p.m. Talk-in 146.985(-) for location. Wed. net 9 p.m. 146.985(-). Fri. tech net 9 p.m. 147.390(+). Phone: (704) 888-4815. 5/97

OHIO

Ashtabula County ARC. Ken Stenback, AI8S (964-7316). County Justice Ctr., Jefferson, OH. Meets 3rd Tue./monthly, 7:30 p.m., County rptr., 146.715(-). 10/97

Clyde Amateur Radio Society (CARS). Meets 2nd Tue./monthly, 7 p.m., Municipal Bldg., Clyde, OH 43410. NF8E rptr. 145.35(-) and 442.625(+) MHz. Net Sun. 9 p.m. Info: E. Remaley, KA8CAS. 3/98

Greater Cincinnati Amateur Radio Assn., (GCARA). ARRL SCC, meets 4th Wed./monthly, 7:45 p.m., Brusman's Hall, 4813 Vine St., St. Bernard. Nets: Mon. 9 p.m. EST 147.15(+), Thurs. 9 p.m., 1.936 MHz. Info: WA8STX, (513) 772-7378 or KW8X 961-3250. 11/97

Toledo Mobile Radio Association. P.O. Box 273, Toledo, OH 43697; (419) 243-3836. Meets 2nd Wed./monthly, 7:30 p.m., Luke's Barn, Lucas County Rec. Ctr., 2901 Key St., Maumee, OH. 147.270(+) Net every Sun. 8:30 p.m. 1/98

Van Wert Amateur Radio Club, Inc. P.O. Box 602, 1220 Lincoln Hwy., Van Wert, OH 45891. Meets 1st & 3rd Sat./monthly, 8 p.m. Call-in: 146.85(-). 2/98

Western Reserve Radio Assoc. P.O. Box 81252, Cleveland, OH 44181-0252. Meets 2nd Wed./monthly, 7:30 p.m., Jenkins Community Cntr., Main St., Olmsted Falls, OH. Info: B. Beckman, N8LXY, Pres., 146.73(-), 444.900(+) MHz. 6/97

OREGON

Central Oregon Coast ARC. P.O. Box 254, Florence, OR 97439. Meets 3rd Sat./monthly, & every Wed./weekly, 9 a.m. for brkfst. at Woody's Rest. Net Wed. 7 p.m., 146.80(-). Info: 997-2323 or 997-4074. 1/98

Central Oregon Radio Amateurs, (CORA). P.O. Box 723, Bend, OR 97709. Meets last Thurs./monthly, 7 p.m., Bend Sr. Ctr., 1036 NE 5th, Bend, OR. 147.06(+) MHz. Info: (541) 385-9497. 6/97

Keno Amateur Radio Club. P.O. Box 653, Keno, OR 97627. Meets 3rd Thurs./monthly, 7 p.m., Keno Fire Stn. Rptr. 147.32(+) W7UFM. Info: Tom Hamilton, WD6EAW, (503) 883-2736. 11/97

Umpqua Valley Amateur Radio Club, Inc. P.O. Box 925, Roseburg, OR 97470. Meets 3rd Thurs./monthly, 7:30 p.m., Douglas County Courthouse, Rm. 310, Roseburg, OR. Info: W5PII/R 146.90(-) or (503) 673-1310. 6/97

PENNSYLVANIA

Butler County Amateur Radio Assn. P.O. Box 1787, Butler, PA 16003-1787. Meets 1st Tues./monthly, 7:30 p.m., Boy Scout Cntr., 830 Morton Rd., Butler, PA. Call-in W3UDX/R 147.36(+). Net 10:10 p.m. nightly. 10/97

Mercer County Amateur Radio Club, W3LIF. P.O. Box 996, Sharon, PA 16146. Meets 4th Tue./monthly, 7:30 p.m., Shenango Valley Med. Ctr, Farrell, PA. Net, Thurs. 9 p.m. on 145.35(-) W3LIF, Digi. 145.01. 3/98

Mid-Atlantic ARC. Box 352, Villanova, PA 19085. Meets 3rd Thurs./monthly, 8:00 p.m., Radnor Mem. Libraray, Wayne, PA. Call Bob Haase, W3SA, (610) 293-1919. 147.06(+) WB3JOE PBBS 145.09. 4/98

Warminster Amateur Radio Club, WA3DFU. P.O. Box 113, Warminster, PA 18974. (215) 672-9985. Meets 1st Thurs./monthly, 7:30 p.m., Benjamin Wilson Sr. Cntr., Warminster, PA. Net on 147.69(-), 147.09(+), Wed. 8:30 p.m. and 28.450 Sun. 9 p.m. 5/97

RHODE ISLAND

South Coast Wireless Society. P.O. Box 1516, Westerly, RI 02891. Meets 4th Tue./monthly, 7:00 p.m., Pawcatuck Neighborhood Center. Info: Bill, KA1ZZR, (401) 596-5849. 6/97

TEXAS

Brazos Valley Amateur Radio Club, (B-VARC). P.O. Box 1630, Missouri City, TX 77459. Meets 2nd Thurs./monthly, 7:30 p.m., Sugar Land Community Ctr., 226 Matlage Way., 3 blks SW of Imperial Sugar Co. at HWY US-90A & Brooks St. (HWY 58) in Sugar Land, TX. Talk-in: 145.47(-), 442.5(+) rptrs. http://www.hal-pc.org/~bvarc 7/97

Brownsville ARC (CHARRO). Meets 2nd Tue./monthly, 7:00 p.m., Confederate Air Force Hangar, Brownsville Airport in TX. Coffee mtg. Sat./weekly, 10 a.m., Days Inn, Hwy 83 & Price Rd. Talk-in on 147.040(+). 1/98

VIRGINIA

Southern Peninsula Amateur Radio Klub, W4QR (SPARK). Meets 1st Tue./monthly Salvation Army Community Bldg., Hampton, VA. Repeaters 146.73(-), 449.55(-). VE Exam Info: (804) 898-8031, W4RTZ. 2/98

Virginia Beach ARC. Meets 1st Thurs./monthly (except July), 7:30 p.m., St. Andrews United Methodist Church, Tucson & Princess Anne Rds., Virginia Beach, VA 23462. 2/98

WASHINGTON

The Mike & Key Amateur Radio Club. Meets 3rd Sat./monthly, 10 a.m., Salvation Army Renton HQ., 720 Tobin St., Renton, WA. Talk-in on 146.82(-) rptr. Doors open at 9:30 a.m. 5/97

WEST VIRGINIA

Jackson County Amateur Radio Club. Meets 1st Thurs./monthly, 7:30 p.m., United Nat'l Bank of Ripley. Net Mon. 9 p.m. on 146.67(-) WD8JNU/R. For info: D. Tenant, N8ZYB, Rt. 1, Box 188, Mt. Alto, WV 25264. 6/97

Tri-State Amateur Radio Assn. Meets 3rd Tues./monthly, 7 p.m., The American Red Cross, 111 Veteran's Memorial Blvd., Huntington, WV. 5/97

The Youth Forum

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Amateur Radio scholarships

For those of you who are graduating from high school this year, this portion of the column might be of particular interest. If you are planning to attend college after graduation, you already know that it will be fairly expensive! That is why the Dayton Amateur Radio Association (DARA) and The Foundation For Amateur Radio , Inc. (FAR) are offering grants and scholarships to licensed Amateur Radio operators who plan on attending college. Here is a brief summary of their grants/scholarships.

This year, FAR will be administering 60 scholarships for the 1997-1998 academic year, ranging from $500 to $2,500 each. To compete for the scholarships, you must be enrolled or have been accepted for enrollment in an accredited university, college or technical school to pursue a full-time course of studies. And, of course, be a licensed Amateur Radio operator. The FAR Scholarship application must be received no later than 01 June 1997.

For complete details, and a FAR Scholarship application, send a self-addressed stamped envelope to:

FAR Scholarships
6903 Rhode Island Ave.
College Park, MD 20740

DARA is once again offering eight scholarships of $2,000 each. These scholarships are open to any FCC licensed Amateur Radio operator graduating from high school in 1997. There are no restrictions on the course of study planned by the student, nor does he or she necessarily need to be enrolled in a four year program. The awards are made on the basis of financial need, scholastic achievement, contributions to Amateur Radio and community involvement. Applications must be postmarked no later than 01 June 1997. For more information or to obtain a DARA Scholarship application, send a self-addressed stamped envelope to:

DARA Scholarships
45 Cinnamon Court
Springboro, OH 45066

I urge everybody who is college-bound to apply for these scholarships. Request the scholarship applications listed above as soon as possible! If you are not certain that you qualify for any of the scholarships available, send an application in anyway! There is no harm in trying, and you might earn a scholarship towards your post-secondary education in return.

Several other Amateur Radio clubs offer scholarships as well. Ask if any of your local clubs have a scholarship program, and be sure to apply.

ARRL Field Day 1997

Mark your calendars! The American Radio Relay League (ARRL) Field Day, one of the most anticipated Amateur Radio contests is just around the corner. If you have ever participated in Field Day, you know what a great experience it can be. If you haven't, do not miss out on all the fun this year!

If you have never heard of this great contest, Field Day is an annual event in which amateurs and ham radio clubs all over the United States, Canada, and then some, simulate emergency communications in a fun way. The idea of this contest is to set up a ham station using emergency power (batteries, solar, wind, etc.) and work as many stations possible in a 24-hour period. Field Day takes place on 28-29 June this year.

Do you hold a No Code Technician license? If so, Field Day is the perfect opportunity to experience HF (you will be operating as a third party)! If you know anybody who is interested in obtaining their Amateur Radio license, invite them to participate in Field Day to get a first-hand feel of what ham radio is really like. Ask your local radio club if they will be participating in Field Day. They will most likely say yes. If they aren't, suggest they make Field Day a club activity. Complete details and contest rules can be obtained from the ARRL or you can find them in *QST* magazine.

Profile

Bob Myers, N3YDK, who lives in Pittsburgh, Pennsylvania, has been licensed since October of 1996. He is 14 years old, and holds a No-Code Technician license, and is planning on upgrading to Technician Plus in the future, and eventually to Extra.

He became interested in Amateur Radio because of his father's involvement in the SATERN (Salvation Army Team Emergency Radio Network), an organization that provides emergency communication support to the Salvation Army wherever and whenever needed. Bob's interest in this great hobby was also encouraged by his friend, Philip Herrle, N3UID. To raise money for a new radio, Bob worked as a Salvation Army bell ringer in the Christmas Kettle Drive.

Currently, Bob operates on both 2 Meters and 70 centimeters and is an active member of SATERN and the local VHF Society. A complete article on SATERN can be found in the October, 1996, issue of ***Worldradio***. Bob also hopes to upgrade soon, so he can become active on the HF bands. His father, Robert, N3YDL, became licensed the same time as Bob did. What a great father-son effort! If you hear this young amateur or his father on the air, don't hesitate to give them a call.

In the future, I will be profiling other young Amateur Radio operators, sharing their accomplishments and experiences with the readers of this column. If you would like to be featured in this segment, drop me a line by e-mail or snail mail (U.S. Mail). Please be sure to include your telephone number in case I need additional information. I look forward to hearing from you!

Well, that's all for this issue! I have received quite a bit of e-mail and a few letters from readers of this column. Your kind comments are appreciated!

I would like to thank everyone, including Zachary Manganello, KB1BMG, Tom Sharp, WA9OXY, and Francis Moy, W1SPG. As always, please feel free to send along any suggestions or comments you may have about the "Youth Forum" column — they are welcomed. Until next time!

73, Brian, N5ZGT **WR**

Search And Rescue Communications

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It was about 7:30 p.m. on a Sunday evening when my scanners came alive. The first dispatch was over the fire frequencies for a "plane down" south of the airport, "unknown injuries, no further details." Sunday nights are busy nights for travelers returning from weekend trips so it was understandable that a significant number of emergency vehicles responded. It was also snowing heavily — described by those on-scene as a "complete whiteout."

Various thoughts went through my mind as I listened to the emergency vehicles respond to the scene. Our local Amateur Radio Emergency Service group has working agreements with the Airport Authority, the State of Utah Medical Examiner and Salt Lake City Emergency Services. This area has not experienced a major aircraft incident in almost 30 years and ARES performed well for this past summer's airport disaster exercise.

I then pondered the state of my "response" ability. That flat tire on my radio trailer came to mind first. It went flat after an exercise last fall, and, well, it's been too cold to get it repaired properly. I then contemplated the several inches of heavy wet snow already on the street and the prospect of several more inches — not to mention the slick and frozen streets. Now, where did I store my tire chains? Is my cold-weather gear still in the truck?

As the fire department arrived and staged operations under the Incident Command System, I could hear the stress as the incident commander (IC) requested ambulances, paramedics, lighting trucks, and established the operational command sections. I could also hear the effect the cold, blowing snow was having as the IC set up the command post area. This was not a sultry, summer afternoon exercise!

Emergencies don't happen under ideal conditions — it is often the conditions that create the emergency when pilots cannot see runways, when reservoirs fill beyond capacity, when rivers and streams flood, or when tornadoes hit. I was glad the ARES pagers did not go beep in the night — yet part of me wanted the request to come if only to have some of our newer members experience first-hand what it's like when conditions are less than ideal.

Fortunately the aircraft carried only four persons and, sadly, one passenger died in the crash. The other three were taken to area hospitals and for emergency crews, the task of taking care of the scene would last most of the night — and it was a cold night for all involved. By way of additional details, the aircraft was a twin-engine turboprop enroute to Salt Lake City from Las Vegas. The investigation had just started as I write this column but the plane was on approach to the airport in a tremendous snow storm which I'm sure played a major role in the crash. Incidentally, for you who have yet to respond to the "real thing," I can tell you the worst event in my own experience is a winter fatality accident. Whether aircraft or automobile, it's the type of event you'd rather miss next time around.

By the way, my gear was in the truck and ready to go. The trailer tire is flat and would take a few minutes to pump up but it was otherwise ready as well. Several ARES members called me asking if the pagers had gone off, and they too were ready to respond. It was heartening to know they were available and prepared as this is one of my worst "volunteer nightmares" — that the pager will sound and no one will be available.

One can do serious damage by using a hefty soldering iron on surface mount components.

New kids on the block

My neighbor and his son just recently passed their Technician exams and are now licensed Amateur Radio operators. I was excited as they got on the air and began to experience how much fun "radio" can be. I wasn't prepared, however, for what came next!

Do you realize the value of experience? Do you realize how much you veterans really know about electronics, antennas, coax, operating techniques, and the many facets of Amateur Radio? I didn't until my neighbor began to show up several times a week with questions. One answer led to another question and before we knew it, the hour was late. And among the many scraps of paper used for drawing pictures and schematics, were another dozen or so unanswered questions.

One Saturday we built a J-pole antenna and the topic of standing wave ratio was discussed into the wee hours of Sunday morning. We have yet to begin discussing coax, but that too is another night's topic.

This experience has pointed out how little some of our newest Amateur Radio operators know about the hobby. I'm sure some are content to absorb knowledge slowly as it passes by, but others are like my neighbor who want to compress 20-years experience into a several-week cram course. What really struck me was his question: "How did you learn so much — did you take some classes or something?" I think my learning came from the school of "or something" because I cannot remember any classroom training on how to build an antenna or solder a connector.

I've also had to consider Amateur Radio from my neighbor's perspective — one who has the desire and is eager to get involved, but frustrated by how much there is to learn. It would be easy to give him a pile of books and tell him to come back when he's finished reading all of them. But images of patient tutors come to mind as I recall many who have helped me to learn. I recall the first J-pole that I built with someone looking over my shoulder. It wasn't pretty, but it worked well

and I had done it myself.

Visions also came of the first time I operated radios at the scene of a search mission base, and the kind mentor who said "you're ready, go ahead and do it." I believe if my first radio mentor had given me books to read and pushed me out the door, I'd be doing something else for a hobby by now. But he patiently answered my silly questions and always invited me to come back any time. He made it easy for me to get excited about Amateur Radio.

So how's your bedside manner when it comes to the new kid on the block? When you hear the newly issued call sign do you switch to another repeater? When the newcomer attends the first ARES meeting, do you explain what's happening or hope he or she will just pick it up as they go along? Are you willing to invite the new kids over any time they have questions or when they're ready to install that first antenna on their car?

I haven't had a new person with quite so many questions as my neighbor, but I must admit it has been fun to be the "expert" as I answer his hundreds of questions. My rewards have also been similar to finding someone during a search mission — the plain, old, simple act of helping another. Don't miss out on an opportunity to be of service when you hear that new call. Jump in and discover how much fun it is to be of service. It's also one way to pay back all those who taught you so well!

Broken radio?

When you press the button and the transmit light doesn't go on, what do you do to correct the problem? Better yet, what do you tell someone who has called you on the phone seeking your help to fix a broken radio? Here are some general guidelines toward fixing what's broken based on my own experience and that of several others over the year who have taught me the gentle art of radio repair.

It's a gentle art because getting mad and striking the broken radio seldom corrects the problem. Yes, it feels good to vent your anger on that $^%&%*&@ radio, but it seldom (read that NEVER) works. Consider the basics of your radio. It needs power to operate so first check the fuses and power connections. It's good to unplug the power connector and check to see if you have correct voltage. I also like to load test the power by hooking up a light (of appropriate voltage and observing safety issues) to see if the power source is able to provide enough current.

A great many times the problem will be the source of power. Sometimes it will be that the radio or power supply was simply turned off, or that the connector had worked loose. The second source of problems is often the microphone cable and most of the time at the radio or microphone end. If you look at the radio, you see that the microphone cable wiggles a lot at the two ends — and that wiggle eventually breaks the wires.

