

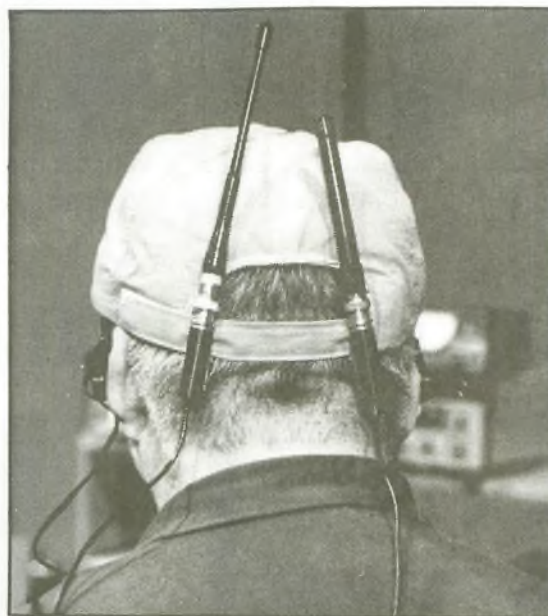
Worldradi

Year 19, Issue 2

August 1991 • \$1.25

FEATURES

- Alberta, Canada — VE6s & Red Cross
coordinate for emergency relief
- Ft. Lewis, WA — Establishing a Military
Amateur Radio Station
- Is Amateur Radio Safe?
- Live, from New York — *QSO Amateur
Radio Network!*
- Long Beach, CA — Veronica Harrington,
KC6TQR, five-year-old Tech
- Marconi Memorial Award — Carole
Perry, WB2MGP
- Marysville, OH — HAMCAM story
- Nikolai Tesla — Man out of time
- San Jose, CA — Young hams do exist
- San Rafael, CA — Zip Melcon, K6BMW,
utilized Mañana Net frequency in a
family's emergency
- Warminster, PA — Local club donates Amateur Radio books to library
- Washington, D.C. — Working rooftop DX



Quiet.....quiet! I think I hear Albania coming in!

COLUMNS

- Aerials •Amateur Hi •Amateur Satellites •Amsat-Oscar schedule •Contests
- Continuous Wave •Construction (apartment antenna) •Digital Bus •DX Prediction
- DX World •FCC Highlights •Hamfests •MARS •Mobile •New Products •Off the Air
- Old-Time Radio •Product review •Propagation •Publisher's Microphone
- QCWA •Search & Rescue •Special Events •Station Appearance
- 10-10 International News •VE Exams •With the Handi-Hams
- YL Roundup

See you in Saginaw at the
1991 ARRL National
Convention



Enough of the Albania jokes!

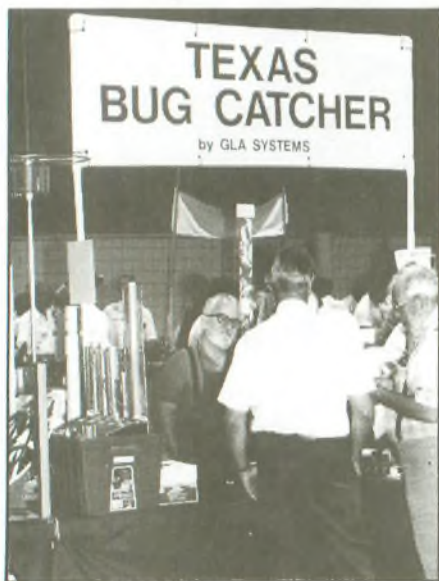


What's the fuss? I worked 'em 45 years ago!



Albania came up on OSCAR for half an hour, and we were at the opera that night!

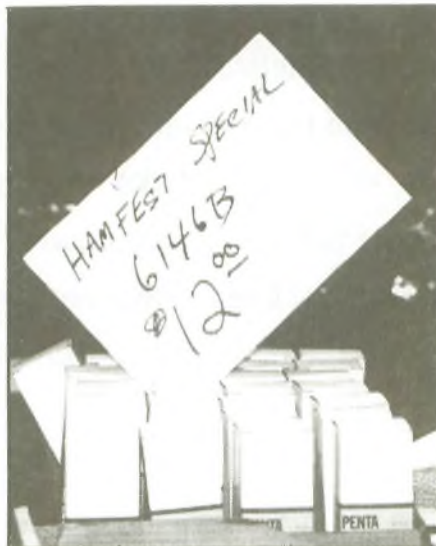
Dallas Ham-Com 1991



First, you must know what frequency you're on.



Personally, I prefer Lakeview.



Gee, and last week I paid \$15.

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*Pictures by
Armond Noble, N6WR*

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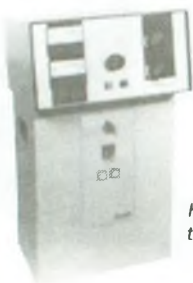
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FM, SSB, AM, Packet, ATV, NMR or pulse applications. The 2006A, 2002A, and 2004A use a single Eimac 3CX800A7 ceramic triode offering up to 2000 watts for pulse operation, up to 1200 watts for SSB operation, and up to 400 watts for continuous applications.

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Proud young ham

Veronica Harrington, of Long Beach, California, passed her Novice examination at the age of five. She received her new call sign, KC6TQR, on April 13, 1991. According to the ARRL, the next youngest Amateur Radio operators were born in 1983, almost two years earlier than Veronica, who was born November 18, 1985. Veronica immediately began preparing for her Technician upgrade so that she'd be able to participate in the local Kid's Net on 2M without having to talk third party traffic and without parental assistance. She achieved her upgrade quickly; on May 30, her Technician Class license arrived!

Her mom, Ann, N6YGP, a Technician, was primarily responsible for helping Veronica with the theory. Her pop, Curt, N5HMR, an Advanced, was more involved with teaching Veronica the 5 wpm code and the mathematical portions of the theory. "Getting an Amateur license fits in with trying to teach Veronica everything I know," says Curt, a patent lawyer.

Veronica works hard at learning but, like most kids, would rather be taking the rides at Disneyland.



Five-year-old Veronica Harrington, KC6TQR, has just received her Technician upgrade.

Veronica is currently completing first grade at Edgewater school in Long Beach and is about to enter the GATE (Gifted and Talented Education) Program.

"We always take Veronica with us when we go out," her mom says. As a result, Veronica has attended receptions for the Junior League and the Symphony Guild, as well as patent law seminars and many Republican functions.

Veronica likes to operate on 10M Novice voice band. She has made several contacts around the US and is looking forward to foreign contacts with other young people. Her other interests are ghost stories and vintage horror films.

Free Worldradio

We recently received the following letter of appreciation:

Dear Sir,

On behalf of the Kentucky Colonel Amateur Radio Club of Bowling Green, Kentucky, I would like to extend a sincere appreciation for your generous donation to our hamfest.

Through assistance such as yours, small organizations such as ours are able to promote Amateur Radio in a spirit that encourages the hobby. By donating subscriptions to *Worldradio* you not only further our hobby, you demonstrate an honest concern and interest toward the amateur community—a gesture that many of your competitors would benefit by following. It is indeed refreshing to know that in the hustle and bustle of corporate America, there are still organizations that remember why they are in business.