When you check the cable with an ohm meter, have some one help you and wiggle the ends to see if you have a broken or intermittent break. It is usually possible to cut the cable a short distance from the mic or radio connector and resolder it. I would recommend you check the cable before you solder it to see if you have trimmed the cable beyond the break! I remember going through the motions and discovering the break further down the cord, so all I got was soldering practice.

The final area of concern is the antenna and its associated components. Your test instrument of choice would be an SWR meter for the appropriate frequency in use. This is one piece of gear I place high on my list of needed field test equipment and even an inexpensive SWR meter will do for most troubleshooting issues. Some obvious failure points are the ends of the coax, either the antenna or the connector to the radio. I have seen failures where the coax has shorted out as it vibrated against a sharp edge such as a hole in a fender so it's good to check all of the feedline if you suspect antenna problems.

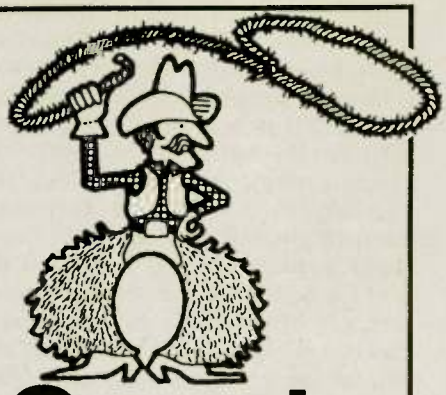
Beyond these three areas (power, microphone, and antenna) you might want to consider other repair options. Today's radios (and many of yesterday's as well) do not lend themselves well to inexperienced bench repair. A friend once gave me a radio he wanted to simply look at and when he lifted the main transmit board, he was surprised to hear a crack as he discovered one of the circuit board screws still in place. He also discovered the repair would cost more than the radio was worth.

One can do serious damage by using a hefty soldering iron on surface mount components. Here is where an experienced repair mentor can help your group. The best advice is to stop when you encounter unknown territory. It is good to also quit when you don't have the test equipment to properly do the job! I have had some success discovering cold solder joints on circuit boards by gently pushing on (or flexing) the board with the eraser end of a pencil. Often you can just touch a poorly soldered component and find the problem. Beyond that, the factory repair people are my friends!

I have also adopted as my personal rule not to be violated: Never attempt complex repairs (i.e. the opening of the cover) on someone else's radio! It's one thing to ruin your own rig, and quite another to tell your buddy about the many pieces in the box you're returning to him. My best advice is to check the simple things and then send the radio in for professional analysis.

In any event, things can break and go wrong. Most of the time it's a simple repair. Approach the problem systematically and calmly. Avoid getting mad and losing your temper and if your group has someone with repair expertise, seek assistance as needed. This also makes an excellent field exercise. With some old radios and careful preparation, you can create a number of failure points for field diagnosis. Many of our new Amateur Radio operators do not know how to use an ohm meter or an SWR meter. It's good to practice under controlled conditions before you need to troubleshoot a failure on a dark, stormy night.

Until next month, get ready for the next callout! Thanks for your ideas and comments via e-mail (jw@desnews.com) or snail mail. WR



County Hunter

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Oops!

In my March column, I included a verbatim letter from Bud Lafferty, WØUBT, but didn't explain what Bud called an MRC. I received a few notes on e-mail and snail mail asking for a definition of MRC. The best query was from Arnold Harding, KQ6HI, who said, "I know what an IRC is. . . I have no idea what an MRC is. Are there any other secrets of Amateur Radio out there that are not published?" Greg Placzek, WBØKTI, sent me an e-mail asking, "if MRCs are so important, why aren't they mentioned in the *ARRL Operating Handbook* or defined in your article?" Mea culpa!

County Hunter QSLing

Before I answer the question, "Hey, what's an MRC?" I'd like to discuss QSL return rates and expected costs to confirm those county contacts, and by doing that, first build some suspense and sales pitch for the importance of the MRC.

The USA-CA award offered by *CQ Magazine* does require that all contacts be confirmed, and in hand prior to applying for the award. The award application book also requires two amateurs, other than yourself or family member, verify that you do indeed have all contacts confirmed. You can apply for USA-CA in increments of 500, or just wait until you have all 3,076. Write to *CQ Magazine* at 76 North Broadway, Hicksville, NY 11801, for more information and a record book to start keeping track of your counties.

Several of you have written to me over the years and asked how anyone could confirm 3,076 counties, given the low return rate on sending and receiving QSL cards; not to mention how much it might cost trying. Let's hypothesize what it might cost to confirm all those counties if we had a 100% return rate on QSL cards. First, 3,076 QSL cards would cost about $100 to $200 for printing costs (conservative estimate) and 3,076 stamps at .20 each would cost $615 (we're imagining that a card sent is a card returned, even sent as a postcard. . . yes, I know this is highly unlikely). Total cost for our imagined QSL return rate would be $715 to $815. Ouch, and that's at a 100% rate of return.

Now let's imagine we get 100% return rate but we decide that to get 100%, we have to send an SASE (self addressed stamped envelope), i.e. two $0.32 stamps; 3,076 x $0.64 = $1,968. With QSL printing costs, the total would be over $2,000. I don't know about you folks, but for me, that's a huge chunk of change. Compound this with the problem that QSL return rate is not 100% (even if sending an SASE) and you start to wonder why anyone would ever consider trying to confirm 3,076 counties. More probably we would think for half a microsecond, "Hmph, I could confirm 3,076 county contacts or buy that new fancy HF transceiver." Wouldn't be a tough choice, now would it?

Well, I have a solution, or rather, there is a solution.

You can give up on the idea of contacting all counties by talking with fixed stations only. For one thing, there aren't active amateurs living in every county, and for another it's too expensive trying to collect all the cards. The most effective method of contacting all counties and cheapest method of confirming all contacts is to make your county contacts with mobile stations. But wait, if you contact 3,076 different mobile operators in 3,076 different counties, you're back to square one. So, the object is to contact mobile operators who travel through several counties. This can be done either on the county hunter nets (14.336 MHz or 14.0565 MHz) or during the weekend state or national county contests.

The MRC

Finally! The MRC, or Mobile Reply Card, confirms multiple contacts on a single card (see example). The cards are filled out as if the mobile station were sending the card to you, however, you would fill out the card and provide postage for the mobile operator to send it back to you. It's sort of a win-win agreement. You fill out the card and provide postage and the mobile operator just signs the card and returns it to you spending minimal time and no postage; however they did spend time and money driving through those counties for you.

Using the MRC

The card was designed to permit multiple contacts on one card as the mobile station you are working travels from county to county. You may have seen something similar when a DX station has many contacts listed for multiple bands on the QSL card. Again this card is filled out by you as if the mobile is sending it to you. Here's how you would fill it out: (1) The call of the mobile you contacted, i.e. KK7X/M, (2) Your call, (3) Date of the contact, UTC, (4) Time of contact, use UTC only, (5) Frequency of the contact, i.e. 14 MHz or 20M, (6) The signal report you RECEIVED from the mobile, (7) The state the mobile was transmitting from, (8) The county the mobile was transmitting from, (9) Leave blank, the mobile will sign confirming you were in the log. Pretty simple but, make sure (1) and (6) are correct. The card is coming from the mobile, it has to make sense.

Costs with the MRC

Now let's go back to figuring out our costs. Let's assume that you are making contacts with mobiles at the rate of 5 counties per mobile. You only need 615 QSL cards to confirm these contacts. Not only do you want to send your card to the mobile, but you should send a card for the mobile to return to you with all the county contacts on one card. Our costs have gone down for confirming all counties. Assume 100%

Confirming QSO
FROM ARS _____(1)_____TO ARS_____(2)_____
Mode: CW ___ SSB ___ FM ___ AM ___ Mobile___ Portable___ Fixed ___
MARAC #_____ USA-CA #_____ 2nd Time #_____

DATE	UTC	MHZ	RST	ST	COUNTY
(3)	(4)	(5)	(6)	(7)	(8)

signature _____(9)_____

Here is a copy of an actual Mobile Reply Card. Multiple contacts are confirmed on a single card.

return rate again; printed QSL cards are about $40 and $10 for the 615 MRCs, and stamps ($0.32 + $0.20 = $0.52) would be $320. Total costs are down to approximately $370 as a minimum. Sending an SASE every time would make the total costs around $444. That's much better than spending $2000 to confirm all contacts, but it assumes 100% return rate. You might also say $444 is still a chunk of change.

MRC Processors

Although $370 to $444 is better than our original example, there is still a better alternative. MRC processors have been around since 1971. The Mobile QSL Bureau was started by W6CCM and acquired by NØCOL and NØCKN in 1985. Unfortunately, they ceased processing cards in 1996. Two other MRC processors still exist today. Using these MRC processors is the cheapest way to confirm 3,076 counties. The MRC processors are set up to assist the active county hunter confirm their county contacts, but it is not set up for handling fixed stations. The processors primarily handle QSL cards for mobile stations. The MRC processors work similarly to other bureaus in that they process the cards in bulk and make it easier for the individual county hunter to receive cards — strength in numbers.

The costs are $0.25 per MRC. In our previous example this would be 615 MRCs x $0.25 or a total of $153. You can't beat that. It's recommended that your personal QSL card be sent to the mobile for the first contact with that station as a common courtesy. If that were 500 first contact cards that would be $40 printing cost and 500 x $0.20 or $100 processing charge. Total costs to confirm 3,076 contacts and sending a first time contact to the mobile of $293. Consider the time spent looking up all those 615 addresses in the *Callbook*™, *Callbook* price, the number of envelopes used, etc., and you can see that the processors truly provide an invaluable service. What is the QSL return rate at the processors? It is very close to 100% and cards are returned to the individual within a month to three months.

ACES, the amateur confirmation exchange service, charges $0.25 per MRC This is still a savings of $0.39 if the county hunter sent a card with an SASE (2x$0.32). If you would like additional information on ACES, write Howard, WA2GLU, via e-mail 102361.507@compuserve.com or snail mail, 15020 North 7th Drive, Phoenix, AZ 85023-5214.

CHARS, the County Hunters Active Remailing Service, is offered by Art Mager, N5DKW. Art runs his service similarly to the ARRL QSL bureaus. He charges a flat fee of $0.20 per card for outgoing QSL/MRCs. For incoming QSL/MRCs, Art requires postage funds in an account (in lieu of SASEs on file. . . Art says different size SASEs presents a real problem for current incoming DX bureaus). He believes the price may even be lowered, once more county hunters use the service. Art states this service is the county hunter's, not his. If you're interested in more information, write Art at n5dkw@primenet.com or send SASE to CHARS, 8619 E. 108th Terrace, Kansas City, MO 64134.

I can't stress enough how easy it is to contact all counties on the county hunter nets and how inexpensive (relatively speaking) it is to confirm those contact by using the MRC processors.

Latest USA-CA recipients

Congratulations to the most recent recipients of *CQ Magazine*'s USA County Award (USA-CA).

909	KA1Q	11/02/96
910	W9MYZ	11/02/96
911	KC6CNV	11/02/96
912	SM6VR	11/02/96
913	WD3P	12/03/96
914	VE9DH	12/03/96
915	WB9RJW	1/07/97
916	KCØIA	1/07/97
917	WWØG	1/07/97
918	KA2BOK	2/02/97
919	K6OHM	2/04/97
920	WA6OKQ	2/10/97

Washington County, WI

Mike Greenfield, N9JIY, is willing to make a schedule should anyone need Washington County, WI. You can reach him by phone at (414) 677-4392 or e-mail michaelg@amnifest.uwm.edu. He's also often on 80 Meters, 3.723 MHz at 00:00 UTC, 3.645 MHz at 00:30, and 3.680 MHz at 01:00 UTC for nets. He will listen on other bands by request.

County Hunter contest

If you like CW county contacts, the first weekend of May is a great opportunity to contact some new counties. Look for the MARAC CW county hunters contest in May. Dust off the CW key and knock off a couple of those rare counties.

County name origin

From *The American Counties*, by Joseph Nathan Kane. Sequatchie County, Tennessee was established in 1857. Sequatchie is an Indian word meaning "hog trough." I guess if I lived there, I would rather say, "Hi, I'm from Sequatchie county," than "I'm from. . . ."

MRC to you!

This time, MRC means "many rare counties." Until July, I hope you fill your log with many rare counties. Happy hunting! 73, Ace, N3 aha! WR

John G. Troster, W6ISQ

Rod Newkirk, W9BRD

You've all heard of an "Elmer," someone who helps others master the rudiments of radio. Well, I want to introduce you to the fellow who created that definition. He also coined the term "DXpedition." He's Rod Newkirk, W9BRD. A lot of you will recognize his name as the by-line of "How's DX," in *QST*. By Goodman, W1DX, originated the column, followed by several different writers after WWII, when Rod took over and wrote it for 32 years!

Rod and I go back to 1937. In fact I've known him longer than any amateur still currently active. We worked together in the glory days of the CW Forty Meter Traffic System (FTS) which was quite active in the late 1930s. Our traffic activity really picked up in the summer of 1939 during the New York World's Fair. In the early evening I would take all the traffic from the Fair that they had not been able to move during the day. Then, on daily schedule with Rod, I cleared traffic to Rod for Chicago and everything going west. It didn't end there because we always rag chewed awhile and stood by for our girl friend, Mickey Helland, W9ZTU, at Fort Knox, KY, who was a far superior high speed CW operator than either one of us. Anyone out there know what ever happened to Mickey?

Rod became a great operator and won all the FTS contests as well as whatever others were going on. He was King of the 6L6 rigs with every conceivable combination of those glass, and later, metal tubes. Ever burn your fingers on one of those deceivingly hot metal 6L6s? Ouch! He had a 6L6 oscillator, then added a 6L6 final. Later he went QRO and advanced to a pair of 6L6s using both push pull and parallel at various times; and these were both fixed and portable rigs.

Rod was born in Chicago, but at an early age, his family moved to Harvard, Illinois, where he attended a one room school house with eight grades. A few years later, the family returned to Chicago where Rod finished grade school. In sixth grade Rod became an avid reader and was especially enamored, as a lot of us were, with *Open Road for Boys* and *Boys' Life*. He found articles about building radios in those magazines. And since he didn't have an "Elmer" to share his enthusiasm, he went to the library and read books about radio. A spark gap transmitter looked pretty simple to build, so Rod scrounged a spark coil and began gathering the rest of the parts. But then he found out that the book he was using was 15 years old and there were no more spark transmitters. Back to the library for books on tubes.

Packing up his cigar box 6L6 rig he ventured forth to New England to become operator . . . at W1AW.

He bought a Sears Silvertone superhet radio and, in tuning around, heard amateurs on phone and also code signals. It became apparent to him that if he wanted to be one of them and get on the radio, he had to learn theory and code. He bought an outboard VFO for his Silvertone to give a nice tone to those CW signals and then became his own Elmer and groped along to memorize the license manual and upgrade his code speed. Finally, he took the amateur exam — and flunked the code. Back to the Silvertone for more practice. Finally in July, 1937, he passed and received the call W9BRD.

He went on the air with a 20 watt Utah transmitter kit using a 6L6 oscillator and a Bliley crystal cut for 7167 Kc, (note: in them good 'ole days they was called Kilocycles), a frequency he had monitored all summer and found relatively clear of QRM. He used a Zepp antenna 16 feet off the ground, and, of course, his faithful Silvertone to which he had added bandspread and figured out how to deactivate the AVC. He worked 12 countries with that rig.

Come fall, and pow! Students returned to the University of Cincinnati's ham station, W8YX, which came crashing through on their preferred primary frequency, 7.166 Kc with their push-pull parallel 852s. Good-bye, Rod. He solved the problem by buying a crystal for 7.257, and that's the frequency I used to work him.

High school was taking a back seat to ham radio. Whoever heard of such a thing? Commercial art with the idea of becoming an animator for Disney was his major study. Meanwhile, he had joined the Army Amateur Radio Service (AARS) and signed into their nets, improving his code skills all the while. The idea of being an animator began to fade as his interest switched to commercial telegraphy. After he graduated in 1940, he went through a series of part time jobs trying to figure out what to do.

After the war started, Rod received a call from Dave Talley, W2PF, who was liaison between the AARS and the Army Signal Corps. Dave told Rod to come to Washington and work as a civilian operator at the Army Station WAR, which he did. Rod punched RTTY tapes, copied 40 wpm on the mill and hand-keyed the station when conditions were bad. After a year of this, Rod returned to Chicago to report to the Draft Board. He considered joining the Army Airway Communications Service but the Draft Board spoke first and Rod received his 1-A notice from President Roosevelt.

He reported to Camp Grant near Chicago and then to Atlantic City for basic training. He was spotted for the Signal Corps and was shipped to Tampa, FL for "staging." This was a hurry up and wait situation, and Rod did a lot of close order drill, obstacle course maneuvering, and calisthenics. Finally, he was assigned to a light radar outfit and sent to Long Island for more staging, ordered to San Francisco and in the spring of 1944, he shipped out to Finchaven, New Guinea as a Sergeant in the Communications Section of the light radar outfit. Guess what? When they arrived, — no equipment. So his outfit was kept busy hauling ammunition for the infantry. Finally the

radar equipment did get there, but by then the war had moved on to Leyte, and northern Luzon in the Philippines. And Rod did too.

The war over, Rod returned to Chicago for discharge. He decided to study (read: rote memorization) for his commercial licenses and passed the First Class Phone and Second Class Telegraph. He got back on the air with another 6L6 rig and a two-tube receiver, on the same chassis, both built out of the *ARRL Handbook* into a cigar box. Over the air, Rod met Ero Erickson, W9HPT, Superintendent of the Illinois State Police Radio System. Rod went to work for him as a phone and CW operator, and repairer of everything.

Rod was still itching to see the world, or at least more of the U.S., and in 1947, he again got a job over the air with an offer from ARRL's Ed Handy, W1BDI, to be custodian of W1AW. Packing up his cigar box 6L6 rig he ventured forth to New England to become operator, repair man, installation man and official greeter at W1AW.

The job was most enjoyable, and was everything that a young ham could dream about working at a premier ham station. At that time, W1AW was located in Newington, CT, a 4-mile drive from ARRL Headquarters in East Hartford. About once a week, George Hart, W1NJM, in the Communications Section would drive over to check up on Rod. That became a challenge for Rod and he began composing short, ridiculous memos and complaints which he handed to George to deliver to boss Ed Handy. These complaints concerned such weighty matters as the snow plow piling snow in the driveway, or it might be too hot and there was no fan, or how could he get anything done if they allowed visiting hams to stay too long, or the roof is leaking, or technical problems, whatever, just so he had a complaint.

Writing these memos began just for fun but displayed his ability to write, which was not lost on Mr. Handy. Actually, Mr. Handy kept a stack of Rod's complaints and concluded that Rod was not busy enough, even suggesting real DX men did not have time to write memos. So, Rod got assigned to write for real this same humor developed in writing memos. His "How's DX" was a hit with readers.

After a year at W1AW, Rod got itchy again and decided to use his GI Bill to go back to school. He enrolled in the DeForrest TV School in Chicago and so departed ARRL. Well, not completely. He took "How's DX" with him to Chicago and ARRL sent him the DX mail to use in the column. Thus began his 32 year association with "How's DX." Rod graduated from TV school in three years, but instead of going into the TV business, he decided to return to ARRL as Editorial Assistant. This time he had upgraded his suitcase rig to a pair of 6L6s. He loved the atmosphere at ARRL and the people

Rod, W9BRD and Betty, VE3ZBB, meet for the first time at Glenco Beach in Chicago, Illinois.

who worked there. Rod says it was a great time to be a ham. And, of course, continued "How's DX" back in Hartford again.

Rod had a ham buddy from Chicago, Phill Simmonds, W9VES, who also worked at ARRL for a few years. Phill had family in Connecticut, among whom happened to be his sister, Carol. Right. Rod met Carol, Rod married Carol. In 1954, their first son arrived and Rod felt the need of more income to maintain the family. Back to Chicago and the State Police. And moving with family was "How's DX" and the monthly mail input from ARRL as well as direct communication from DXers.

Rod and Carol had four children: Douglas, 43, an interior decorator and jack-of-all- trades; David, 41, formerly WJ1Z, who's now acquired his uncle's old call, W9VES. Dave worked in the Technical Lab at ARRL for 10 years, but now has moved to digital design work in New Jersey. Daughters are Elizabeth, living in Chicago, and Amanda, owner of a cleaning business also in Chicago. Carol passed on in 1974.

In 1978 Rod retired from "How's DX" and from the State Police in 1985, at which time he decided to become a full time, dedicated ham. For example, as a CW man, he hovered around 30 Meters without the unnerving thought of pesky phone QRM.

About five years ago, he met Betty, VE3ZBB, in Ottawa, on 30 Meters. Their paths crossed a few years later, and they began having weekly skeds, then bi-weekly skeds. Then phone calls. Rod invited her to visit Chicago, then he visited Ottawa. In Ottawa, Rod went with Betty to the QCWA Chapter 70 meeting and met all the friendly members. He was so impressed he joined QCWA Chapter 2 when he returned to Chicago, and later also joined Chapter 70. Betty is not yet a member, but she knows all the Chapter 70 members, including QCWA Director Croft Taylor, VE3CT. Rod says she and Croft make a mean piano duet team! She attended the QCWA National Convention last October in Ottawa.

Right now Betty and Rod are planning to be married by summer. First Rod has to obtain his Landed Immigrant papers from Canada so he can reside in Canada for more than six months of the year if he wishes.

About 10 years ago, Rod finally surrendered to modern times and gave up his 6L6s rigs. Fifty years of 6L6s! Hard to believe! Now he has a TS-140 and a 40-meter Windom antenna which is just right to make it one hop to Ottawa on schedule. Rod made DXCC in 1948, and says he has been coasting ever since. Also, he is not without recognition amongst his peers. He was awarded the *CQ Magazine* DX Hall of Fame Award.

With great honor and pleasure, I salute my old traffic buddy of 60 years ago as a member in excellent standing of the Elite, the Proud, the Many, the Dedicated, the QCWA.

Until the next one, 73 + 25 Jack, W6ISQ WR

Traffic

Geri Sweeney, N4GHI

Special Events

March and April seem to be wide open for a traffic-generating special event. How about it?

Tools of the trade

After you have decided whether to type or write messages, you should acquire a few very useful items. The ones I use most are: *The Pink Card*, ARRL Numbered Radiogram paper, and a *Rand McNally ZIP Code Finder*. The map on the back of *The ARRL Net Directory* is essential for beginners. It shows the division of the U.S. and Canada into areas and, thus shows you how to route traffic. You can either buy the *Directory*, for $3, or ask ARRL to send you a copy of the map.

The Pink Card (#FSD-218) and a copy of the Numbered Radiograms (#FSD-3) are available (free) from the ARRL, or from most any traffic handler. The *ZIP Code Finder* costs under $10. It's very handy for checking ZIPs, spelling city names, looking at state maps (first 3 numbers of ZIP) for locations, telephone area codes, etc. I generally use it for verifications, while I'm waiting for the next net to begin. The best verification of information is checking the *Callbook*™, when a call is part of the address. My fantastic PBBS, WA3TAI, keeps this information (with continual updates) on his board, and it's much easier to read than the fine print in the *Callbook*™. There are also computer programs for calls, ZIPs, and names/addresses throughout the U.S.

E-mail

First, there was CW. As voice nets became popular, the traffic was divided between the modes and diminished. While new modes can bring more stations, the new stations don't necessarily bring more traffic. The years passed and these modes came to grips with diminished traffic for both. Then packet came along. Anyone who wondered about it had to jump in and see how it worked. Many "net" folks discovered that it wasn't reliable. Yes, traffic moved faster. But sometimes (as it was automatically routed along), it landed in holes and disappeared. Sometimes it arrived on a board which had no one there to deliver it.

On nets, when you hand off a message to another station, the presumption is that it will get delivered or be returned. It is always in someone's hands. On packet, the problem is that once you give it to the machine, you just don't know what happens to it. Of course, existing traffic is then split three ways, and thus each sector is handling less traffic on each mode.

Then, in elbowed a modification on packet. The buzz word now became "digital" (CW being excluded from this definition by the powers-that-be). A "digital" director was appointed for each traffic area (PAN/CAN/EAN). The directors decided that sending traffic on packet using VHF was useless. They encouraged a group of relay stations using HF PACTOR, Clover, AMTOR, etc., in each Region. This reminds me a bit of what the old trunk lines must have been like.

Digital stations send traffic directly to each Region and/or state where they have a traffic station in place. Of course, this is done informally. It certainly isn't written in the ARRL official routing guide. As a matter of fact, if you don't play on the digital modes, you probably aren't even aware that they are routing traffic this way. Well, you must do some trials before you can recommend a change, I suppose, and who would agree to changing the routing anyway?

Several years ago the three digital directors met and they couldn't agree. Newington really wanted to encourage this change to digital. But since no one seems to agree on just how, what, where, etc., they just quietly go about encouraging it, without giving any direction as to what's happening. Whether traffic handlers want to adopt it or not, we should be informed as to who is doing what, why and how. Is anyone keeping statistics, to determine if it's helpful? If so, we need to add it to our official routing.

Traffic for CW, SSB, and VHF packet was, of course, greatly lessened wherever "digital" stations operate. Example: Instead of a message going from Connecticut to Virginia via Section, Region, Area, Region, State nets (presumably possible in a few hours to, hopefully, not over 24 hours), it might very well go directly to Florida and then to Virginia (perhaps taking a few minutes). That's two jumps with two stations vs. six stations. A dilemma traffic handlers must resolve, is whether greater speed justifies excluding more stations from being involved. And, with fewer players (no longer having any traf-

fic to relay), will anyone be available to deliver the traffic that does get there faster? Is our philosophy to encourage the most stations to participate, or the fewest? Do we want the greater capacity of 'digital' to be available in times of emergency? If so, it must be ready. We need to establish some thoughtful questions, and then attempt to answer them. We need to share what is happening. Just because we may not like it, doesn't mean we can't try and understand, and adjust to a better way.

"73" became "accept my compliments."

Then came e-mail. Traffic handlers are using it . . . . A broken sked, a known contact, why not? I have heard "digital" folk complain that they are losing traffic to e-mail. Does that make a few of you chuckle? E-mail can be free. You don't have to surf the Internet to get it. There are several programs available that are free. Almost all of the traffic handlers I know now have it, (free or otherwise). All you need is a computer with a modem. "Future Shock" predicted it.

Change is happening at a faster rate than many can adjust to. Those who are dozing while all this is going on, wake up to find out they no longer even have a decision to make. Indeed, it looks like 'digital' might very well be out, before it was ever officially in.

We now need some thoughtful questions about e-mail. One of the first is how do we count it? We have four categories: origination, receive, send, deliver. According to our *Public Service Communications Manual* (1996 edition), published by ARRL, "Counting Traffic," we find: "Originated" — one point for each message from a third party for sending via your station. This extra credit is given for an OFF-THE-AIR function because of the value of contact with the general public. "Sent" — Every message SENT OVER THE AIR from your station to another. "Received" — A message received OVER THE AIR gets a received point. "Delivered" — The act of delivery of a message to a third party. This is strictly an OFF-THE-AIR function. Just where does e-mail fit in? It's not a radio function, so "Receive and Send" won't work. Is every message we send on e-mail to count as an origination and/or delivery? Definitely not. Do we not count e-mail at all? Why exclude it? Sometimes it's the only routing path; and, it makes as good a backup on broken skeds, as does the telephone. Is the station who makes a long distance phone call to pass the EAN to PAN traffic on a night when propagation is horrid not to get any points for the messages?

What the people in Newington need to do is address the future, rather than consider the past. They need to consider a meeting where folks from each mode share what they are doing, what their problems are, and suggest answers. Whether they agree or not isn't really as important as sharing this kind of information with those at the grass roots. In this time of rapid change, we need to know what others are doing, like it or not. We charge ARRL with informing us so that we can all do what works the best.

73, 88, 33, 161

The QMN, Michigan's excellent newsletter (3200 Kingsbrook, Flushing, MI 48433), gave the background for "73." It goes back to the beginning of the land-line telegraph days. In 1857, it meant "My love to you." Within a short time, it began to change. It became a friendly greeting between operators. In 1859, Western Union set up the standard "92 Code." A list of numerals from 1 to 92 was compiled. "73" became "accept my compliments." By 1908, it became defined as "Best regards" and that's how we use it today.

I can't tell you how some of the other numbers came into being. 88 is used between sexes and I understand it to mean hugs and kisses. That's fine. I sign everything 88, as I feel the world needs more love and kisses. I also find that old-timers don't 88 back. Perhaps it was not meant for mere acquaintances. "33" is used as the sign-off for YLs, and originated with YLRL. "161" is the sum of 73 and 88 — a quick sign off for a mixed group?

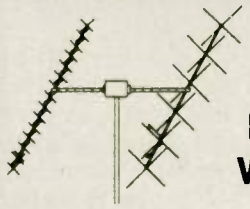
CW slow speed traffic Nets

Central Area only (local time):

ITN (IL)	7 p.m.	3.680	D
TSN (TN)	8:30 p.m.	3.682	M-F
WNN (WI)	6 p.m.	3.723	D
WSSN (WI)	6:30 p.m.	3.645	D
FISTS (MI)	9 p.m.	3.682	T/Th

Let me know of any *slow* speed traffic nets in your area. WR

Amateur Satellites



Terry Douds, WB8CKI

344 E. Fifth Ave., Lancaster, OH 43130
e-mail: wb8cki@amsat.org

Hello everyone! It seems that each month there are more and more exciting developments concerning the amateur satellites. Before I get to the new information, a brief correction to my last column. There was a typo in the e-mail address for AMSAT-UK. The correct address for Ron Broadbent, General Secretary of AMSAT-UK, is r.broadbent@ee.surrey.ac.uk. If you were having trouble getting any mail to him, I hope this will correct the problem.

Nearing launch

Now on to the new information. We are quickly approaching the launch date for Phase 3D (P3D), the newest and largest satellite ever constructed by amateurs. However, as you may be aware, the launch has been postponed from its original date of Fall '96. It was then moved to February; then April; and now July of '97. Each month that the launch is delayed increases the costs involved with getting the satellite into space. Keith Baker, KB1SF, Executive Vice President of AMSAT-NA, noted in early March that as of the end of 1996 it was predicted that $200,000 would be needed to complete the AMSAT-NA portion of the project. JAMSAT made a $50,000 contribution towards the effort, so it appears that there is still a $150,000 shortfall in funds. Additionally, although AMSAT-DL in Germany has already contributed approximately $2 million (vs. the $1.4 million put up so far by AMSAT-NA), they predict that they will also need an additional $100,000 to complete their portions of the project. All of these amounts assume no additional delays in the launch date. It would be a shame to have gone this far only to send a chunk of concrete into the air on Ariane 502, which is what might have to happen if P3D is not deliverable in time for launch! If you have any more monies that you can contribute to the P3D fund, please send them to AMSAT, 850 Sligo Ave. #600, Silver Spring, MD 20910.

On a brighter note, Keith said AMSAT is on target to meet the 8 or 09 July schedule, which is still the official European Space Agency launch date for the Ariane 502 rocket. At the end of February a number of international groups from Germany, Finland, and Japan arrived to begin the integration process. They installed the first ten RF units and the SCOPE camera experiment. More work will continue throughout March and April as the final modules are installed and tested in Orlando.

The schedule is a tight one, right up until launch time. AMSAT anticipates the satellite will be shipped to Kourou, French Guyana, sometime in early May for final checkout, followed by integration with the Ariane 5 rocket in mid to late June.

A series of pictures of Phase 3D work-in-progress is available via the AMSAT-NA Web site at http://www.amsat.org. The integration team hopes to continually update the pictures that are available as the work continues (as time permits). Point your browsers to the site and watch the magic occur!

The WAAS (Worked all analogue satellites) diploma is a new award that is given to those who have worked through particular analogue spacecraft between 01 January and 01 July 1997. All claims must be in by 30 December 1997, and include £2 or U.S.$3 to defray costs; QSL cards are necessary for proof. There are two classes; the class-II award is for contacts through AO-10, AO-27, RS-10, RS-15, FO-20, FO-29, and MIR (presumably SAFEX), and the class-I award adds RS-12 as well for a total of eight satellites. For more information about the awards contact:

The Award Manager,
OE3JIS Josef Maier,
P.O. Box 116, A-1172,
Vienna, Austria.

It has been noted that it may be rough to obtain QSL cards in the time frame allotted for the submission of the application, but that will depend on your own contacts and luck.

The 1997 AMSAT-NA annual meeting and space symposium will be held on 17-19 October 1997 at the Airport Delta Hotel in Toronto, Ontario, Canada. Information on the conference can be found by contacting the AMSAT web site, (http://www.amsat.org), or calling Martha at the office at 301/589-6062.

A fire occurred in February aboard the space station MIR. However, Jerry Linenger, KC5HBR, the U.S. astronaut (and physician) aboard Mir at the present time, reported no injuries and all crew members in good health following the fire, which occurred on 24 February. A problem with an oxygen-generating candle on MIR set off fire alarms and caused minor damage from excessive heat rather than from open flame. It caused the astronauts to don oxygen masks for a few minutes, while some smoke was cleared from the cabin. A MIREX QSO with an elementary school in Michigan occurred on 27 February, where Jerry answered many questions from the students concerning the fire.

Apparently we have a new Mode A Bird in the air! Just this evening as I finish my column, the new Zeya military satellite was launched from the far-east Russian Cosmodrome. It was rumored to contain RS-16, the new Mode A amateur satellite. It appears that all has gone as we all had hoped. Early reports on AMSAT-BB were of reception of the 10M beacon signal at 29.408 MHz. No transponder use was noted as of yet, but that certainly is not uncommon this soon into a launch. A great deal of testing usually will preface any use of the actual transponder. The expected orbital altitude is 475 kilometers with an orbital inclination of 97.3 degrees The following frequencies will be used by RS-16:

Uplink = 145.915 - 145.948 MHz
Downlink = 29.415 - 29.448 MHz
Beacons = 29.408 , 29.451 MHz
Pwr 29 MHz Down = 1.2 W /4 W
Beacon 1 = 435.504 MHz
Beacon 2 = 435.548 MHz
Pwr 435 MHz Beacons = 1.6 W

Keep your receivers tuned on 10 meters and be ready for a new bird! It will be interesting to see how it performs versus RS-10/11, RS-12/13, and RS-15.

As always, this column will appear in what I like to call the "Dayton" issue of ***Worldradio***, so if you make it to the show, stop by at the AMSAT booth (in the main hall) and say hello — I'll be the short portly guy, and with any luck I'll be there all three days. In addition, if you plan on attending and also going to the AMSAT dinner on Friday, be sure to stop by the booth as soon as possible or send e-mail to Gerd, WB8IFM, (wb8ifm@amsat.org) stating that you are planning to attend. There is a finite amount of seating at the restaurant, and if the food is as good as it was last year, you will definitely want to be there (it beats the heck out of hot dogs)!