Don't forget—you can receive prizes from *Worldradio* for your upcoming hamfests and other special events. Also, let us know if you are holding Amateur Radio classes; we'd be happy to send sample copies!

*Enthusiasm is contagious.
Spread it around!*

We want your opinion

Please be sure to participate in our Reader Survey, found on this issue's mailing cover. Take a moment to let us know what you like best and least of *Worldradio*!

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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.

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PUBLISHER'S MICROPHONE

We display, for the due adulation, the latest to join the exalted ranks of *Worldradio* Super-Boosters (lifetime subscribers):

Victor Schirmer, KA1UIM, Danbury, CT;
Paul Reese, Plymouth, PA;
Bob Tarantula, N2IYY, Jersey City, NJ;
Dennis Talbert, Jr., WF4G, Bartlett, TN;
Kyle Hobbs, NZ9R, Elwood, IN;
Robert Parker, KA9OJB, Hamilton, IN;
John Ricks, Jr., N0IAB, Chesterfield, MO (gift from John Ricks, Sr., W0PKO);
Leanna Shaberly, KB8RT, Phoenix, AZ;
Stilianos Jackson, KC6TAB, Imperial Beach, CA (gift from Charles Jackson, SV0AA);
Doug Sparlin, N6PYW, Napa, CA;
Charles, WB7OHW, and Grace, WB7SRE, Straley, Renton, WA.

Received a nice note from Bill Orr, W6SAI, one of the all-time greats of Amateur Radio.

Did your club go on Field Day? If not, boo! Did you go on Field Day? If not, double boo!

Speaking of clubs, we received some nice notes this month from clubs thanking us for subscriptions donated to their hamfests. Did your club write to us, asking us for some? If not, why not?

About once a year or so, we mention that if you travel to overseas destinations, you may enjoy reading our other publication, *International Travel News*. A free copy will be sent upon your request. Write to 2126 28th Street, Sacramento, CA 95818.

We'll be at the ARRL National Convention in Saginaw, Michigan. Hope to say hello to all our subscribers who will be there.

For the first time, we went to the Dallas, Texas, Ham-Com. A truly grand time was had by all. It's our in-

attention to be at the next big show they put on in Miami.

Bill Hessler, W8DXT, of Cuyahoga Falls, Ohio, wrote a letter about how pleased he was with the repair service offered by ICOM.

Rusprint (Rt. 3, Box 192, Spring Hills, KS 66083), will be pleased to send their catalog of cups, T-shirts and QSL cards. What caught my eye was that they had a collection of logos that can be printed on your cards such as Signal Corps flags, MARS emblem, USMC, etc.

I just added an Ameritron amplifier, three 811As, to my shack and have received nice reports. Now, what I've got to do is be on when the Crozet Island op is on. I want to work Crozet because, from Sacramento, Crozet is the closest land to Sacramento's antipodes.

For those who may not know him by sight, we should identify that the

amateur we've been having fun with on the mailing cover of the past two issues—finding out that "Albania was ON" but only on either 6 or 2M—is the esteemed Jack Troster, W6ISQ, who for many years wrote high humor for *QST*.

George Kirkman, WA6DKG, of Pleasant Hill, California, who has call sign license plates, reported crossing the Benicia Bridge and having one of the big-rig trucks spell out HI in CW on the air horns. Yes, that would get your attention.

Can you imagine what Amateur Radio means to someone who, through disability, is homebound? Could you imagine what Amateur Radio could give to a sightless person?

There is an organization devoted to assisting, first to get licenses and then to obtain equipment, people to whom this hobby offers an avenue of some cheer. It exists only through donations. Called Handi-Hams, it's located at 3915 Golden Valley Road, Golden Valley, MN 55422. Imagine for a moment that you could be in the same situation and dig down into your pocket for them.

—Armond, N6WR

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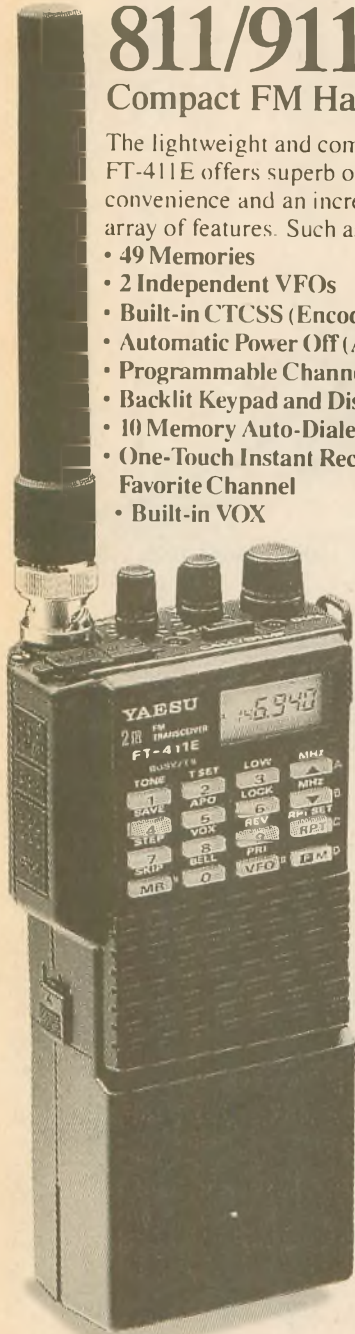
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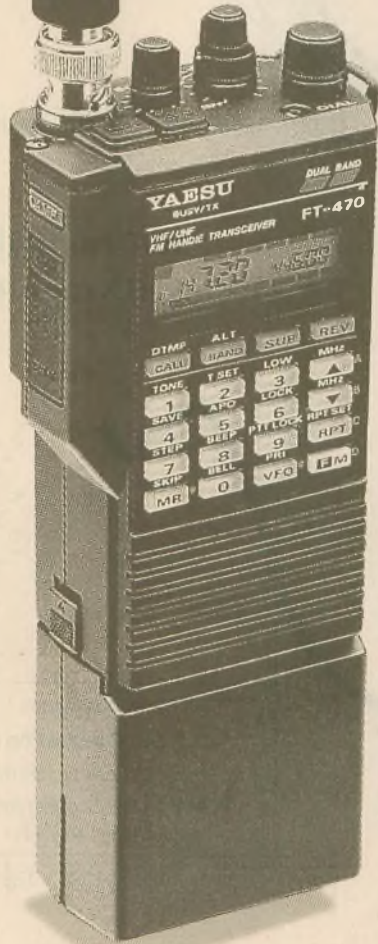
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Specifications

Frequency Range: RX: 130-180 MHz, TX: 144-148 MHz (VHF); 430-450 MHz (UHF)

Power Output: W/ FNB-17: 2.3 Watts (144 & 430 MHz) — W/ FNB-12s: 5.0 Watts (144 & 430 MHz)

Channel Steps: 5, 10, 12.5, 20 & 25 kHz
Case Size: 2.2 (W) x 6.0 (H) x 1.3 (D) in.
Weight (Approx.): 14.8 oz.