I'm running out of space this month, so stay tuned for more information as we grow closer to the launch of P3D. We're rapidly closing in on the culmination of a huge effort on the part of amateurs all over the planet — not just here in the U.S. It will bring us a whole new style of amateur satellite operation. 73 and see you on the birds! WR

Show and tell!
Photographs will bring your story to life.

Richard Fisher, KI6SN
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e-mail: KI6SN@aol.com

QRP's home, sweet homepages

Like so many other special interest groups in Amateur Radio, an ever-growing portion of the QRP community is becoming solidly and forever connected to the Internet.

Testimony to the fact is the explosive growth of the QRP-L Internet Mail Group, directed by Chuck Adams, K5FO, of Dallas, Tex., and by far the most active low power organization in the world. With more than 1,000 registered members, it meets via computer 24 hours a day, 7 days a week, 365 days a year. Don't be surprised to find 60 messages exchanged between members in a single day. Some days even more. Seldom does the chatter stop even long enough to take a breath.

One of the most useful spin-offs from this high energy Internet forum has been the development of some fabulous QRP sites on the World Wide Web. Virtually every regional, national and international QRP organization now has one. Commercial interests are well represented, too. Many of these sites are beautifully designed and laid out and are chock-full of great reading and viewing for the low power enthusiast.

Some of the homepages serve as electronic "newsletters" for their members, and offer links to hundreds of other web sites of particular interest to the QRPer. Most provide club membership information, histories, officers' listings, and other important information about the group. Taking a leisurely stroll across the Internet to visit some of these homepages will underscore just what an important role the computer is playing in threading the QRP community of the '90s together.

Here is a list of QRP organizations maintaining web sites, along with their Internet addresses. Please note that each of these URLs must be preceded by the preamble: http://

- Activity Group QRP Berlin
  ourworld.compuserve.com/homepages/peter_dl2fi/
- Adventure Radio Society
  www.natworld.com/ars
- Alaska QRP Club
  www2.polarnet.com/~akqrp/
- Columbus QRP Club
  www.infinet.com/~len/cqrp1.html
- Colorado QRP Club
  www.mtechnologies.com/mthome/cqc.htm
- G-QRP Club of Great Britain
  www.kanga.demon.co.uk/gqrp.htm
- Italian QRP Club, I-QRP
  www-dx.deis.unibo.it/htqrp/
- Knightlite QRP Club
  rtpnet.org/~knights/
- Long Island QRP Club
  www.hamtrader.com/liqrp/index.htm
- Michigan QRP Club
  www.geocities.com/CapeCanaveral/2844/miqrp.htm
- Minnesota QRP Society
  www.spacestar.net/users/aplitech/mnqrp/
- New Jersey QRP Club
  www.njqrp.org
- NorCal (Northern California) QRP Club
  www.fix.net/norcal.html
- NorthWest QRP Club
  www.scn.org/ip/nwqrp/nwqrp.html
- QRP Amateur Radio Club International
  rtpnet.org/~qrp/
- QRP-L Internet Mail Group
  qrp.cc.nd.edu/qrp-l/

QRP Kit and parts suppliers

In addition to QRP organizations, there are a variety of commercial QRP kit and parts suppliers with home pages of interest to low power enthusiasts:

- Amidon Associates (toroids, baluns)
  bytemark.com/amidon/
- Dan's Small Parts (parts, kits)
  www.fix.net/~jparker/dans.html
- Digi-Key Corporation (parts)
  www.digikey.com/
- Embedded Research (kits)
  www.vivanet.com/~gmdsr/
- EMTECH (kits)
  www.isomedia.com/homes/starbuck/emtech.htm
- Far Circuits (project circuit boards)
  www.cl.ais.net/farcir/
- Kanga U.S. (kits)
  qrp.cc.nd.edu/kanga/
- Mouser Electronics (parts)
  www.mouser.com/
- Oak Hills Research (kits)
  www.ohr.com
- Small Wonder Labs (kits)
  www.fix.net/~jparker/sml.html
- TEN-TEC Corp. (kits)
  www.tentec.com/
- S&S Engineering (kits)
  www.xmetric.com/sseng/
- Wilderness Radio (kits)
  www.fix.net/~jparker/wild.html

Make note that Internet addresses can, and often do change without notice. Don't be discouraged, however, if your search comes up "Site Not Found." Chances are very good that one of the web sites you are successful in visiting has a link to the site you're looking for. They don't call it the World Wide WEB for nothing. The innovation and imagination demonstrated on many of these sites is something to behold and to savor.

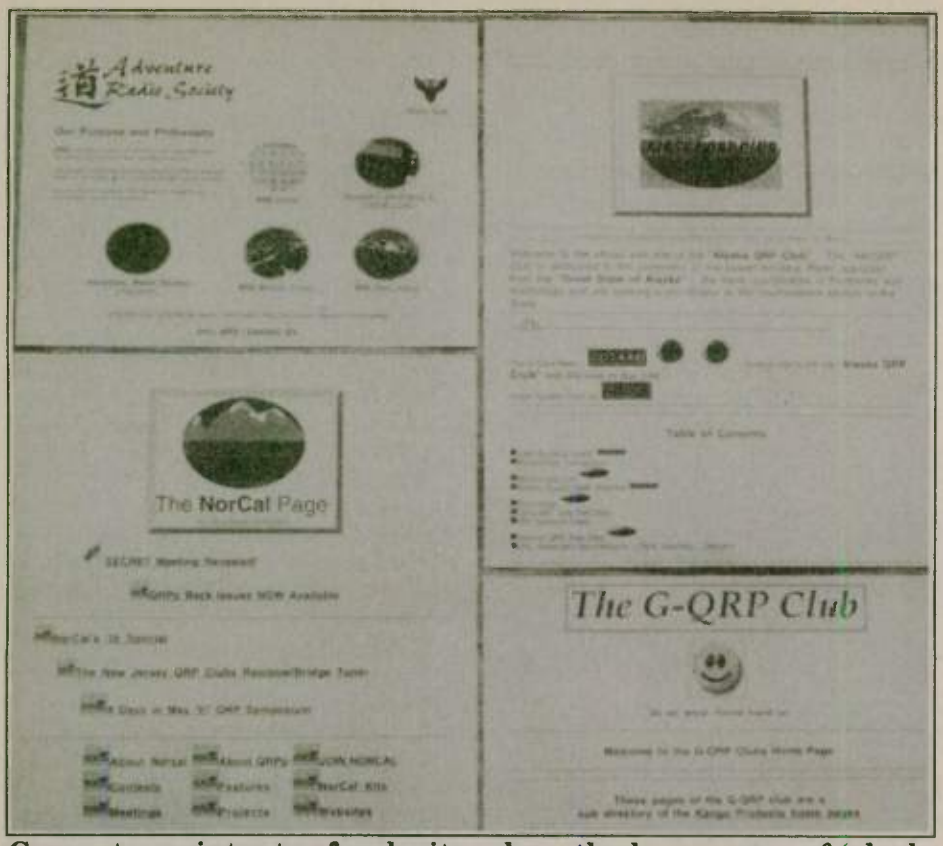
For details on joining the QRP-L Internet Mail Group, visit the organization's aforementioned homepage. Full details on becoming a member of the group is carried there, as well as a menu of neat features, services and activities offered to members.

A whole world of fascinating QRP sights and sites is just a point and a click away. Happy hunting.

A simple superhet transceiver

Designer Wayne Burdick, N6KR, who brought QRPers such classic homebrew projects as the NorCal-40, Sierra, and Forty-9er transceivers, the KC-1 memory keyer/frequency counter, KC-2 keyer/digital frequency counter/wattmeter/S-meter, and the BuzzNot noise-blanker, has introduced his long awaited SST — Simple Superhet Transceiver.

How simple? "The final parts count is about 77," Burdick wrote in an Internet dispatch announcing



Computer printouts of web sites show the homepages of (clockwise from upper left) the Adventure Radio Society, Alaska QRP Club, G-QRP Club of Great Britain, and NorCal QRP Club.

the completion of the project. "My goal with the SST was to see just how low you could go and still have really good performance."

This single-band rig, available for 20-, 30- or 40-meter operation, as well as 40-meter/Novice, features a narrow three-crystal filter, innovative automatic gain control (AGC) circuit, AF and RF gain controls and varactor-controlled variable crystal oscillator (VXO) covering about 10 kHz of the 40M bands, 15 kHz of the 30M band, or about 18 kHz of 20M.

The SST will put out about 2 watts on each of the available bands when using a 13.8-volt DC supply. At 12- or 9-volts, power output will, of course, be somewhat less. Power output is adjustable to zero, Burdick says.

The kit comes complete with custom-designed unfinished enclosure. Builders who would like to add a KC-1 keyer and BuzzNot noise-blanker will have no great challenge in doing so, Burdick says.

The SST is available for $85 plus shipping from Wilderness Radio, P.O. Box 734, Los Altos, CA 94023-0734. California residents add 7.75% sales tax. Shipping charges per kit are: U.S. $3, $5 Canada/Mexico, $15 DX (other). For more information, call 415/494-3806.

A grand QRP weekend

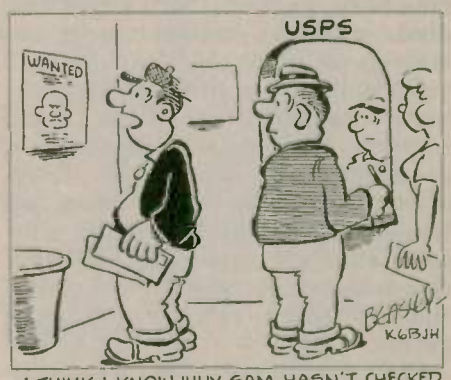
In a stroke of serendipity, the weekend of 22-23 February turned out to be one of the most interesting and enjoyable two days of QRP operation in a long, long time for hundreds of operators across the country.

The occasion was back-to-back contests sponsored respectively by the Arizona ScQRPions QRP club Saturday, and Colorado QRP Club Sunday — two days of almost non-stop activity.

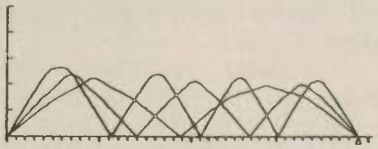
Saturday, operators headed into the field to participate in the ScQRPions' first ever "Freeze Your B___ Off QRP Winter Field Day," organized chiefly by Joe Gervais, AB7TT, of Goodyear, AZ. It was the inaugural staging of the event, and from all reports is destined to be a contest calendar fixture for years to come. In this competition, the low temperature recorded during contest operation played a major role in score computation. Now there's a neat twist.

The bands were buzzing Sunday with Colorado QRP Club's Winter QSO Party. Al Dawkins, KØFRP, of Aurora, CO, operated under the club's call, WØCQC, offering a 1,000 point bonus to each QRPer making contact with him. His monstrous signal into Southern California stood out as a beacon and standard-bearer for the entire contest. CQC's competition also features a different twist — the operator's first name was designated part of the contest exchange. Then the number of different first letters from those names was used in computing the final score. From KI6SN, unfortunately, operators known as Zeke, Quinten, Ike or Ulysses were nowhere to be heard. Nonetheless, it was a great day of fun in a relaxed and friendly atmosphere.

Both organizations deserve a hearty "72" from the low power community for putting together such an enjoyable QRP weekend. WR



Propagation



Carl Luetzelschwab, K9LA
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Ft. Wayne, IN 46845
E-mail: rcluet@most.fw.hac.com

In his "Contest Tips, Tricks & Techniques" column in an issue of the *National Contest Journal, (NCJ)*, a couple years ago, W9XT focused on the concept of being a propagation user, not a victim. The idea was to promote knowledge in order to take advantage of whatever kind of propagation Mother Nature gives you. This could be done by casual operating or DXing on the bands of interest to know what normal and unusual openings exist.

One specific unusual opening cited was the over-the-pole opening to SM/LA/OH (Sweden/Norway/Finland) on 10 and 15 Meters in the mid to late afternoons from the upper Midwest. W9XT commented that signals on this path are so weak that you won't hear them unless your beam is almost due north. He went on to say that he has worked these countries when it was not even possible to work southern Europe via the regular paths earlier in the day.

Along the same lines, in the 8 January 1996 issue of *QRZ DX* (one of the many weekly DX bulletins), KG9N also related working some OH and SM stations on 21 MHz (15M) at 2000 UTC (2 p.m. local time for KG9N) on 21 December 1995. KG9N commented that the OH stations were very surprised that there was propagation to Illinois on an otherwise "dead" band.

I also have had first-hand experience with this path. In the Phone weekend of the ARRL International DX Contest in March of 1993, I was a single-operator 21 MHz entry. My first QSO at 0001 UTC (7:01 p.m. local time) was with OH1EH/OHØ. From then on until the band closed at about 0300 UTC (10 p.m. local time), I worked many Caribbean and South American stations, several Pacific stations, and many JA stations. But conspicuous by their absence were any other European stations, especially those farther south of OHØ.

So for this month's column, I'll take a look at this path in detail in order to explain what makes it work, and why the Scandinavian countries are favored. I'll do this for my QSO in March of 1993.

I'll start by taking a look at the conventional MUF (Maximum Usable Frequency) from my location in Ft. Wayne, Indiana to OHØ. I'll also include data to a farther-south European country, Germany, (DL). The MUF will be approximated by multiplying the critical frequency foF2 by the M-factor from Table I in my March, 1997 column.

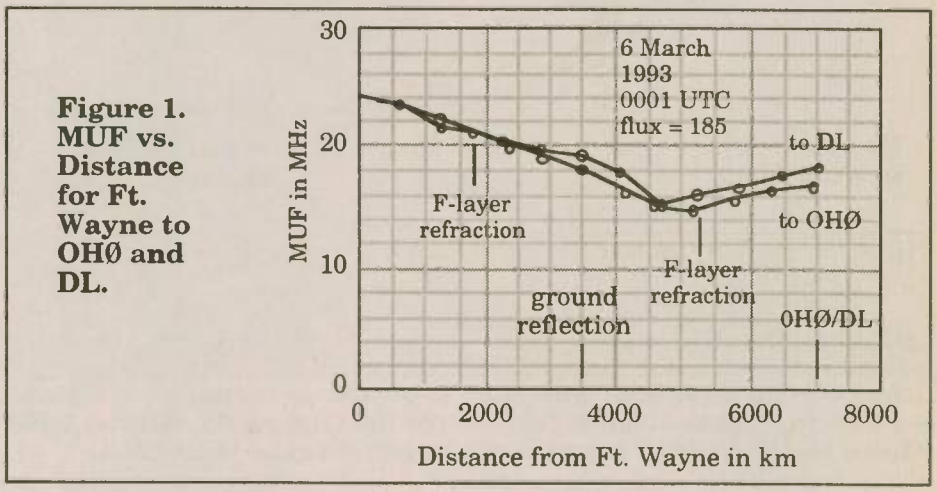


Figure 1. MUF vs. Distance for Ft. Wayne to OHØ and DL.

The critical frequency along the two paths (Ft. Wayne-to-OHØ and Ft. Wayne-to-DL) comes from the BASIC program IONPARA.BAS that I described in an HF ray tracing article for the ARRL's *Antenna Compendium,* Volume 5. Figure 1 shows how the MUF varies along both paths. The two paths are approximately the same length - 6,928 km for the OHØ path, and 7,016 km for the DL path. For the record, I used a solar flux of 165, assumed two F region hops (the F region refraction points and the intermediate ground reflection are indicated on the plot), and used an M-factor of 3.2 from the aforementioned Table I (based on an F-region height of 335 km from the IONPARA.BAS program).

One observation from Figure 1 is that for both paths, the F region can support a 21 MHz signal at the first F region refraction point (about 1,750 km from Ft. Wayne), but not at the second refraction point (about 5,250 km from Ft. Wayne). Those with a keen eye will note that the MUF is slightly below 21 MHz at the first refraction point — that's okay, as these are monthly median values, and they could be +/- a MHz or two on any given day in March. Applying this uncertainty to the second refraction point still gives an MUF way below 21 MHz So this data says I shouldn't have worked the OHØ — but I did.

Let's assume that the OHØ MUF is totally wrong (for some unexplained reason), and is much higher toward the OHØ end of the path. With the DL MUF being virtually identical to the OHØ MUF, you would expect the DL MUF to also be wrong. So in addition to working the OHØ, I should have been able to work farther-south Europeans. But I didn't. There's always a possibility that this lone northern European OHØ was the only European on 15M at the time. But I doubt this was the case based on the much greater population density of southern Europe, and the fact that it was a contest weekend.

We have some contradictions here. The MUF says I shouldn't have worked any Europeans — but

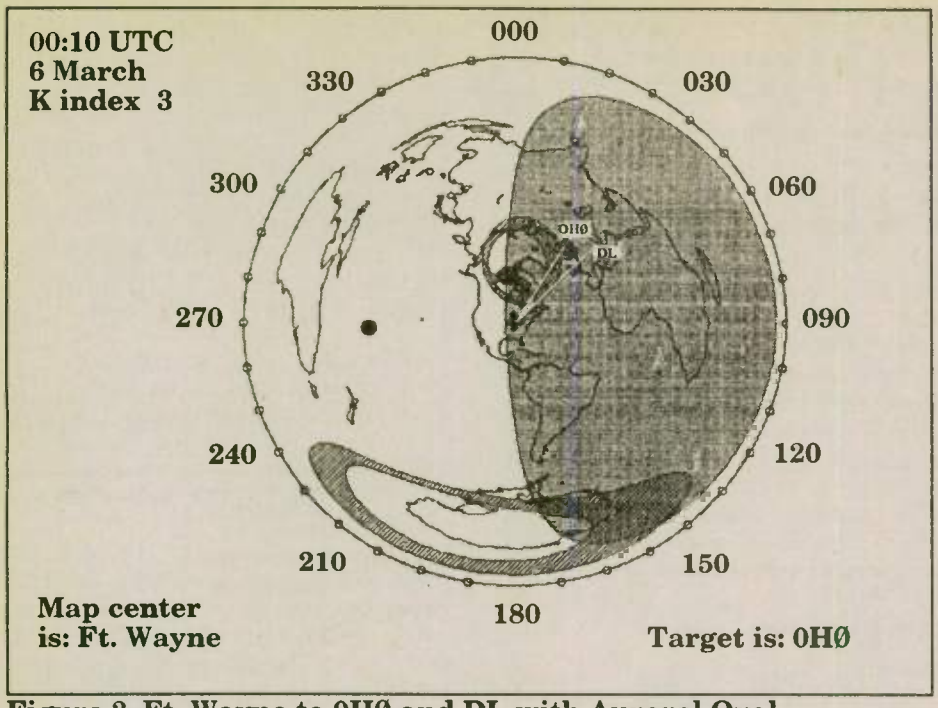


Figure 2. Ft. Wayne to 0HØ and DL with Auroral Oval.

I did. And if the MUF is wrong since I did work a northern European, then I should have also worked southern Europeans — but I didn't. What's going on? How did I (and W9XT and KG9N) work a Scandinavian country, but not a farther-south European country? There must be something different about these paths that doesn't show up in a simple analysis of MUF. Indeed there is. And it's related to what I discussed last month — the auroral oval and auroral-E propagation.

Figure 2 is an azimuthal equidistant map very similar to the one from last month. It has the same date and time. But it is centered on Ft. Wayne (the cross symbol) instead of the geographic north pole. It is for a K-index of 3 instead of 1, and it has both the OHØ and DL path from Ft. Wayne (straight lines) plotted on it. It also has the southern auroral oval on it — it appears very big only because of how azimuthal equidistant maps are projected at their outer perimeter.

The overhead sun is the black dot on the left side of the map halfway between Hawaii and Australia. The portion of the Earth in darkness (eastern half of the U.S., all of South America, all of Africa, all of Europe, and over half of Asia) is shaded.

What's important to note is that the auroral oval extends over the Ft. Wayne-to-OHØ path, but does not extend over the Ft. Wayne-to-DL path. With some calculations with respect to time zones, the portion of the oval within a couple hours before and after local midnight hits the Ft. Wayne-to-OHØ path from about 2,500 to 6,000 km. This range of distances is where the conventional MUF per Figure 1 says propagation can not be supported.

So now we have everything we need per last month's column to have a shot at auroral-E propagation: the K-index is sufficiently high to place the auroral oval over the OHØ end of the Ft. Wayne-to-OHØ path, and the OHØ end of the path is centered around local midnight for this month of March.

Thus it is likely that what makes this path work is auroral-E propagation. The first half of the path is probably covered with an F region hop, then followed with 2 auroral-E hops to get to OHØ; and since the auroral oval does not extend over the DL end of the path, there is no propagation from Ft. Wayne to DL.

What about W9XT's comment about mid to late afternoon QSOs? And KG9N's QSO at 2 p.m. local time? Aren't those kind of early compared to my 7 p.m. QSO? Digging deeper into the Rose and Hunsucker paper shows that the probability versus time of occurrence of auroral-E is somewhat of a normal distribution, with tails extending for 5 to 6 hours either side of the time of peak occurrence (local midnight of the auroral oval for most of the months). So mid afternoon in the Midwest is not out of the picture, just a reduced probability.

Before closing this month's column, I'd like to say that there's a big caveat with all the above — I can't prove any of it. But the pieces all seem to fit the puzzle. I'm still chasing some literature with data that may enable ray traces to be done — that's the first step to add more credibility to what I think is happening. WR

Wires & Pliers

CW using your HT!

Joseph L. Sabutis, NWØA

You've earned your No-code Tech ticket and have been using your HT to talk to cross-town friends on the local repeaters. Maybe you are an Elmer who is helping a new ham learn CW so that they can experience communicating with amateurs on different continents.

Whether you are planning to upgrade your license, or are thinking of helping someone with their upgrade, now is the best time to begin learning and practicing Morse code! The sunspot cycle is predicted to start its upswing during the middle of 1997 and by studying and upgrading now, you will be in the position to experience the excitement of world-wide communications when the high frequency bands open during the onset of Sunspot Cycle 23.

Before enjoying communications on the HF amateur bands, the radio operator must demonstrate that he or she knows Morse code. Regardless of your opinion on this, Morse code proficiency boils down to being able to distinguish a mere 43 different sounds. Studies have shown that there is little or no correlation between the ability to learn the code and age or intelligence. With practice and dedication, almost everyone (yes, even you!) can learn Morse code.

A number of times during the past three years, I have conducted a 5-week beginner's Morse code class over the local repeater in Glendale, California. I am proud to report that more than 40 hams have listened to these classes and passed their code exams. Three of them are now Amateur Extra Class operators, one of whom is my wife Gloria, AAØZE! Almost all of the hams who passed the 5 wpm code test wanted to prepare for the 13 wpm element. Increasing one's code speed involves a lot of practice, and one of the best ways of doing this is getting on the air and going "live." But after the initial purchase of an HT, power supply and outside antenna, a number of new amateurs may not have the money to buy a HF radio for code practice. The project featured in this article provides a simple and inexpensive way for two Technician Class operators (yes, even No-code Techs), or an Elmer and his or her protege, to get on the air and make CW contacts using a Radio Shack HTX-202, HTX-404, or other HT and experience the wonderful world of CW.

HT keyer circuit description

The HT keyer consists of an audio oscillator and amplifier. Q1, R1-R5 and C1-C3 make up a twin-T oscillator that produces a 650-800 Hz audio tone. For practicing code, I prefer to listen to a rounded sine-wave signal, rather than a harsh square wave produced, for example, by a 555 timer. C5 couples the oscillator's audio signal to the HT microphone input. Different audio frequencies can be obtained by varying R5. C6 "borrows" a portion of the sine-wave and routes it to the input of U1, a LM386 audio amplifier, to produce a sidetone, and C7 couples the amplified sidetone to the headphones. C8 filters the supply voltage, which can be anything between 3 and 9V. With 3V, the oscillator supplies 40 mV audio signal to the microphone input line, and 60 mV with 9V supplied.

S1 is the transmit-receive switch. In the receive position, one pole of S1 routes the HT's audio output to the headphones and in the transmit position routes the sidetone to the headphones. The second pole of S1 plays a dual role in the transmit position. The transmitter is keyed by grounding the HT's microphone input line through R6 and the audio from R5 is connected to the HT microphone input through the same line. S2 is the on-off switch, which may be omitted if you remember to disconnect the battery between sessions.

The oscillator is turned on and off by connecting the positive side of the battery to R4 and Q1's collector with a hand key. This method of keying produces an audio signal without noticeable "key clicks." One drawback of doing the keying this way is that J1 must be isolated from ground, that is, no part of J1 must touch the metal case. Using a 9V battery as a supply, the circuit draws 4.6mA in the receive position and 14.6mA in the keyed down transmit position.

Radios other than the HTX-202 or HTX-404 may be used with the HT keyer by changing C5 and R6, and using appropriate plugs to attach it to your HT. Because there are many HTs that may be used with the HT keyer, it would be impossible to list all values that will work with all radios. The best way to determine the values of C5 and R6 that will work with your HT is to use the same values of capacitance and resistance recommended for connecting a packet TNC to your HT. If you cannot locate these values, use the ones given in this article if you have a Kenwood or Yaesu radio. For Alinco and Icom radios, use 0.1 uF for C5 and 33k ohm for R6. The HT keyer has been tested with a Yaesu FT-530, Kenwood TH-79A, and Icom IC-2SRA using the values given here.

Construction

The prototype HT keyer was constructed on a piece of 1½" x 2½" perfboard. I found that component placement was not critical, but I tried to keep the leads and connections as short as possible. The circuit board, switch, and the phone jacks can be mounted in any convenient enclosure, but make sure you leave enough space inside the case so that the headphones and ¼" key plugs do not interfere with any of the components on the perfboard or with the battery.

Adjustments and operation

You should be familiar with the emission mode you will be using with the HT keyer. Normal CW (A1A) emissions are produced by turning on and off a carrier radio wave. This is a frugal method of communication that uses less than 200 Hz of radio bandwidth with a

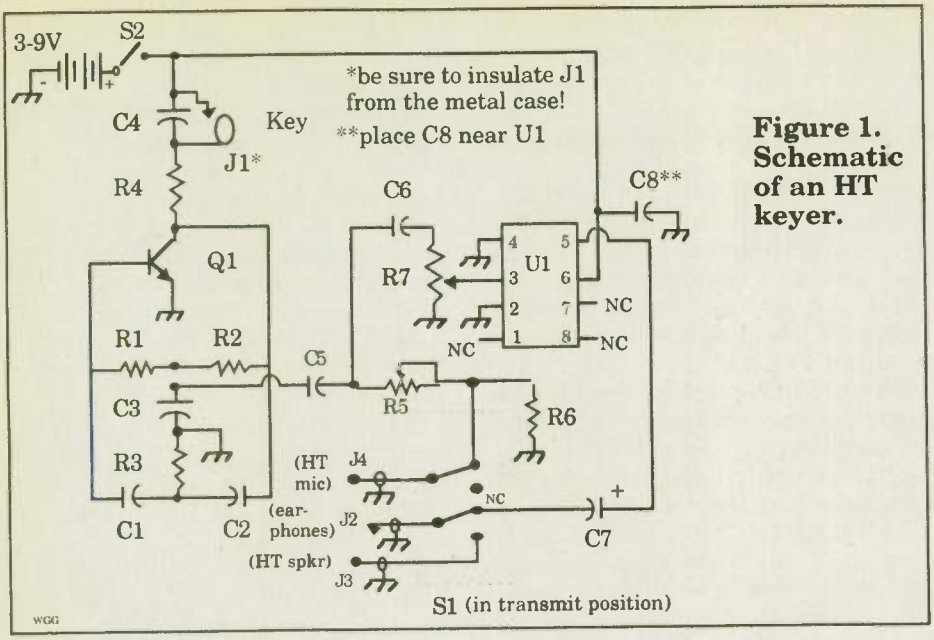


Figure 1. Schematic of an HT keyer.

well adjusted transmitter. The HT keyer uses Modulated CW (MCW-F2A) emissions which can occupy between 8-12 kHz of radio bandwidth. Because of the extra bandwidth of the MCW mode, you should not operate in the portion of the 6M and 2M bands reserved for CW communication, namely 50.0-50.1 MHz and 144.0-144.1 MHz.

Adjust R5 to mid-range and R7 so that no signal will get to the input of U1. Make sure that R7 is adjusted in this manner because you do not want the sidetone output being too loud when you have the headphones next to your ears! Hook up the hand key, headphones and battery to the HT keyer, but do not connect J3 and J4 to the HT. Turn on the power and place S1 in the transmit position. Adjust R7 for a comfortable listening level in the headphones, then adjust R5 for an audio tone of your liking.

Place S1 in the receive position and connect J3 and J4 to the HT's speaker and microphone inputs. Adjust the HT's volume control so the speaker output is at about the same level as the sidetone.

To transmit, first find an unused FM simplex frequency. Switch S1 to the transmit position and leave it there all the time you are using the hand key to transmit. When you are finished with your keying, switch S1 to the receive position. Remember to identify your station every 10 minutes and before you SK. If you use MCW for identification, FCC's rules say that the ID should be given at a speed of less than 20 wpm!

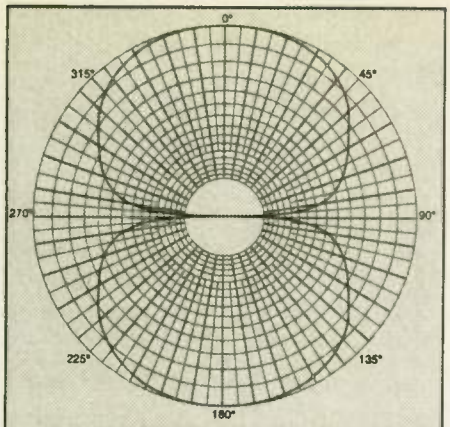
By practicing Morse code with another station and using the HT keyer, a new student will get over the first time jitters of sending the code. You will find that one of the hardest things to do is remembering how to spell and send Morse code characters at the same time. But by first using the HT keyer to practice sending and receiving Morse code over the air, you will sound like a pro when you go "live world-wide" for the first time. Good luck in upgrading and I hope to hear you on the low bands soon! **WR**

Parts list:

C1, C2 - 0.02 µF (RS 272-1066)
C3 - 0.05 µF (RS 272-1068)
C4, C5, C8 - 0.1 µF (RS 272-1069)
C6 - 0.01 µF (RS 272-1065; see text)
C7 - 220 µF 10V Electrolytic (RS 272-1029)
R1, R2 - 15 k ohm (RS 271-1337)
R3 - 2.2 k ohm (RS 271-1325)
R4 - 22 k ohm (RS 271-1339)
R5, R7 - 10 k ohm (RS 271-282) (variables)
R6 - 2.7 k ohm (RS 271-1325 would work, see text)
Q1 - 2N3904 PNP (RS-276-2016) (2N2222A, 2N4401 will also work)
U1 - LM386 (RS 276-1731)
S1 - DPDT Toggle Switch (RS 275-652)
S2 - SPST On-Off Switch (RS 274-651)
J1 - 1/4" Phone Jack (for hand key) (RS 274-252)
J2 - 3.5 mm Phone Jack (for headphones) (RS 274-251)
J3 - 3.5 mm Phone Plug (for HT speaker jack) (RS274-289)
J4 - 2.5 mm Phone Plug (for HT mic jack) (RS 274-289)
Misc. - Perfboard, Battery Clip, Case, Hook-up wire

Capacitors are 25 V unless otherwise noted; resistors are 1/4 W.

No patent? Share your innovative construction ideas with Worldradio readers!



AERIALS

Kurt N. Sterba

I'm beginning to think that there are a lot of hams who, if they were mugged and all their money stolen, would say, upon waking up in the intensive care unit (with a cracked skull), "I guess he needed the money more than I did."

I'll tell you what I was going to do. First, a manufacturer has made outlandish claims for their new Yagi antenna. So outlandish that I had planned on announcing a "$1,000 Challenge." The company could write a paper defending their claims. Then if say, (upon our invitation) Roy Lewallen, W7EL, and Beezley, K6STI, agreed the manufacturer's paper (which would be printed here) was correct, I would donate the grand to the Amateur Radio club that is in the city where the manufacturer is. If the knowledgeable said the manufacturer's paper was not correct I would obviously keep the kilobucks.

But I decided not to do it even though I knew I would absolutely, without a doubt win. I just didn't want the irate letters. I can hear them before they are even written. If the past is prologue: "A stunt — you embarrassed them — you are walking on water again — who made you judge and jury — we don't care — find a new subject —" and on. Then I know there would have been the letter from that one particular whiner in Southern California, "But, they're really good people."

The most likely scenario is that the manufacturer would not even write their paper justifying their (ridiculous) claims (impossible) and just ignore the whole thing. Most probably then, the members of the radio club (missing out on the thou) would be madder at me for holding the local company's feet to the fire than the fact the antenna claim is hogwash.

So I will spare the Bunko Antenna Company their justly deserved embarrassment (which they probably would not feel anyway) and spare myself the irate letters. I guess age is catching up with me.

So on to other topics: I received a great number of letters regarding an antenna article a few months ago that ran in Chicken Quack magazine written by, oh, call him "Kenny Rogers." It was a real example of Ouiji board science. It was just awful. Many readers said something, such as, "I can hardly wait to see you tear into it." It was SO bad that it just didn't have a feeling of sport to go after it. Then in another magazine owned by the same group a writer slipped off the deep end. This writer said that the use of a magnetic mount antenna on your car would eventually pull all the oxygen out of the metal where the mount was. Such a statement would make any self-respecting scientist leave the room.

I'm at a loss for words. Where could anyone reach out for something like that? Folks, don't worry about it. Believe me.

If a thousand monkeys sat at a thousand typewriters in a thousand years one of them would write an article about antennas. Whether it makes any sense or not is another story.

As expected. Sent to the ***Worldradio*** office, to be forwarded to me, was a photocopy of a page from a book recently published which is in opposition to my explanation to what an SWR meter really reads. In big letters was printed "Which one of you is right?" Surely you jest.

Another letter writer attempted to prove me wrong and made a mistake in his math. Too bad.

But, restoring my faith in mankind, Ray Gascon, W7SJS, wrote; "I have to say that *AERIALS II* is vastly underpriced and I much admired the pithy contents."

I've been told that *AERIALS II* is totally sold out (Thanks to all who bought it, much appreciated.) and another edition will be printed soon. Watch this column for further details.

It appears that hams don't object to being called simpletons. Looking through one of Lil's English magazines I saw this in an advertisement: "Remember the days when you could buy a rig for two metres that didn't require a maths degree to operate it? Probably not. It's not that long ago. Enter the no frills...."

Then an article in talking about antenna books wrote about "the sternly theoretic, which frightens the average amateur with its mathematics and impressive diagrams."

In a club bulletin Ben Zarfos, W3GES, Wrightsville, PA commented on the Isotron 40M antenna saying: "At a height of only 12 feet it works great, and compares favorably with my long and high antennas. (I have five towers.)"