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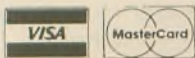
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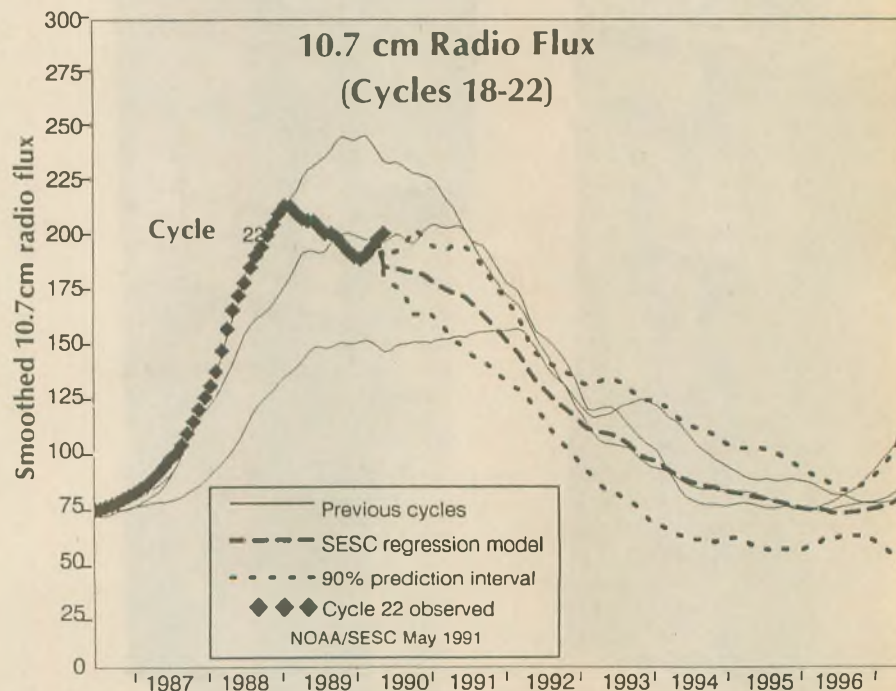
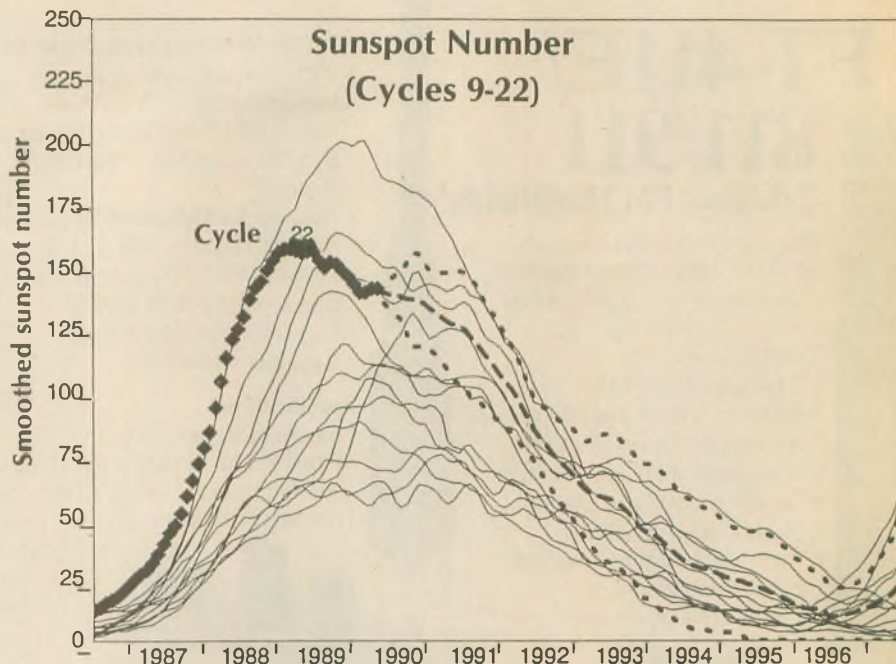
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Man out of time

Josh Logan, WX7K

I've been reading up on Nikolai Tesla. Few people realize the extent and depth of his raw genius! He demonstrated radio transmission and reception in 1895 and his patent was approved in 1900. He was ahead of Marconi, who later used Tesla patents for his first radio. Marconi believed in spark gap (dampened wave) transmission while Tesla was a firm believer in continuous wave (CW) because he understood that CW could then be modulated with voice or multi-digital intelligence. Tesla was focused on high power, very low frequency transmission—he was not aware of what the "short-waves" had to offer.

Tesla was, in all likelihood, 100 to 150 years ahead of time. He was a "man out of time." Much of his work (investigations) remains to this day unfinished. Some items, like his bladeless steam turbine, have remained untouched until recently when, using present state-of-the-art space-age metal alloys, a slightly improved version of the original turbine was made. This turbine is as Tesla predicted, a light-weight high-efficiency turbine (over 60% efficiency compared to 40-45% earlier types).

Tesla touched upon x-rays, particle accelerators and wireless transmission of electricity over great distances (most fascinating!). He was not a dreamer; his understanding of electrical and mechanical resonance was unsurpassed! On one occasion he went to the construction sight of a huge skyscraper. All that was erected was a huge metal skeleton of steel girders. He tuned a small mechanical "hammer" to what he estimated was the resonant frequency of the entire metal structure. He started the device and sat back to watch. Ever so gradually the girders began to vibrate, then shake—the workers were quick to come down, sure that an earthquake had struck! At that point the huge steel girders began to shake violently and Tesla, having trouble turning off the device, simply took a hammer to his "hammer" before the building started to break apart. He firmly declared that he could tear down the Brooklyn Bridge with such a device.

Tesla waived his right to 12 million



This billboard was spotted by Dan Violette, KI6X, in mid-April near his house in Orange, California. April saw many celebrations of the 200th birthday of Samuel F.B. Morse, who sent his first telegraph message 150 years ago. Morse code is still widely used, despite accelerating technological advances, because of its efficiency and reliability. □

dollars in past patent (AC motor/generator) royalties, along with his future patent rights, to George Westinghouse. He did this so that George, who was in a tight financial squeeze, could successfully bring the glories of AC transmission and AC motors to the world rather than go bankrupt trying to pay Tesla's royalties. Tesla's polyphase AC motor was designed for 60 cycles. That's why, to this day, we use 60 cycles as the standard. Thomas Edison, however, resisted AC. It took him 20 years to admit its superiority. He had too much ego and money invested in DC power systems. Edison was also sure that the "wireless" stuff was just a passing fad and would not amount to much.

It would be nice to see the school

and history books give the recognition due to that giant of invention—Nikolai Tesla! □

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G5RV-JR	40-10	51'	\$29.95 PPD
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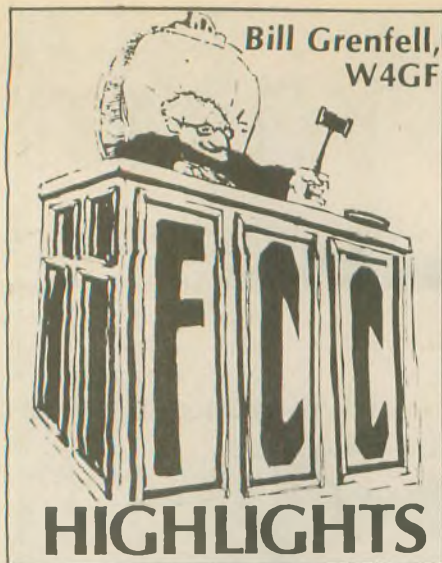
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As W5YI previously reported, the FCC in PR Docket 91-36 is studying whether to preempt local and state laws that forbid possession of radio equipment capable of receiving public safety bands (police, sheriff, fire EMS, etc). The inquiry was prompted by a request from the ARRL. Reports indicate that some hams who own scanners or extended-band reception amateur gear have been harassed by local authorities. The FCC could, if it desired, preempt and nullify the local laws if it finds that they preclude normal amateur activity. The FCC could preempt only for licensed amateurs, or for all citizens. But it proposed only to preempt the laws for amateur licensees. Many have telephoned the FCC to find out about its scanner proposals, only to be told the inquiry is limited to amateur transceivers only. Comments on the rule-making (Docket 91-36) were due June 7 for original comments and July 8 for replies. (W5YI Report 5/15/91)

Some interesting and provoking comments have been filed in response to FCC's (Docket 91-36) proceedings,

some of which follow: George W. Murray, WB4DYQ, who is a police officer and the immediate past president of the more than 8,000 member Associated Public Safety Communications Officers, Inc.: "I have a problem with criminals using radio to facilitate a crime, but not licensed Amateur Radio operators. Let's punish people for breaking the law, not just listening ... (I am) offended to be told that, because I am using my hobby, I am a criminal. But only in my vehicle. As a general rule, people who listen to public safety frequencies are interested in what is occurring in their immediate area. The vast majority of law enforcement officers do not know the difference between Amateur Radio, public safety radio and private radio frequencies. Their expertise ends with pushing the push-to-talk button on their assigned radio." (W5YI Report 6/1/91)

During the last week in May, the FCC circulated a public notice to the effect that "Amateur operation in the 220-222 MHz band is prohibited after August 27, 1991." Nearly three years ago, the FCC separated the shared 220-225 MHz band into exclusive allocations. Rather than have the fixed, land-mobile service and Amateur Service share the five Megahertz, the Commission reapportioned 220-to-222 MHz to narrow-band business use and 222-225 MHz exclusively to the Amateur Service. (W5YI Report, 6/1/91)

The Amateur Radio Spectrum Protection Act of 1991 is an ARRL-

endorsed bill, now before Congress, which is designed to hopefully protect amateurs from arbitrary and capricious spectrum reallocation by the Federal Communications Commission. Originally designated as House of Representatives Bill HR-73, the Act, if passed and signed into law by President Bush, would force the Commission to provide equal compensatory spectrum to the Part 97 Amateur Radio Service for any removed and reallocated for other use. HR73 was authored by Tennessee Congressman Jim Cooper with the active participation of the American Radio Relay League. The key passage in the bill is: "The Federal Communications Commission shall not diminish existing allocations of spectrum to the Amateur Radio Service after January 1, 1991, and the Federal Communications Commission shall provide equivalent replacement spectrum to the Amateur Radio Service for any frequency reallocation made after January 1, 1991." Getting HR-73 passed and signed into law will not be easy, but it has gained bi-partisan cosponsorship (support) from 84 congressmen. (W5YI Report, 6/1/91)

When the Electronic Communications Privacy Act (ECPA) became law in 1986, many amateurs and communications hobbyists were shocked at its strange and contradictory provisions. Amateur Radio, GMRS and business radio were exempted from its reach after considerable lobbying by ARRL and users in other services. But the law remains on the books, and now

Amateur Radio Call Signs

Amateur Radio operators often ask the FCC what call signs have been assigned lately. This list shows the last call sign in each group to be assigned for each district, as of May 1, 1991.

For more information about the call sign assignment in the Amateur Radio Service, see Section 97.17(f) of the FCC Rules, or write to the FCC, Consumer Assistance Branch, Gettysburg, PA 17325-7245.

Radio District	Group A Am. Extra	Group B Advanced	Group C Tech./Gen.	Group D Novice
0	AA0EV	KF0SC	N0OCF	KB0JFJ
1	WS1X	KD1BQ	N1JGE	KA1YYC
2	AA2ET	KF2CD	N2MQY	KB2NAI
3	WN3U	KD3XH	N3JRF	KA3ZCI
4	AC4GC	KO4CL		KD4GBU
5	AA5YO	KI5QR	N5TXE	KB5PWB
6	AB6DC	KM6BX		KC6VVV
7	AA7IS	KG7PV	N7SBC	KB7NSV
8	AA8DZ	KF8NV	N8OSW	KB8MQY
9	AA9AX	KF9DT	N9LPE	KB9YD
North Mariana Is.	AH0K	AH0AH	KH0AN	WH0AAQ
Guam	KH2R	AH2CK	KH2FF	WH2AMU
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii		AH6LH	WH6AD	WH6CMX
Kure Is.			KH7AA	
American Samoa	AH8D	AH8AE	KH8AI	WH8ABA
Wake Wilkes Peale	AH9A	AH9AD	KH9AE	WH9AAH
Alaska		AL7NE	NL7XO	WL7CCL
Virgin Is.	NP2P	KP2BY	NP2EF	WP2AHJ
Puerto Rico		KP4SB		WP4KBV

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a group of consultants, association executives and former Congressional staff members want to extend the reach of ECPA to cover more kinds of radio. Currently the ECPA prohibits reception of various kinds of radio transmissions such as conventional mobile telephone, and voice and data paging are off limits. Even non-common-carrier radio services may be verboten if they are owned by common carriers, but the same transmissions made over non-common carrier owned transmitters may be legally received. In a new report to the Senate, the "Privacy and Technology Task Force" asks to remove the exception for cordless telephones. That is, monitoring of cordless communications would become illegal even if the signals are transmitted "in the clear" and picked up on ordinary receivers.

In response to an inquiry by U.S. Senator Ted Stevens of Alaska, FCC Private Radio Bureau Deputy Chief Beverly Baker and Chief Ralph Haller, N4RH, have affirmed that new power limits on hams or frequency reallocations are not planned. (*W5YI Report*, 6/1/91) □

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PUBLIC SERVICE

Amateur Radio proves useful in emergency

CHET RICE, WA6PAC

"It was all in a day's work," said Zip Melcon, K6BMW, of San Rafael when asked about a recent Amateur Radio activity involving his short wave radios and the telephone. Zip is an Amateur Radio operator active on various nets (schedules for contacting fellow hams at certain prescribed frequencies and times). He frequently checks in on the Baja Net, Western Public Service, Northern California Emergency Net and others. It was one such net that he used when he received

an urgent phone call from Jeff Johnson in Novato. Jeff informed Zip that it was urgent that he or his sister, Heather, in San Diego get in contact with their father because there was a death in the family in Florida. Jeff didn't know his father's exact whereabouts. He only knew that he was on board an American yacht called the *Northern Lights* (WSQ 3221), located near Puerto Vallarta in Mexico. He also knew that they had an Amateur Radio receiver and some commercial maritime radio equipment on board.



Zip Melcon, K6BMW: "It was all in a day's work."