I was listening to one of those talk shows and a caller started off by saying, "If the Japanese hadn't bombed Pearl Harbor...." The host cut him off quickly by saying "But they did and everything you might say is meaningless...." That reminded me of an antenna man who would test antennas and say that if they didn't have XXX SWR that the Field Strength at the other end would be YYY. Well, they DID have the SWR and that's that!

Speaking of field strength, I've taken a closer look at the measuring equipment. Both Bird and Coaxial Dynamics have field strength meters. Their prices are roughly the same as the Palomar unit. The Palomar has so many features that

are non-existent on the other two units that there is practically no comparison at all.

There's a book out, published by a big outfit that is really quite good despite a few serious flaws. I'm not going to identify the book in order to spare myself the yelling and screaming that I recently received. I had commented on a book by a particular person and it seems many felt that due to his legendary status I just should not have said anything at all. There was no technical defense presented.

Then there's the old coot in Arizona who says that I just show off what I know and don't teach anything. Strange attitude. Because in pointing out errors I am teaching, indeed.

Book: "It is not practical to operate a quarter-wavelength antenna on its harmonic frequencies because the radiation pattern will change and provide high angle radiation which is much less efficient in long range communications."

KNS replies: You just go right ahead and run your 20M vertical on 10M. The angle of main lobe will drop considerably and there will be a worthwhile improvement.

Book: (Regarding Tuners): "Trying to keep up with three interacting adjustments can be time-consuming and frustrating."

KNS replies: The first time a tuner is used on a new band rotate the inductor switch or roller coil for highest band noise. Then adjust the input and output capacitors for highest band noise. Elapsed time is about five seconds. Then quickly trim up with the SWR meter. Next, WRITE DOWN the settings. The next time you go to that band you will not find it to be time-consuming or frustrating. (Frustrating? Let's hope most people reserve that emotional state for matters of more importance than tuning for lowest SWR.)

Book: "If I question the accuracy or calibration of a noise bridge I grab the load on the PL-259 and plug it into the UNKNOWN socket. When I see that the bridge balances at 50 ohms and zero reactance I know that everything is as it should be."

KNS replies: Whoops! Left out is the fact that for the reactance calibration to be accurate, a SHORT must be across the reactance connector when calibrating.

Book: "If you are trying to measure VSWR and do not have the VSWR bridge at the antenna terminals then a length of feed line that is equal to an exact multiple of a half wavelength will repeat the antenna impedance at the other end of the line."

KNS replies: This may be the most common mistake in antenna writing today. The statement above is valid ONLY if the VELOCITY FACTOR of the cable has been figured in. In actuality to obtain the results spoken of, the cable (in most instances) should be about two-thirds of the length mentioned above. Consult the charts for the coax you are using.

I feel that the "half-wave of line" almost taking on the form of a magic elixir, is overblown. What you are really interested in is not so much the impedance but the power ratio (Forward/Reverse) and that should be the same at any point in the line. Also, the transmitter plugs into the end of the coax in the station, that point is what you should be concerned about.

(Once again it is The Great Kurt [and only The Great Kurt] who goes after those who have [1.] lost their moral compass and [2.] those who would poison the wells of knowledge.) **WR**

Volunteer services bill introduced

Help may be on the way for hams who are concerned that volunteering their services might open up the possibility of lawsuits. The ARRL reports that the Volunteer Services Act of 1997, known in Congress as HR 1013 has been introduced by Representative Anna Eshoo of California. The bill would place volunteers in the Volunteer Examination Program and the Amateur Auxiliary under the protection of the Federal Tort Claims Act. This would afford them the same legal protection as employees of the Federal Government while they're carrying out such volunteer duties.

HR 1013 is nearly identical to a bill introduced last year but not enacted. It is similar to a unanimously accepted amendment to the FCC reauthorization bill that Eshoo herself offered last year in the Commerce Committee. Congress adjourned before acting upon that legislation. (*via ARRL*)

Contest Corner

Don Durk, KA1DWX
76226.1414@compuserve.com

Our unsung OM/YL heroes

If you've ever spent a few hours on a couple of bands during a modest contest, you're sure to have encountered the same loud station on all bands. If you switch back to 20 you'll find the same station you just left on 40. Switch back to 40 and the same station is still there! These are our multi op folks with several operators running several simultaneous bands.

Not only do these folks put in contest time, just think of the continuous efforts that go into designing, installing and maintaining numerous antennas and rigs. What about the interference problems that need to be addressed in this environment!

So when you make several Qs with DLØHQ, OK5W, IQ4T, W1AW and others remember to thank the many folks who labored to give you several Qs on several bands. Many times we do not know the individual ops call sign but you folks are the backbone of successful contesting!

You can experience the thrill of this by arranging a visit to a local contest club station. Check your local Contest Club or active contesters to find out who needs assistance both before and during contests. You may even get an invitation to stop by for an eyeball!

Check out the 3 new categories for the WPX 'test in this column: Rookie; Band Restricted and Tri Bander/ Single Element. Now you can compete against comparably equipped stations! Nice change!

Get logs in within 30 days! Most contests require separate logs per band, check sheets for over 200 Qs, a summary sheet, and a signed and dated affidavit attesting to observance of the rules of both the contest and your local regulating authority. A statement wherein you agree to be bound by the decisions of the contest committee is also needed. All times are in UTC. WARC bands excluded.

Late April 'tests

(see *Worldradio* April for details)

•NE All modes QSO Party
26 April 17:00-27 April 17:00
(QSO number+ st/prov/DXCC country or for NE stns number+ county [93])

•HB9 SSB/CW Helvetia 22 'test
26 April 13:00-27 April 13:00
(RS(T)+number or canton for HB9 stns)

•Holyland 4X4 SSB/CW 'test
26 April 18:00-27 April 18:00
(RS(T)+ number or area for 4X stns)

•SP DX RTTY 'test
26 April 00:00-27 April 24:00
(RST+CQ Zone or prov (48) for SP stns)

•ARRL 432 MHz Spring Sprint (Wednesday)
30 April 19:00-23:00 local time
(grid square, signal rpt is optional).
Score-pts (1 per Q) x mults (total number of different grid squares worked). ARRL.

May 'tests

•AGCW-DL CW QRP 'test
01 May (Thursday) 13:00-19:00
(RST+number+category A or B)
Q 1x per band 80 and 40. CW 3.510-3.560 and 7.010-7.040. Score-pts (other country 2 pts; own country 1 pt; double QSO pts for Q w/ A category stns) x mults (ea. DXCC country per band) for 80 + same for 40M. Categories: A- max 5W out. B-Max 10W out. DL1YEX.

•MARAC CW County Hunters 'test
03 May 00:00-04 May 24:00
(RST+county/provs+state for U.S./VE or country for others).
Q w/ fixed stns only 1x per band. Q w/mobiles or portables/p each time they change counties. Qs w/ stns under a net control are invalid. Freqs.-3.575, 7.040, 14.050, 21.050, 28.050 w/fixed stns asked to work above these fqs. Score -pts (1 pt for Qs w/ fixed U.S./VE stns; 5 pts for U.S./VE Qs w/DX.Fifteen pts for Qs w/ mobile /m stns [mobiles on site of conjunction of several county lines count for only one 15 pt Q but do count for separate mults for each county at conjunction]) x mults (different U.S. counties worked w/ mobile or fixed stns). No 'net controlled' contacts permitted. Certificates. Ck sheet for counties if > 100 Qs. Logs to:W3DYA.

•ARI Italian SSB/CW/RTTY test
03 May 20:00-04 May 20:00
(RS(T) +number or for I stns prov<103>)
Q all stns not just Italian stations. SSB/CW-160 -10; RTTY-80-10. 1 x per mode on each band - 3 QSOs per stn ok (1 ea. for CW/RTTY/SSB) per band for pts but only 1 mult. Ten min rule for band/mode change Score-pts (10 for ea Italian stn; 3 for diff continent; 0 for own country; 1 for own continent, diff country) x mults (DXCC <excluding I and ISØ> + provinces per band). Single Op CW; single op SSB; single op RTTY; Single op Mixed; multi op 1 Tx Mixed.

Provs: I1- AL, AT, BI, CN, GE, IM, NO, SP, SV, TO, VB, VC; IX1- AO; I2-BG, BS, CO, CR, LC, LO, MI, MN, PV, SO, VA; I3-BL, PD, RO, TV, VE, VR, VI; IN3-BZ, TN; IV3-GO, PN, TS, UD; I4-BO, FE, FO, MO, PR, PC, RA, RE, RN; I5- AR, FI, GR, LI, LU, MS, PI, PO, PT, SI; I6-AN, AP, AQ, CH, MC, PS, PE, TE; I7-BA, BR, FG, LE, MT, TA; I8-AV, BN, CB, CE, CZ, CS, IS, KR, NA, PZ, RC, SA, VV; I0-FR, LT, PG, RI, RM, TR, VT; IT9-CL, CT, EN, ME, PA, RG, SR, TP, AG; IS0-CA, NU, SS, OR. Awards-plaques and in the past, ARI T shirts, ARI calculators! Special plaque to best score under age 21. Contest software (MSDOS) for $5 available from contest committee. ASCII/N6TR/CT okay, I2UIY.

10/10 CW 'test
03 May 00:00-04 May 24:00
The Spring 10-10 QSO Party. Contact 10-10 members for 2 points and non-10-10 members for 1 point. Logs to Bruce Paige, KK5DO.

•OZ Danish SSTV test
03 May 00:00-04 May 24:00
Q 1 time only. 80-2M. Pls use Reg1 SSTV-recommended fqs. Score -pts (2 for 1st w/ any country [use ARRL DXCC country list], 1 for ea additional Q; 1pt bonus for ea Q w/ OZ stn).Certs. Carl Emkjer/ Soborghus Park 8, DK 2860 Soborg, Denmark.

•TX SSB/CW QSO Party
03 May 14:00-04 May 22:00

(QSO number+county(254) for TX stns or state/province for others). DX only counts for pts. Okay to Q 1x per mode on each band.TX stns OK to Q TX stns. 160-10M. CW-1.805 and 40kHz up; SSB-1.850; 3.850; 7.230; 14.250; 21.300; 28.450. Score-pts (3 for CW; 2 for SSB) x mults (TX counties for non TX stns; TX stns-50 states; 254 TX counties and 13 VE call areas). Classes: 1. Single op, fixed stn 2. multi op, single xmtr 3.TX Armadillo Expedition. Separate dupe sheet for ea band. Plaques, Texas Wine baskets. Q 50 or more TX counties and get a cap. Q all 254 TX counties and get free air fare to the Houston convention (re-check this before contest!) TXDS, Box 540291, Houston, TX 77254-0291.

•MA QSO Party SSB/CW/ digital/video

03 May 18:00-04 May 04:00 and 11:00 to 2100 4 May

(RS(T)+state/province/DXCC country or county for MA stns)

Q 1x per mode per band 160-10. CW-1.810 and +50kHz other bands, 144.070, 432.090; SSB-1.850, 3.890, 7.290, 14.270, 21 and 28.390. Novice-3.705, 7.130, 21 and 28.130. Score: pts (1 for SSB; 2 for CW/ digital/ voice.) x mults (Counties [14] per band or st/prov/DXCC country per band for MA stns). Outside MA; MA single op; MA multi op;MA portable; MA team(5 single ops) MA Nov/Tech; MA Club. FARA, P.O. Box 3005, Framing-ham, MA 01701 or n1tyh @aol.com

•CT CW/SSB/RTTY QSO Party

03 May 20:00-04 May 04:00 and 12:00-20:00 04 May

(RS(T)+state/province/DXCC country or county for CT stns).

Q 1x per mode per band, 160-2M. CW-40 kHz up, N/T-25 kHz up. Phone 1.860; 3.915; 7.280; 14.280; 21.380; 28.380; 50.150; 144.200; 146.580. CT stns okay to Q other CT stns for pts and mults. Q mobiles 1x per county. Score- pts (1 SSB/ RTTY; 2 CW; bonus of 5 pts for W1AW and W1QI) x mults (CT counties [8] for non CT stns; state/provinces/counties and only 1 mult for DX for CT stns). Single op fixed, single op mobile, Novice, QRP (5W), multi single, multi multi and club. CARA, P.O. Box 3441, Danbury, CT 06813-3441.

•OR QSO party

10 May 00:00-24:00 11 May

Exchange RS(T) and OR county, state, province, or DXCC country.

Oregon stations work everyone, others wk OR stations only. Wk stations 1x band/mode, mobiles again as they cross cty lines. 1 pt. SSB QSO. Two pts CW QSO. Scoring. OR stations mult QSO pts x OR counties worked, states, provinces, or DXCC countries; others x OR counties (max 36). Add 25 bonus pts for working both Deschutes and Jefferson counties. Awards. Logs by June 30 to K9QAM

•FISTS CW Club Spring Sprint

10 May 17:00-21:00

(Name+state/province/DXCC country+ Fists number if member, or power out for nonmember)

Q 1x per band 80-10M. Score -pts (2 per nonmember; 5 per member; 5 for Novice/ or Tech /T;10 for FISTS / N or/T) x mults (states/ provinces [once each] or DXCC countries (each time worked). See http://n9nvv.qrp.com/~fists homepage for details. K8OUA.

•ARRL Spring Sprints

10 May 06:00-13:00 Local time 902 MHz, 1296 MHz, 2304 MHz

(Grid square; signal rpt is optional).

Score-pts (1 per Q) x mults (total number of different grid squares worked).ARRL.

•A.Volta RTTY 'test

10 May 12:00-11 May 12:00

(RST+QSO number+CQ Zone number)

RTTY only 80-10. Score- pts (are complex using an exchange pts table based on CQ Zones. I suggest you contact the club for details or try an Italian Club web page for the details-pts outside ur own continent on 80 and 10 count double) x mults(DXCC country + ea call area in VK,ZL,JA, VE + USA per band on up to 4 bands [DO NOT count VK,ZL JA ,VE or USA as countries; Do not Q ur own call area] x total number of Qs). A1-single op, all band; A2-single op, 1 band; B-multi op, single xmtr. Certs +stickers. Separate logs per band. Como RTTY Club, P.O. Box 55, I-22063, Cantu,Italy.

•CQ MIR SSB/CW/ Satellite DX 'test

10 May 21:00-11 May 21:00

(RS(T)+number)

Q 1x per mode (satellite is extra band)160-10M. Ten minute rule. Score-pts (1 for own country; 2 for own continent; 3 for other continent) x mults per band (each country on the P-150-C list). Single op,multi band; Single op, single band; multi op, single xmtr. KCRC, CQ M Committee, Box 88, Moscow, Russia.

•NV SSB/CW/RTTY/SSTV/Packet QSO Party

10 May 00:00-11 May 06:00

(RS(T)+state/prov/DXCC country or county for Nevada stns)

Q 1x per mode per band 6 thru 160M. CW+15kHz from bottom of

General band; SSB +25 kHz from bottom of General band; N/T+25 kHz from bottom of band. Score- pts (2 for CW and other modes; 1 for SSB) x mults (NV counties or states/prov/ DXCC countries for NV stns). Certs. NW7O.

•GA SSB/CW QSO Party
10 May 18:00-11 May 20:00

This contest was restarted in '96,verify it is still on before deciding to participate! (RS(T)+county[159] for GA stns or state/province/DXCC country for others) Q 1x per mode per band, 80 -6M. CW-40 kHz up; SSB- 3.855, 3.975,7.243,14..240, 21.330, 28.400, 50..240. Score- pts (4 for CW, 2 for SSB) x mults (GA counties not per band for non-GA stns or GA counties+states+provs+DXCC countries for GA stns). GA mobiles add 100 pts for ea county from which they make at least 10 Qs.WB4EVH.

•EU CW Sprint
17 May 15:00-18:59
(Both calls + nr) NO RS(T).

QSY rule-if you initiate a Q via CQ or QRZ etc, you can work only 1 station on that frq, and your next QSO or CQ, QRZ, etc. must be at least 2 kHz away. Single op only. Fqs.- 14.040; 7.025; 3.550. No suggestion from sponsors about how U.S. stns can work split.

Free EU Sprint contest software is available from DL2NBU and or IK4EWK. I suggest you send some $$ for postage and packaging, $5 seems to be apropos. TR by N6TR is easily adapted. Contact I2UIY pcortese@mbox.vol.it or above. Logs in 15 days via mail to DL6RAI or in ASCII to eusprint @dl6rai. muc.de

•ARRL 50MHz Sprint
17 May 23:00-18 May 03:00

(Grid square; signal rpt is optional) score-pts(1 per Q) x mults (total number of different grid squares worked).ARRL.

•Baltic SSB/CW 'test
17 May 21:00-18 May 02:00
(RS(T)+number)

Q 1x per mode per band 80 Meters only. Work Estonia (ES); Latvia(YL) and Lithuania (LY) SSB 3.600-3.650 and 3.700-3.750; CW 3.510-3.600. Score- no mults; pts- (for ES, LY, YL stns Qs w/EU 1 pt/outside EU 2 pts), for other non Baltic EU stns ea Q is 1 pt (for non EU stns ea Q is 2 pts). Single op CW; single op SSB; multi op, single xmtr. Certs. P.O. Box 210, LT 3000, Kaunas, Lithuania

•CQ WPX CW 'test
24 May 00:00-25 May 24:00
(RST+number)

Q1x/band.1.8 - 28 MHz (No WARC bands). Single ops only allowed 30 of 48 hrs. Multis allowed 48 hrs. Off periods at least 60 mins and clearly marked in log.