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Zip immediately called the Mañana Net on 20M. Although he knew that net wasn't scheduled to start until 11 a.m., he placed a call right away requesting that anyone listening who knew the whereabouts of the vessel contact him. Luckily, a Mexican (XE2) station came right back with the information that the *Northern Lights* had departed from Puerto Vallarta the previous morning and was bound for Chamela, another port, south along the Mexican coast.

Shortly after that contact, another XE2 station who happened to be on board a boat in the area, and had

monitored the previous contact, called Zip and stated that they expected to be able to be alongside the *Northern Lights* within two hours.

Then, at 12:08 p.m., this same XE2 station informed Zip that he was now alongside and was arranging a phone patch for Jeff's father to San Diego, via Amateur Radio.

Zip telephoned Jeff in Novato to let him know that his sister would soon be contacted by a local San Diego amateur who would relay the call from their father.

Jeff was very impressed that in less than two hours, Amateur Radio could

accomplish a task that at first seemed almost hopeless. He thanked Zip sincerely.

Zip Melcon is retired after more than 35 years with PG&E as an electrical engineer; he came to Amateur Radio easily. Now that he has more spare time, he likes to "work the nets." His son, Mark, WD6DRN, is currently stationed at Palmer Station, Antarctica, and during the evenings, Zip can be found talking to him and running phone patches to friends and relatives in the US for various personnel stationed down there. To Zip, it is all in a day's (or night's) work. □

Amateur Radio at work for the Red Cross

The following article, assembled by John Marles, VE6BIW, Len Kochan, VE6LEN, Gus Bakker, VE6AKY, and Bill Goodwin (Acting National Coordinator, Emergency Services) was submitted by Al Gerard, VE6OA.

A group of Alberta Amateur Radio operators are helping to ensure that the Red Cross is ready to respond quickly and efficiently to disaster situations.

When the 1987 tornado ripped through a corridor in east Edmonton, several local amateurs set up a station with makeshift antennas and handled emergency traffic from the Red Cross House. The radio operators and the Red Cross staff learned from this experience how important such a communication link is in emergency situations.

Today a well-equipped station and procedures are in place, should such a serious and large-scale disaster strike again. A 48 ft. tower, 3-element tribander beam and 40 and 80M dipoles were placed atop the three-story Red Cross building. An Icom 761, MFJ tuner and two 2M rigs were installed. The station has stand-by power from a 45 KWH generator fuelled by natural gas. An IBM computer with PK88 packet TNC is in operation and a PK232 hopefully in the offing. Plans for an Edmonton ARES Red Cross disaster response

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were presented on March 31 in a proposal to the 20 amateurs presently active in the project.

The Red Cross station has been operational on HF and VHF since September, 1989. Schedules have been maintained with VE6RCG in Grande Prairie, and many QSOs have been completed with Canadian and DX contacts. Several training sessions have been held. A telephone tree (fan-out system) is in place for calling out operators in case of emergency, with primary and secondary VHF frequencies established in case telephones do not function. Computer programs are being prepared to transform Red Cross message formats to the standard CRRL CD-3 format.

The 20 Amateur Radio operators who have volunteered their time and effort in establishing and/or operating VE6RCE are: VE6ADV, VE6AKY, VE6AYM, VE6AVP, VE6BAB, VE6BBU, VE6BGQ, VE6BIW, VE6BJO, VE6BOS, VE6BRQ, VE6DD, VE6EWA, VE6JER, VE6LEN, VE6MGS, VE6MJ, VE6MRT, VE6OA and VE6XV.

Regular exercises with other Alberta Red Cross stations have started and will expand as other stations come on the air. A snap exercise in February of 1990 had nine operators report within 20 minutes. Stations similar to the one in Edmonton are being established in other cities.

All across Alberta, various Red Cross locations are working to establish emergency stations staffed by amateur volunteers, with VE6RCE as the net control station for the Alberta-NWT division. A minimum standard for each location is an antenna on the roof for immediate connection and an operational agreement with local amateurs. In addition to plans in Alberta, many major cities across Canada are planning to participate in Amateur Radio emergency communications, or already do so.

The B.C. Lower Mainland has a motor home with state of the art radio gear, ready for any emergency in the area. Winnipeg and Halifax have stations at Red Cross locations. Work is being done to establish a station at the National Red Cross office in Ottawa. The aim is to establish a nation-wide network similar to that in Alberta.

The International Committee of the Red Cross (ICRC) set up a short wave station (HBC88) at their headquarters in Geneva in 1963. It communicates with more than 22 stations worldwide. More than 36,000 messages are sent and 32,000 are received annually. HF equipment includes some 400 transmitters; VHF transceivers number

about 750. The 1959 WARC awarded special frequencies to the Red Cross (not in the ham bands). The Red Cross in Canada has recognized the emergency communications capabilities of Amateur Radio and the dedication of radio amateurs in volunteer service.

Amateurs can offer an immediate and effective communication facility that cannot be duplicated in any other way. If you would like to participate in the Amateur Radio emergency service, please call the local Red Cross Division in your area. Offer your skills and help the Red Cross establish a national network for the purpose of emergency communication. It's your chance to get in on the ground floor! □

Out of sight is out of mind

I'm sure you've all heard that old expression, "Out of sight is out of mind." Well, the same holds true for a lot of volunteer organizations who may bemoan the fact that, "Here we are but nobody calls on us." Or, "When they alerted everybody, they didn't call (me)(us)."

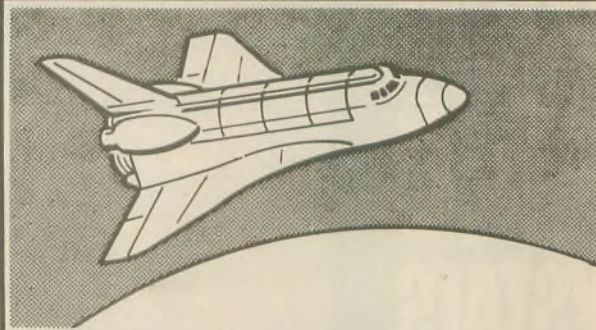
This is not an unusual condition. It can often be traced to the fact that liaison is lacking between the volunteer organization and the government

agency they serve. Simply stated, the volunteers are not making regular and frequent visits to the agency.

If the volunteer group is fulfilling a need or operational task for the first time, the need for these visits is more important than ever. Once a week is usually not too often.

True, business may not be necessarily discussed at each meeting, but see (please turn to page 14)

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Peak and average cross-needle meter shows you forward/reflected power in two ranges (2000/500 and 200/50) and SWR. Lamp uses 12 VDC or 110 VAC with MFJ-1312, \$12.95. Flip stand, 6-position antenna switch. 10 3/4" x 4 1/2" x 15". Add \$10 s/h.

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Antenna switch selects 2 coax lines (direct or through tuner), random wire, balanced line or external dummy load. 4:1 balun. 1000 volt capacitors. Measures 10-5/8" x 2-7/8" x 7".

2-Knob Differential-T™ Tuner



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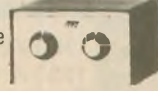
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Small 8 x 2 x 6 inches uses little room. SWR/Wattmeter and convenient placement of controls makes tuning easy in motion. Balun. Covers 1.8-30 MHz. 300 watts PEP. Mobile Mount, MFJ-20, \$3.00.

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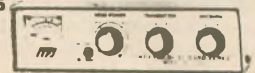
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Out of sight

(continued from page 12)

ing one another on a regular basis is important.

Another old adage pops up here, whether we like it or not: "It's not what you know — it's who you know."

The best volunteer resource in the area may be out there, but the local disaster management agency will not really know about them, let alone alert them, because there is no ongoing liaison. When the emergency develops is NOT the time. Yet many volunteer feelings may be hurt when their offers of assistance are declined — simply because they are an unknown quantity.

—RACES Bulletin

4X4LF does it!

Another Israeli first in space communications was logged by Shlomo, 4X4LF, of Kibbutz Kissufim. Using 25W and a "Ringo" antenna on 2M FM, Shlomo successfully made a voice contact with cosmonaut Musa Marinov, U2MIR, aboard the Soviet space station Mir, the first ever from Israel. —73 de Ron 4X1MK, and Ahron, 4XIAT, HaGAL International, June 1991.

Young hams do exist

TRAVIS A WISE, KB8FOU

Many people have taken to their local soapbox, whether it be by sending messages to ALLUSA on packet or just talking on the local repeater, about the non-code issue. We won't really know for a few more months whether the new Technician license will boost our ham population or not or, more importantly, if the average age of the Amateur Radio operator has decreased since February 14.

Prior to the introduction of the new Technician license, the average age of the US ham was 51. Hopefully, we will see this number decrease in the future! Of course, you can speed this process along by helping your club hold licensing classes and promoting ham radio with NTS "sessions" at the local mall.

I am 16 years old and I've had my ham ticket for three years now. I currently have a General Class license, and I'm working on my Advanced. I am on the board of directors and am Assistant Emergency Coordinator for the West Valley Amateur Radio Association, one of the ham clubs in the San Jose, California, area. Since November of 1990 I've been the editor of *The Packet Racket*, a bulletin distributed on packet throughout the US for young hams. I also helped organize the 1990 SAREX project from the San Jose Children's Discovery Museum, where we have a VHF and HF amateur station.

I have put numerous messages on packet as well as a small message in *QST* trying to figure out about how many young hams there are who are active enough on the radio to see the bulletins. To date, I have only received a handful of responses. I don't have to tell you how important young people are to Amateur Radio. If we all make an effort to welcome new members, regardless of their class of license, especially young folks, into ham clubs



Travis Wise, KB8FOU, talks to a reporter during the 1990 SAREX project.

and encourage them to take an active part, I'm sure our meek ham population will grow and the average age of US amateurs will decrease swiftly.

I carry my 2M HT with me every day when I go to school just in case there is an accident along the way and someone needs help. Also, there is the ever present threat of a major earthquake striking while I am at school. Because teachers have seen my radio and expressed interest, I have given several presentations about Amateur Radio. As one of my teachers pointed out, young hams are truly unique people—at my school, where there are 1,000 students, there are two hams. In the school system, where many of the students are on some form of drugs, Amateur Radio is a good thing to keep kids out of trouble.

I'm proud of the fact that I enjoy talking to people in far away places by radio, and it's nice to know that I'd be able to use the same skills and equipment to help someone in need. I hope that the FCC's decision about the Technician license was a correct one, as I'm looking forward to many more years of enjoying ham radio.

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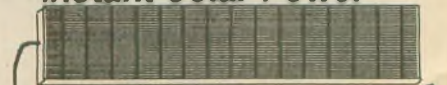
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The HAMCAM story

GENE KIRBY, W8BJN

In July of 1989 I received a call from a fellow Amateur Radio operator who works for a local commercial TV station in Columbus, Ohio. He explained that his station was getting ready to retire one of their RAPIDCAM trucks and he asked if our radio club would like to have it as a gift. "Are you kidding?" I replied. "Of course we would!"

A few weeks later the Union County Amateur Radio Club of Marysville, Ohio, was the proud owner of a 1982 Chevy van. Part of the deal was that we had to get the van repainted and also remove and return some of the equipment they had left in the van. No problem. Removing the air compressor and the power plant was easy. They were returned to the TV station quickly. Getting the van repainted was not easy. Being a poor club (most are, I guess), we looked for the proper paint to do the job right. After a long search, we made a deal with the local Ford dealer (also a ham) to buy the paint at his actual cost. Now we must find someone to spray the van and do a little body work.

An old buddy came to mind, and after a lot of begging he agreed to do it, but at his convenience. This was agreeable with the members of the club and the van was driven to his shop in nearby Springfield, Ohio. Time passed . . . (a lot of time . . .) and then the van was done. It was very white and had no signs of rust on it. Now it was ready to be relettered and have our radios installed. Miles of cables and plugs and wires were removed from the van, and some other modifications were made. Then the lettering was done, and it became the HAMCAM truck.

We installed a new P.C. Electronics ATV transceiver and beam antenna, a TV switcher, three rack mounted TV monitors, a sound board, tape deck and amplifier and two video cameras. A new VHS VCR was installed as well. Next, the radios were installed. A 2M base station, a CB radio and a new Kenwood low-band radio (owned by



The fully equipped HAMCAM truck of the Union County ARC.

the local Civil Defense) took their place in the compartment. In the rear compartment we installed the club-owned Collins KWM-2 and the 10M FM station. We had a little room left over, so we installed a scanner and



some other goodies. The van is air-conditioned and has big soft chairs. It has big floodlights on top for night use.

We have a lot of plans for the new HAMCAM truck. We would like to work with the local Civil Defense, Red Cross, Fire Department and the Coun-

ty Sheriff (I am a reserve deputy) and be able to provide them with both video and radio contact to their offices during emergency conditions anywhere in the county. We have a lot of work to do on the van, but for now we are displaying it at the local fairs and hamfests. We also plan to take it to malls, etc. in the future. Smile, you might be on HAMCAM TV! □



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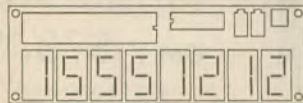
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Military Amateur Radio

**ROBERT GODLEWSKI,
KA4SBE**

My article in the Jan. '91 issue stirred some interest and some comments. Some were from active or retired military wanting to get on the list of military Amateurs, and others were from active duty hams who were interested in finding out how to start a military station. There is some bad news in this area. The FCC no longer issues new military recreation station licenses so it is impossible to get a military call or "M" class license if you look in the call book.

If you are in the Army, the bible for setting up a station on post is Army Regulation (AR) 105-70. The key phrase in the regulation is that local commanders WILL encourage Amateur Radio operations on the posts and in the case of Fort Lewis, Washington I received lots of help from the command. Although you would think that

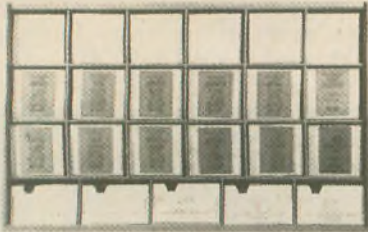
MARS would be the biggest help in this arena, I found that my best allies were in the Community Recreation Division. These are the same folks that run the auto hobby shops, bowling alleys and service clubs. They were not able to give us any money, but they did provide us with a building to operate from with heat, lights and power. In our case, the building is 4,500 square feet large and located far from the housing areas and troop areas, so TVI is not a problem. We also have about eight acres of land around the building for antennas, towers and storage.