Pts: N. America-Qs outside NA 3 pts on 28, 21, 14MHz; 6 pts on 7, 3.5, 1.8 MHz. Qs w/other NA countries 2 pts on 21, 28, 14MHz; 4 pts on 7, 3.5, 1.8MHz Qs w/ own country no pts, but ok for prefix multipliers. EU/AS/ AF/OC/SA -Qs outside own continent 3 pts on 28, 21, 14 MHz; 6 pts on 7, 3.5 and 1.8. Qs w/other countries on own continent 1pt on 28, 21, 14 MHz; 2 pts on 7, 3.5 and 1.8 MHz. Qs w/ own country, no pts but ok for prefix multiplier. Mults: Okay to score same station on each different band for QSO pts but prefix credit may be taken only once, no matter how many times you work the same station, or other stations with the same prefix. Prefix = the 3 letter or number combination of the first part of the call. YZ1, 3W8, AA1, AA2, etc.

Stations operating from a different call area than their own call sign must sign portable indicating the correct geography and country of operation. e.g. KB6HP/1 =KB1; KA1DWX/6=KA6; K2UYC/LX=LX. Single op-all band/single band;multi op - all band only,single xmtr/ multi xmtr. Multis use separate numbers for each band. New categories-pick only 1-(all single op,un- assisted and up to the legal power of your license): Rookie-licensed less than 3 years (provide date licensed); TS (tribander/single element) -any type of tribander with a single feed line from to the antenna and single element. During the contest an entrant shall use only 1 tribander for 10, 15, 20 and single element antennas for 40, 80 and 160 (Submit detailed description of antennas); BR (band restricted) -your license restricts operation to fewer than the six contest bands (160-10) on both modes (submit list of bands available to operator). Club competition. QRP< 5W, state max pwr output used in log. Include prefix list w/log. Trophies, plaques. CQ

•WTU LABRE (PY) 'test
CW-24 May 00:00-24:00
SSB-25 May 00:00-24:00
Plse re-ck LABRE for details!
(RS(T)+number)

Q 1x per band. SSB and CW are separate tests. Score- pts (for Qs w/ same continent 1 pt for 10-20M and 2 pts for 160-40M, if different country on same continent 10-20M Qs are 2 pts; for Qs w/ different continents 3 pts for 10-20M Qs and 6 pts for 160-40M Qs) x mults (Brazilian states + DXCC countries per band). Single op and multi single. LABRE WTD, P.O. Box 07-0004, 70359 Brasilia (DF), Brazil

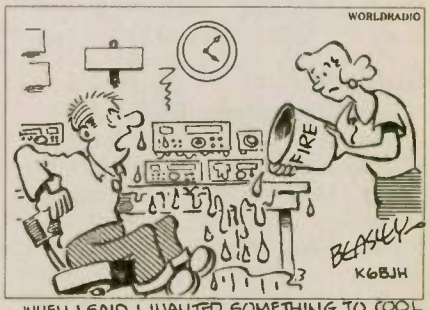
June 'tests

6/7 Weekend
•IARU Reg 1 EU CW FD
6/14 Weekend
•Portugal Day SSB 'test
•ANARTS WW RTTY 'test
•TOEC WW SSB Grid 'test
•WW So America CW 'test
•Cervantes SSB 'test
•Asia Pacific SSB Sprint
•ARRL VHF QSO Party
6/21 Weekend
•All ASian DX CW 'test
•WV SSB/CW QSO Party
•Marconi Memorial CW 'test
•RSGB 1.8 MHz CW 'test
•SMIRK 6 Meter 'test
6/28 Weekend
•ARRL Field Day
•SP QRP CW 'test

July 'tests

7/5 Weekend
•YV CW 'test
•Canada SSB/CW DAY 'test
•DARC Corona 28MHz Digital 'test
•DIE SSB/CW Spanish Island 'test
7/12 Weekend
•IARU SSB/CW 'test
•RSGB CW Low power FD
•QRP ARCI CW Sprint
7/19 Weekend
•NA RTTY Party
•HK SSB/CW/RTTY'test
•SEANET 'test
•So.Pacific 160M SSB/CW 'test
•AGCW-DL QRP 'test
•RSGB 40/80 CW 'test
7/26 Weekend
•IOTA SSB/CW 'test
•YV SSB/CW 'test
•Russian RTTY WW 'test

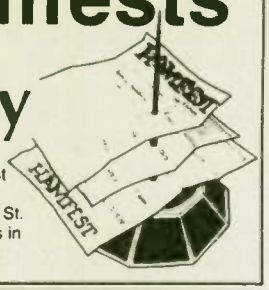
WR



WHEN I SAID I WANTED SOMETHING TO COOL THE HEAT SINK, I MEANT A FAN!

Hamfests

May



Do you have a hamfest coming up? Send your information to our 28th St. office at least 2 months in advance of your event. We'll send prizes!

California

The **Fresno ARC** will hold a hamfest on 03 May from 7 a.m. to 4 p.m. at Riverland RV Park, 3 miles south of the town of Kingsburg and about 30 minutes south of Fresno on Fwy 99. Setup and RV parking is available on the 2nd. Features include discussions about radio operator techniques and new and vintage radio equipment for sale or trade. VE testing available for all classes.

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The **North Hills Radio Club** will hold a radio swap and electronics fair on 18 May from 8 a.m. to noon at the Carmichael Elks Lodge parking lot (corner of Hackberry & Cypress), in Carmichael. Sellers $10. Free parking, food, refreshments, inside table and tailgate sales. For information/reservations, contact Bob, AC6HF at 916/966-3654 or write: NHRC Swap, P.O. Box 41635, Sacramento, CA 95841; Internet http://www.ns.net/~NHRC. Talk-in on 145.190(-) PL 162.2 and 224.400(-).

•

The **Livermore ARK** will hold a swap meet on 04 May from 7 a.m. to noon at Las Positas College, 3033 Collier Canyon Rd., Livermore, CA (Airway Blvd., exit to north of 580 highway). Features include new, used, surplus ham, computer gear, miscellaneous electronics and testing equipment, refreshments available. Admission and parking are free; vendors $10 per space (equals two parking spaces). No VE exams. Contact Noel Anklam at 510/447-3857 (eves.) or 510/783-2803 (days). Talk-in on 145.350(-) PL 100 (receive and send), 147.045(+) PL 94.8, 147.120(+) PL 100.

Colorado

The **Pikes Peak Radio Amateur Association** will hold a hamfest on 17 May from 8 a.m. to 3 p.m. (vendors 6 a.m.) at Doherty High School, 4515 Barnes Rd. Early set up 16 May, 6 to 9 p.m. Free parking, food available. Admission $4, tables $12 (for 1st, $10 each additional). AC power limited to outside wall tables — bring extension cord. Contact Dennis Major, KBØSXC, 719/535-1160 or e-mail DENNIS.MAJOR @MCI.COM Talk-in on 146.97(-) PL 100 Hz or 146.52(S).

Idaho

The **Snake River ARC** will hold a hamfest on 10 May from 9 a.m. to 3 p.m. (vendors 6 a.m.) at Central Canyon Elementary School, 13437 Florida Ave., Caldwell. Admission $2, tables $8.50/advance, $10/door (one free admission per table). VE session starts at 10:30 a.m. Handicapped accessible and refreshments available. For reservations and information, call Paul, KK7DG at 208/467-6340, e-mail Dgardner@micron.net or write SRAC, P.O. Box 122, Caldwell, ID 83606 (first-come, first-served). Talk-in on 147.200(+), N7NTY repeater, 146.52(S) or 28.400 remote base.

Illinois

The **Kishwaukee ARC** will hold a hamfest on 04 May from 8 a.m. (setup 6 a.m.) to 1 p.m. at the Sandwich Fairgrounds (intersection of Suydam and Gletty Rds.) in Sandwich. Use main entrance. Free outside tailgating. Food and drink by RLDS Church. No VE testing. Admission is $5/advance, $6/door. Tables $10, tailgating is free with admission. Send SASE to KARC, 420 E. Garden St., DeKalb, IL 60115 by 20 April. Information via telephone to: Bob Yurs, N9ZNA, 815/895-3219; e-mail N9ZNA@AOL.com; packet: N9VJQ@WB9SLE.IL.USA Visit our web page at: http://tbcnet.com/~jleonard/hamfest.htm Talk-in on repeater 146.52(S) or 146.73(-).

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The **Chicago ARC** will hold a hamfest on 25 May from 8 a.m. to 3 p.m. (setup 6 a.m.) at DeVry Institute of Technology, 3300 N. Campbell, Chicago. Prizes and refreshments. Admission $4/advance, $5/door. Indoor tables $1.50 per foot. For information and reservations, call 773/545-3622 or leave message 773/486-6823; CARC, 5631 W. Irving Park Rd., Chicago, IL 60634. Talk-in on 147.255(+) and 444.825(+).

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The **Kankakee Area Radio Society** will hold a hamfest on 10 May, from 8 a.m. (setup 6 p.m. on Friday by appt. only and 6 a.m. on Sat.) at the Will County Fairgrounds, Peotone, IL. Features include free parking, commercial dealers, computer vendors, giant flea market with shelters, food and drink, door prizes. Overnight parking available, no hookups. Admission $4/advance, $5/gate. Inside tables $7. For information, contact Will Bowser, K9IFO, 1210 N. Riverside Dr., Momence, IL 60954; 815/472-2079. Talk-in on 146.94(-).

Louisiana

The Baton Rouge ARC (BRAC) will hold a "Birthday Bash on the Bayou," to celebrate their 60th anniversary of continuous club service and affiliation with the ARRL, having hosted an ARRL State Convention in 1937. One of the displays at this year's hamfest will be the first prize drawn from 1937 — a 50-watt transmitting tube.

The three surviving charter members will also be honored. They are: Don Allen, W5FVK, Jim Burnett, N5FVF and Jack Whitaker, W5HEZ.

BRARC's membership is 400 strong Not only do they look back proudly on years of public service during disasters and emergency situations, but it reflects just as proudly upon the distinguished military service of its members in every conflict from WWII to Desert Storm.

This special hamfest will be held on 2 May 5-9 p.m. (vendor setup 8 a.m. to 5 p.m.) and 3 May 8 a.m. to 4 p.m. at The Great Hall. Contact Herb Ramey, KB5AQ at 504/346-0000 or 800/256-FEST. Talk-in on 146.79(-) or 146.88(-).

Maryland

The **Great Hagerstown Hamfest** will be held on 04 May at the Hagerstown Junior College Athletic and Recreation Center in Hagerstown. Tailgating $5 per space (plus admission) first-come, first-served. Indoor swap tables available for $15/advance. Free electric hookups (limited). VE exams at no charge, 9 a.m. (walk-ins okay). Contact Leo, KQ8E at 304/289-3576. For

advance reservations or more information, contact the ARA at 301/791-3010 (phone/fax) or mail reservations to ARA, P.O. Box 52, Hagerstown, MD 21741.

Michigan

The **Wexaukee ARC** will hold a hamfest on 03 May from 8 a.m. to 2 p.m. (setup 6 a.m.) at the Cadillac Middle School in Cadillac. Drawings and refreshments available. VE exams for all classes at 1 p.m. Admission is $5, 8' table $6.For information, contact Dan, KE8KU, Wexaukee ARC, P.O. Box 163, Cadillac, MI 49601 616/775-0998 Talk-in on 146.98(-).

Mississippi

The **Jackson County ARC** will hold its third annual hamfest 23 May from 5-9 p.m. and 24 May from 8 a.m. to 3 p.m. in the Pascagoula MS Civic Center, located on the Jackson County Fairgrounds. Admission is $2.50 (12 and over). Table rental $8 per 8'. Free parking. RV parking in designated areas only, electricity only, no dump station. Prearranged meeting room for any amateur organization. Prize drawings every hour. VE testing 9 a.m. on Saturday. Contact Charles Kimmerly, (Kim) N5XGI, 19000 Busby Rd., Vancleave, MS 39565, telephone 601/826-5811. Talk-in on W5WA repeater, 145.110(-).

New York

The **Metro 70cm Network** will hold an electronic flea market 04 May, 9 a.m. to 3 p.m. (vendor setup 7 a.m.) at the Lincoln High School, Yonkers, NY. Features include free coffee, refreshments, hourly prizes, free parking. VE exams 9 a.m. to noon. Admission is $6, children under 12 free. Vendors $19 first table, $15 each additional. For information, contact Otto, WB2SLQ at 914/969-1053. Talk-in on 449.425(-) PL 156.7, 146.91(-).

Oregon

The **Keno ARC** will hold its annual hamfest on 03 May from 9 a.m. to 3 p.m. (setup 6-9 p.m. Friday and 7 a.m. Sat.) at the Assembly of God Church, 235 S. Laguna, Klamath Falls. Features include dealers, ARRL forum, ARES seminar, demonstrations and more. Admission $5/door. Vendor tables $10 with one admission, additional tables $5 each. VE exams from 9-10 a.m. (p/r or walk-in okay) For information, contact Keno ARC, P.O. Box 653, Keno, OR 97627; 541/883-2736 or 541/882-1300. Talk-in on 147.32(-).

Pennsylvania

The **Warminster ARC** will hold a hamfest on 04 May from 7 a.m. (vendors 6 a.m.) at the Middletown Grange Fairgrounds, Penns Park Road, Wrightstown. Indoor spaces with 8' table $12, (p/r recommended) unlimited outdoor tailgating spaces for $9 each. Admission $6 (unlicensed spouses and children under 12 free). VE exams 11 a.m. (prereg. at 10:30 a.m.). For information, contact John D'Onofrio, N3RIA at 215/675-9165, 9 a.m. to 9 p.m. or write to him at 1255 Manor Dr., Warminster, PA 18974; e-mail warc@crompton.com. Talk-in on 147.09(+) repeater and 146.52(S).

Rhode Island

The **Rhode Island Amateur FM Repeater Service, Inc.** will hold a spring auction and flea market on 17 May from 8 a.m. at the VFW Post 6342, Main Street, Forestdale (North Smithfield). Spaces are $5 each, on a first-come first-served basis. Auction begins at 11 a.m. and runs until 3 p.m. Coffee, donuts, food and beverages are all available. For information, contact Rick Fairweather, K1KYI, 144 Parkview Drive, Pawtucket, RI 02861; 401/725-7595 (between 7 and 8 p.m.). Talk-in on 146.76(-).

South Dakota

The **Huron ARC** will hold an amateur electronic flea market on 10 May from 8 a.m. to 3 p.m. at the National Guard Armory, SD State Fairgrounds in Huron. Features include VE testing at 9 a.m. Eyeball QSOs, good lunch available. Admission $3, tables $5. Contact Lloyd Timperley, WBØULX, P.O. Box 205, Huron, SD 57350; 605/352-7896. Talk-in on 147.09(+).

Texas

The **Key City ARC** will sponor the ARRL West Texas Section Convention and Hamfest 03 May, 8 a.m. to 5 p.m and 04 May, 9 a.m. to 2 p.m. at the Abilene Civic Center. Free parking; VE exams; wheelchair accessible. Admission is $7/advance (before 29 April), $8/door. For reservations and info, contact Peg Richard, KA4UPA, 1442 Lakeside Dr., Abilene, TX 79602; 915/672-8889. Talk-in on 146.76(-).

Washington

The **Stanwood-Camano ARC** will hold an electronic flea market and hamfest on 10 May from 9 a.m. to 3 p.m. at the Stanwood Middle School. Features include vendors, prizes, VE testing, computer, ham, antique radios, heated exhibition hall, free parking, and snack bar. Admission at the gate only. Tables $15 ($20 after 30 April). Make checks payable to Stanwood-Camano ARC, P.O. Box 941, Stanwood, WA 98292. For informatino, call John, N7MZS at 360/629-2921 or Vic, N7KRE at 360/387-7705. Talk-in on 145.19(-).

Wisconsin

The **Ozaukee Radio Club** will hold a swapfest 04 May, 8 a.m. to 1 p.m. (setup 6:30 a.m.) at the Circle-B Recreation Center, Highway 60 and County I (located 20 miles north of Milwaukee, west of Grafton). Admission is $4, tables $5 for 4' (limited power available on request). Food and refreshments are available. License exams start at 9 a.m. For admission tickets, table reservations, maps, or additional information, send an SASE to ORC Swapfest Chairman, W58 N985 Essex Dr., Cedarburg, WI 53012; 414/377-2784 or 414/377-3271 . Talk-in on 146.97(-) and 146.52(S).

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The **Mancorad Radio Club** will hold a hamfest on 10 May from 8 a.m. at the Manitowoc County Expo Center, intersection of Hwys 42-151 and I-43 on Co. R. Features include flea market (amateur, computer, electronic), VE exams, refreshments, camping (414/683-4378). Admission is $3/advance, $4/door. Reserved 8' tables, $6 each; electrical outlets $5. For information, write Mancorad RC, P.O. Box 204, Manitowoc, WI 54221(SASE please). Call Red 414/684-9097 or Glenn, 414/684-7096. Talk-in on 146.61(-).

Wyoming

The **Cedar Mountain ARC** will hold a hamfest on 24 May from 8 a.m. to 4:45 p.m. and 25 May, 8 a.m. to noon. Features include computer and Amateur Radio gear an afternoon SETI presentation by WA6TWX, VE testing from 1-4:30 p.m., prizes and evening banquet at 5 p.m. Admission is $5/advance, $7/door. Swap tables $5 each. For information, contact Jerry Pyle, WB7S, P.O. Box 738, Basin, WY 82410; 307/568-2368 or e-mail jpyle@trib.com WR

Want to e-mail your story?

Please send your contributions to:

kb6hp@ns.net

or, feel free to write us at: ***Worldradio,*** 2120 28th St., Sacramento, CA 95818

Information in "New Products" is supplied by the manufacturers to acquaint *Worldradio* readers with new products on the market.