Instead of getting a military license, appoint a trustee to the activity and use his call as the call of the ad hoc club. You should have a copy of the regulation as well as the FCC *Rule Book* in tow when you initiate this action. It can be time-consuming. In the case of our station, we had to go through a legal review from the Staff Judge Advocate's office, a command group staff

study, a review by the Post Engineers, the Post Signal Officer, the Post Frequency Coordinator and the Director of the Community Recreation Division. In all, it took nine months to get all the clearance and into a building.

The building needed spackle, paint, wax and most of all elbow grease, but we were on the air and operating within two weeks. The station is equipped with privately owned equipment and operates just about every day of the week. As an added feature, we do give Novice classes and have licensed over 30 new hams since the Fort Lewis Amateur Radio Activity came into existence. For soldiers who are in the signal field, the license does account for five promotion points so ham radio can fit into professional development. Our users include Army, Air Force and Department of the Army civilians and military family members. If you're active duty military, the next time you fill out your assignment "dream sheet," try for the Ft. Lewis, McChord AFB area, because it happens to be "radio active." □

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—Emergency ARC, Honolulu, HI □

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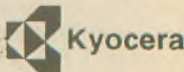

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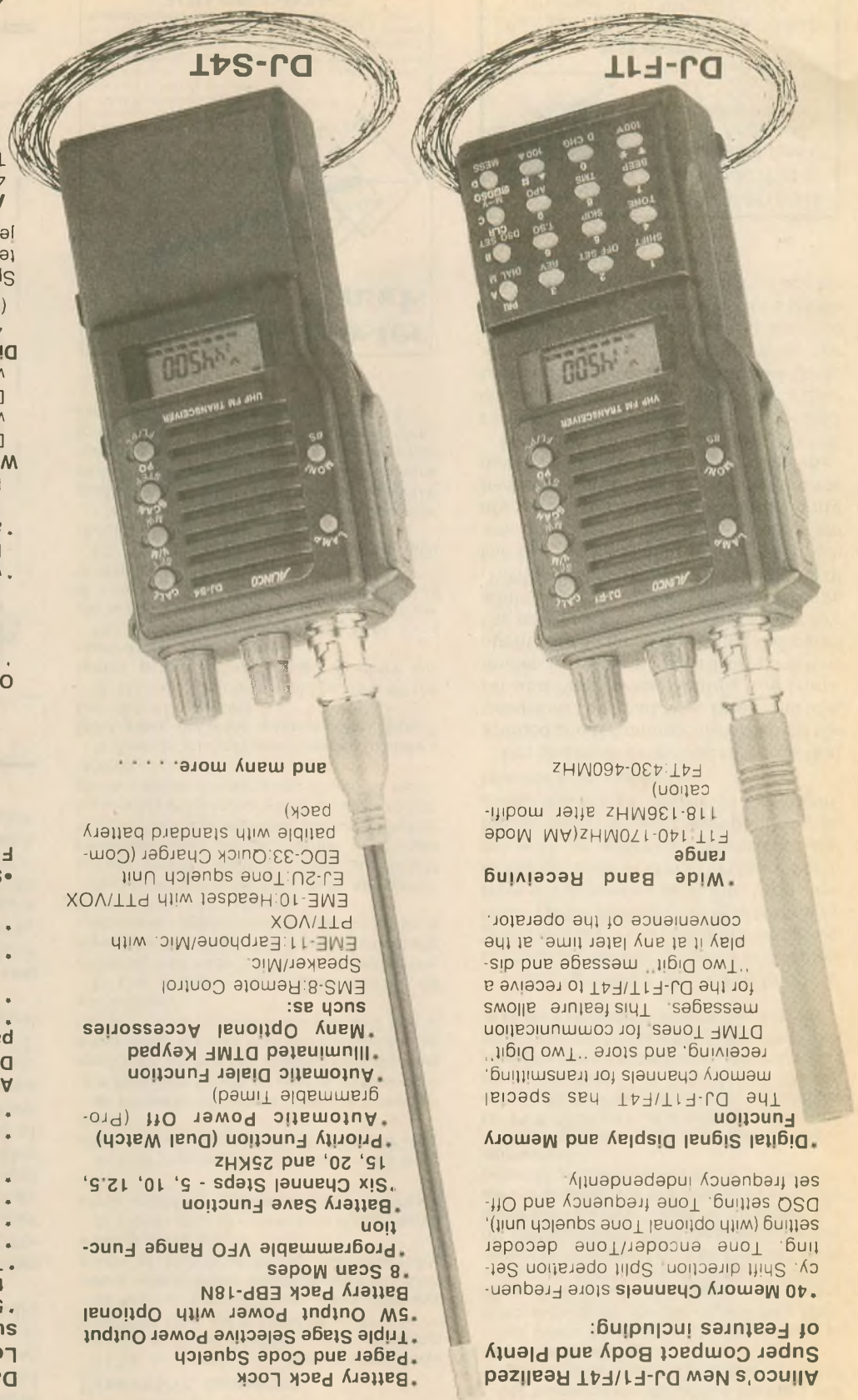
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Output Power:

- with Battery Pack EBP-16N (Standard for F1T/F4T)
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- Mid:1W Low:0.1W
- with Optional Battery Pack EBP-18N
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Is Amateur Radio safe?

BILL MCGURK, NICAS

Several news stories have appeared lately in local newspapers and ham radio magazines concerning the danger of Amateur Radio. The Associated Press released a story saying there was an increased rate of death due to certain types of cancer in Amateur Radio operators.

Some stories described the possible dangers of being exposed to electromagnetic fields, including high voltage power lines (high current 60 Hz wiring), microwaves, ham radio equipment and video display terminals. Other articles talked about the possible hazards of toxic chemicals such as polychlorinated biphenyls (PCBs) used in some capacitors and dummy loads. Also included were chemicals for etching PC boards, repairing fiberglass, asbestos and fumes from soldering.

As a result of the last article I read entitled "Is Amateur Radio hazardous to your health?" by Dr. Shulman (Oct., 1989 *QST*), I have made some changes in my shack. Dr. Shulman, a physician who specializes in cancer surgery, reviewed much of the current research as it relates to Amateur Radio oper-

ators. He gives some excellent preventative suggestions for hams which I have included below.

Preventive measures

1) Do not stand or sit close to your power supplies or linear amplifiers while operating, even when they are in stand-by mode.

2) Stay at least 24 inches away from any power transformer, electrical fans or other source of high level 60 Hz magnetic fields while in operation.

3) Do not tune up or operate a high powered linear amplifier while the shields or covers are off.

4) Run your transmission lines away from where you or other people sit in or near your shack.

5) Properly terminated coaxial transmission feed lines should be used in preference to open-wire or end-fed antenna installations which come directly into the transmitter, as the RF radiated from a coaxial feed line is much lower.

6) Use common sense about placing all antennas well away from yourself and others, especially for VHF, UHF and particularly microwave applications. No one should be in the near field of an antenna.