Dual Band Base Station Transceiver

Icom announces the IC-821H high performance all-mode dual band base station transceiver. The IC-821H is compact and lightweight, making it an ideal rig for mobile, fixed or field operation. Yet the IC-821H is packed with top performance features unmatched by other base station transceivers including superior high frequency stability and 100% duty cycle operation.

Built-in satellite functions include normal and reverse tracking, independent uplink/downlink control for doppler shift compensation and separate satellite VFO. Ten satellite memories allow you to quickly switch from normal to satellite operation, plus easily recall satellite uplink and downlink frequencies. In satellite mode, the sub band is set to the transmitter (uplink) frequency and the main band is set to the receiver (downlink) frequency. CW (including optional CW narrow) can be used with an electronic keyer. A transmit/receive frequency tracking function with shift tracking is standard.

Independent controls and indicators for each band make the IC-821H easy to operate. To change from the main band to the subband, simply push a button. You can even receive simultaneous signals on each band and monitor the signal strength of both signals on separate S-meters.

Tune automatically at variable tuning speeds by using the sub-tuning function and RIT or SHIFT control. This eliminates the need to rotate the main tuning dial frequently when trying to find a signal over a wide frequency range.

The IC-821H covers from 144 to 148 MHz VHF and 430 to 450 MHz UHF. Both bands have two VFOs.

Additional features include IF shift that electronically adjusts the center frequency of the receiver passband for effective interference reduction and a noise blanker to eliminate pulse type noise. A memory allocation function divides memories between bands.

The IC-821H also has an AF speech compressor, auto repeater and one-touch repeater functions, built-in high stability crystal unit, and RIT. CW enthusiasts will appreciate the built-in keyer, optional CW narrow filters for the main and sub band, and adjustable keying speed and dot/dash ratio.

In addition, the delay time for semi, break-in operation is adjustable and the side tone circuit is synchronized with the transceiver's volume.

Programmed scan, memory scan and mode select scan are also included in the IC-821H. Packet operation (9600 bps) is possible. Additional packet features include selectable data rates of 1200 or 9600 bps and modulation signals from the ACC are adjustable for various input levels.

Options include a UT-84 tone squelch unit, UT-102 voice synthesizer and FL-132/FL-133 CW narrow filters.

The suggested retail price for the IC-821H is $2,040. For further information, please contact your local Icom Amateur Radio dealer or Icom America, Inc., 2380-116th Avenue N.E., Bellevue, WA 98004, 206/454-8155.

Powerport 149 power supply

Finally, a powerful source of AC and DC electricity that you can carry with you. Cutting Edge Enterprises has improved on its line of rechargeable, por-

table power supplies by adding a device with more muscle and endurance.

The Powerport 149 is compact: 4" x 4.5" x 6," and its lightweight 9 pounds belies its heavyweight abilities. This unit provides 140 watts of 115V AC (surges to 200W), and up to 20 amps of 12 volt DC power. For example, a handheld radio will run for up to 80 hours, or a portable florescent light for 25 hours. The optional padded bag, with detachable accessory pouches, protects the unit from impact and makes transport a breeze.

At the heart of this rechargeable power supply is a sturdy 12V, 9 amp-hour, gel-cell battery. Powerport can be charged in your vehicle through the cigarette lighter without requiring the engine to be running. It is also equipped with a fully automatic wall charger which can be which can be left plugged in without fear of overcharging your battery. Flexible solar panels are also available as a charging option.

Powerport is an economical, highly portable supply to energize your equipment whenever conventional sources of power are limited or unavailable. Powerport will run and charge many devices such as handheld radios, test equipment, soldering irons, emergency lighting, laptop computers, handheld GPS receivers, electric hand tools, video cameras, or fax machines in the field.

Prices (plus shipping): 140 watt, 9 amp Powerport, $159.95, 140 watt, 7 amp Powerport, $136.95 or 50 watt Powerport, $114.95. Flexible solar panels are available for 5.5 watt, $129.50 and 22 watt, $329.50.

For further information, contact Roger Hall at Cutting Edge Enterprises, 1803 Mission St., Suite #546, Santa Cruz, CA 95060; 800/206-0115.

ContactEast Catalog

This 252-page, full-line catalog comes packed with hundreds of new test instruments and tools for engineers, managers, technicians, and hobbyists. Featured are quality products from brand-name manufacturers for testing, repairing, and assembling electronic equipment.

New Product highlights include: Tektronix' TDS 200 series compact digital scopes, Fluke's 105B Scopemeter, and BK Precision's spectrum analyzers as well as a full selection of DMMs, portable and bench top digital storage scopes, TOOL KITS, power supplies, EPROM programmers, soldering/desoldering equipment, breadboards, heat guns, datacom tools and testers, measuring tools, adhesives, precision hand tools and reference books. Also included are our popular lines of: communication test equipment, static protection products, ozone safe cleaners, magnifiers, inspection equipment, work benches, cases and more. All products are fully guaranteed and same day shipping is available. To receive your free copy, call 508/682-2000, fax 508/688-7829 or write to: Contact East, Inc., 335 Willow Street, North Andover, MA 01845.

Svetlana 3CX300A1

Svetlana Electron Devices, Inc. announces the availability of its powerful, reliable, new 3CX300A1 power triode for audio.

Features include: Powerful metal-ceramic triode — usable for audio amplifiers in Class A, AB, or B; or as power supply pass device; high transconductance (20,000 micro-Siemens typ.); Low plate resistance (450 ohms typ.); plate ratings: Maximum DC supply voltage 1800 volts, maximum dissipation 300 watts with forced-air cooling; suitable for retrofitting of audio amplifiers — it can substitute for 212E, 805, 211 etc. (with equipment modifications); ceramic-metal construction, with cathode and grid rigidly mounted on coaxial cones, reduces microphonic effects and resists mechanical and thermal shocks; massive external anode, machined from solid copper, for ruggedness and tolerance of high temperatures; fits Svetlana SK2A socket, standard loktal sockets, or special sockets intended for the 4CX250B tetrode; increased peak emission from new cathode materials; stable operation from extended processing and aging; comprehensive testing before and after aging; exceptional linearity — well-suited for push-pull amplifiers. A single pair can produce 800 watts in Class B.

The suggested retail price for the Svetlana 3CX300A1 is $105.

For information, contact Svetlana Electron Devices, 8200 S. Memorial Parkway, Huntsville, AL 35802; 205/882-1344, fax 205/880-8077.

Oops! Firestik's e-mail address (March issue, page 66) should have read: firestik@primenet.com

VE exam schedules

As a service to our readers, ***Worldradio*** presents a feature listing those VE exams, times and locations which are sent to us.

Please remember that our deadline for publication is three months in advance. For example, if your VE group is scheduling an exam for October, please have the information to us by mid-July.

p/r pref. = pre-register preferred but w/i OK
p/r = pre-register only — no w/i

Worldradio, 2120 28th St., Sacramento, CA 95818. Please mark the envelope "VE Exams."

List the location (City), any information examinees should have (advance registration, etc.) and the name and telephone number of a person to contact for further information.

w/i pref. = w/i preferred to p/r
w/i = walk-in only

State	City	Contact	Notes
Alabama			
6/03/97	Mobile	David, WA4VAC 205/649-5229	
Arizona			
6/14/97	Tucson	Joe, K7OPX 520/886-7217	w/i
Arkansas			
6/14/97	Siloam Sprgs	Mike, KJ5OP 501/524-8090	p/r
California			
6/25/97	Anaheim	Robert, AC6JM 310/429-8275	p/r pref.
6/10/97	Arcadia	Gary 818/335-1127 or Denny, W6VRK 818/358-1480	p/r pref.
6/14/97	Brea	Robert, KD6DA 310/691-1514	p/r
6/01/97	Chico	Jackie, W6YKU 916/342-1180	p/r pref.
6/26/97	Colton	Harold, AB6RN 909/825-7136 days or 909/685-6073 eves	p/r pref.
6/01/97	Concord	Gene, WW6H 510/254-5090	w/i only
6/28/97	Culver City	Scott, K6PYP 310/459-0337 or Dave N3BKV 818/559-2572	w/i
6/14/97	Culver City	Clive, AA6TZ 310/827-2538	p/r pref.
6/07,21/97	Cupertino	Emmett, AE6Z 408/243-8349	w/i only
6/21/97	Downey	Wes, KA3DSE 310/923-5598	p/r pref.
6/19/97	Ftn. Valley	Allan, AB6UB 714/531-6707	p/r pref.
6/03/97	Fremont	Dennis, K6DF 510/791-0954	w/i only
6/07/97	Lake Isabella	Ham Radio HOTLINE 619/379-2947	p/r pref.
6/21/97	Long Beach	Donald, NN6Q 310/420-9480	p/r pref.
6/16/97	Mission Viejo	Louis, 714/951-0336	p/r
6/06/97	Ontario	Gary & Pamona 818/810-0442	
6/26/97	Pomona	Don, WA6HNC 909/949-0059	p/r pref.
6/21/97	Redwood City	Joe, KB6OWG 408/255-9000	w/i only
6/08/97	Sacramento	Dick, N6DK 916/383-2113	p/r pref.
6/14/97	San Pedro	Elvin, N6DYZ 310/325-2965	p/r pref.
6/07/97	San Rafael	Recording 415/883-9789	p/r pref.
6/11/97	Santa Ana	Red Cross 714/835-5381 x140	w/i
6/21/97	Stockton	Mark, W6DKI 209/465-7496	w/i
6/14,29/97	Sunnyvale	John, KG6XF or Gordon, W6NW 408/255-9000	w/i only
Colorado			
6/14/97	Denver	Glenn, WØIJR 303/366-0155	w/i pref.
6/07/97	Littleton	Dave, NØHEQ 303/795-5718	w/i pref.
Connecticut			
6/19/97	Trumbull	Kevin, N1KGM 203/268-5015 or Bob, KA1ZMF 203/933-9587	
Florida			
6/21/97	Melbourne	Bill, WB9IVR 407/724-6183	p/r pref.
6/26/97	Pensacola	Steve, KO4TT 904/968-1092	
Idaho			
6/14/97	Boise	Lem, W7JMH 208/343-9153	w/i pref.
Illinois			
6/21/97	Morton	James, NT9C 309/266-6756	p/r pref.
6/14/97	Oak Forest	David, NF9N 708/448-0580	p/r pref.
Indiana			
6/07/97	Chesterton	Bill, N9SLQ 219/762-2887	w/i pref.
6/01/97	Terre Haute	Fred, K9EBK 812/466-2122	p/r pref.
Iowa			
6/28/97	Council Bluffs	Lorraine, AAØBS 712/322-1454	p/r pref.
Maryland			
6/10/97	Annapolis	Lois, KA3VVQ 410/647-4178	p/r pref.
Massachusetts			
6/21/97	Melrose	Scott, WB1F 617/665-7654	p/r pref.
Michigan			
6/14/97	Marquette	Richard, N8GBA 906/249-3837	p/r pref.
Nevada			
6/21/97	Reno	Steve, W7VI 702/972-3672	p/r
6/14/97	Reno	Don, W7FD 702/851-1176	p/r
New Hampshire			
6/21/97	Rochester	Bill, K1BD 603/742-0130 or Fred, K1ACL 603/332-9107	w/i pref.
New Jersey			
6/19/97	Bellmawr	Diane, N2LCQ 609/227-6281	w/i
6/14/97	Cranford	24 hour hot-line 201/377-4790	w/i pref.
6/11/97	Ft. Monmouth	Jerry, WB2GYS 908/532-5354	p/r pref.
6/02/97	Sayreville	Larry Makoski, N2ELW 908/390-5857	w/i pref.
New York			
6/10/97	Bethpage	Bob, W2ILP 516/499-2214	w/i pref.
6/01/97	Yonkers	Emily, AC2V 914/237-5589	p/r pref.
Ohio			
6/07/97	Cincinnati	Herb, WA8PBW 513/891-7556	p/r pref.
6/14/97	Van Wert	Robert, KA8IAF 419/795-5763	p/r pref.
Oregon			
6/13/97	Grants Pass	Clyde, AA7WC 541/474-0205 or Gary, KB7CFI 541/474-7974	p/r pref.
6/21/97	Medford	Paul, KE7VO 541/878-3433 or Rick, KG7PX 541/779-3404	p/r pref.
6/11/97	Roseburg	Dick, AA7GC 541/672-7564	p/r pref.
Pennsylvania			
6/07/97	Erie	Norma, W3CG 814/665-9124	w/i only
6/05/97	Philadelphia	Dusty, ND3Q 215/879-0505, 215/482-0386, 215/448-1139(tape)	p/r pref.
Rhode Island			
6/12/97	Providence	Judy, KC1RI 401/231-9156 Al, NN1U 401/454-6848	w/i pref.
Texas			
6/21/97	Austin	Jim, AB5EK 512/327-6184	w/i pref.
6/07/97	Brownsville	Bob, K5VC 210/542-7449 (days) or 210/546-4779 (eves)	p/r pref.
6/12,26/97	Ft. Worth	Ted, AB5QU 817/293-6745	p/r
6/10/97	Houston	Harold, ND5F 713/464-9044	p/r pref.
Vermont			
6/27/97	Essex Jct.	Mitch, W1SJ 802/879-6589	p/r pref.
Wisconsin			
6/07/97	Appleton	George, W9MDP 414/730-0967	
6/07/97	Hudson	Greg, KB9JHL 715/386-9857	w/i pref.
6/07/97	Racine	Bob, WØWLN 414/886-8551	p/r pref.

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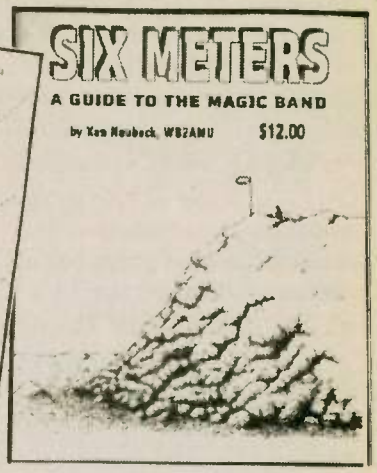

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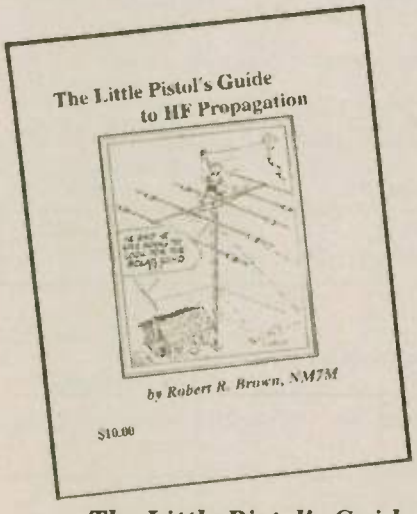

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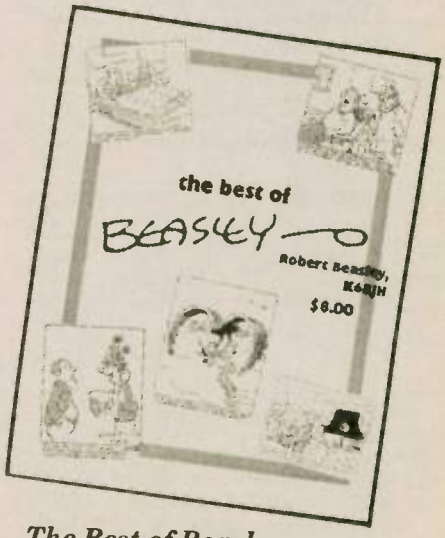

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Little LEOs lose "Round One"

Proposals by the low Earth orbiting satellite industry — so-called "Little LEOs" — to share spectrum with Amateur Radio at 146, 220 and 440 MHz have hit a small snag. But it's not a big enough obstacle to stop them.

The band-sharing recommendations by the Little LEO industry were among those submitted to the FCC advisory committee that's planning for WRC 97. But the Little LEO proposals are not scheduled for inclusion in the committee's recommendations because the working group involved did not agree to do so.

As previously reported, the various informal working groups have been sorting out numerous proposals for possible consideration at World Radiocommunication Conference 97. They offered their reports 05 March to the FCC's WRC 97 Industry Advisory Committee. The report of Informal Working Group 2A, dealt with proposals involving mobile satellite services. The version agreed upon includes the Little LEO's controversial "flexible allocation" plan to share spectrum with amateurs and others. But it's not in the text of the draft proposal. Rather it is in an annex to the report, one which also includes the objections raised by other participants for consideration and disposition at a higher level.

What this means is that the Little LEO industry has basically lost a part of Round One. It also means that they will probably be spending lots of dollars in lobbying lawmakers to put them back in the running. This is because billions of dollars in long-term corporate profits are hanging in the balance. This is a politically charged, high risk investment by the supporters of the Little LEO birds. In other words, you can be certain that they are *not* going to roll over, play dead and walk away. (*via ARRL, others*)

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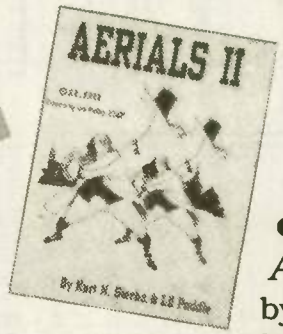

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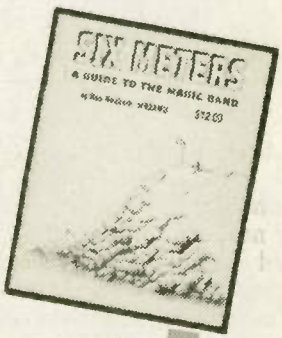

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