7) No person should be near any transmitting antenna while it is operating. This is especially true for all mobile or ground mounted vertical antennas. The use of indoor transmitting antennas which are close to people in a house or apartment should be reconsidered.

8) Use the minimal power needed to make a QSO, especially if the antenna is less than 35 feet above the ground.

9) Hand-held radios should be used on the lowest power setting needed to carry out communications.

10) Hand-helds should be kept as far from the head as possible when operating. The use of a separate microphone or similar device is recommended.

11) Transmissions using a hand-held radio should be kept as short as possible.

12) Power density measurements should be made before running more than 25W in a VHF mobile installation, particularly if the antenna is rear-deck mounted and passengers may ride in the back seat. The safest mobile antenna location is in the center of the metal roof.

13) The development of an accurate inexpensive power-density meter would be of major benefit to the Amateur Radio community so that RF power-density measurements could be taken in all radio installations. Because of the current high cost of such devices, groups of Amateurs or clubs may wish to purchase one and share in its use.

14) Soldering should only be done in a well ventilated area. A small fan should be used to blow away toxic fumes.

15) When using toxic chemicals, such as when etching PC boards or repairing fiberglass, wear gloves and goggles, use proper tools and avoid contact with any of the chemicals. If accidentally contaminated, wash off the compounds immediately with copious quantities of water. Again, the importance of always working in a well ventilated area with personal protective covering cannot be over-emphasized.

16) Hazardous chemicals, such as those in the PCB class, are used in some capacitors and dummy loads. Use extreme care in handling these materials, and consult with the appropriate local authorities to determine the proper means of disposing of these chemicals in an environmentally responsible way.

When operating on the low bands in my shack I sat very close to my 30 amp power supply. As a result of his suggestions I have moved it several feet away from my operating position. I was also in the process of constructing a headset with an antenna attached for my handy talky, which I was planning on using when I go hiking in the mountains or bike riding.

Dr. Shulman described research that studied the RF energy absorbed by the tissues in the head (eye, brain, muscle, fat and bone) while holding the transmitter in vertical and tilted positions about the head. The study indicated the presence of a "hot spot" in the eye while using a 1/2 wavelength antenna (1.0W) and one in the frontal portion of the brain while using a 3/8 wavelength antenna (1.0W). Needless to say I am not going to mount the antenna on my headset. I hope you will also get some new ideas from his recommendations.

He goes on to say, "We should recognize a relatively newly identified environmental hazard and that Amateur Radio operators should take those simple measures which decrease the possibility of our personal exposure to electromagnetic fields or toxics that we may contact as a consequence of our interest in Amateur Radio."

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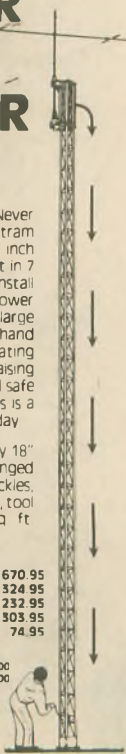
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Dr. Shulman concludes by saying that on the basis of the research papers he studied, it is now apparent that the data derived so far must be considered significant enough to support further research and that additional information is needed and will ultimately be forthcoming on this important issue.

Should we continue to use our ham radio equipment? He states that most experts would have no hesitation regarding their own personal use of currently available Amateur Radio equipment, provided that it was properly installed and operated and that the recommended precautions were followed.

Review these recommendations and make positive changes in your shack, too. □

Make a good impression

LORETTA SAWYER, WQ9D

Amateur Radio 2M is a popular mode of operation. It attracts new ham operators and is monitored by scanner listeners. This is why it is important to set a good example of professional operation. We have all worked hard to earn our Amateur Radio licenses. It's something we should be proud of.



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!

This month's winner is Jack Strong, W9HTR, of Decatur, IL. Are you a friendly ham?

My most embarrassing moment in Amateur Radio occurred while my family and I were on vacation recently. We had just arrived in Williams, Arizona, found a motel and were walking down the street looking for a place

to eat when I spotted a black sedan at the curb with a big whip antenna on the rear.

Walking over to the black sedan I proudly announced, "I'm W9HTR, what's your call?" The man in the car, with a big grin, replied, "I'm the sheriff." □

When misconduct is demonstrated, it not only bruises the reputation of the offender but also that of the repeater club.

No one can tell operators what types of conversations to have, but discretion should be used as to the content of the subject matter discussed. Common courtesy should be extended to each other. Don't break into a QSO unless you have an emergency, need to make a call, or you have something to contribute to the conversation. Wait for the courtesy beep. This gives a person a

chance to break in. In a round table conversation of three or more ... remember to PASS THE MIKE.

Drive times are important and many may need to make a call or autopatch. Amateur Radio is used as a link between home and car. Try to keep conversations short and of quality subject matter during these times.

Through Amateur Radio, many lasting friendships are made. We all have different personalities, attitudes and opinions, but we have one thing in common and that is the LOVE AND RESPECT FOR HAM RADIO. □

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Radio club presents books to library

The Warminster Amateur Radio Club has donated a set of 25 books to the Warminster Township Free Library. The diverse set included books dealing with technical subjects, operating procedures, licensing manuals and fictional stories. The publications comprise a special "library set" put together by the American Radio Relay League (ARRL).

"We're very gratified by the donation," said head librarian Caroline Gillis. "It's an area of the library that has needed updating for a long time. The club has also offered to perform an important service by reviewing our existing books so that we can remove outdated materials," she noted. Although the collection will be maintained at the Warminster Library, the books will be available to 17 libraries who comprise the Bucks County Library Network and maintain a common computerized data base of their collective resources.

"In addition to providing up-to-date reference material for hams already active in the hobby, the books will allow members of the public a better opportunity to become aware of the activities of Amateur Radio," stated area resident Mike Karabin, N3GJT, who suggested that his club allocate funds

to purchase the collection. "We already get plenty of inquiries from people of all ages and backgrounds interested in obtaining Amateur Radio operator

licenses," he added, "and many of these individuals enroll in club sponsored classes that are scheduled throughout the year."

The Warminster Amateur Radio Club, which is an ARRL Special Service Club, has over 180 members who



Eleven-year-old Tiffany Karabin, KA3YHF, head librarian Caroline Gillis and Mike Karabin, N3GJT, review the collection of 25 books donated to the Warminster Township Free Library by the Warminster Amateur Radio Club.

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are involved in all aspects of Amateur Radio. Members make a special effort to participate in community oriented projects by providing communications support for events that recently included the March of Dimes WALK-AMERICA walkathons; the Special Olympics; community road rallies, 10K and fun-runs; and weather exercise and disaster drills testing the warning and notification systems for local agencies.

Additional information about the group's activities can be obtained by contacting club president Bill Hemphill, WD9EQD, at 215/997-1176. □

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Carole Perry, WB2MGP, proudly displays the Marconi Memorial Plaque to her parents, Al and Ruth Marcus.

Marconi Memorial Award

On May 17, the Veteran Wireless Operators Association presented Carole Perry, WB2MGP, with the Marconi Memorial Plaque at Governor's Island, New York, to honor her work in getting thousands of young people interested and licensed in Amateur Radio.

Carole received a BA degree in 1964 from Brooklyn College and a Masters degree in Education in 1974 from Richmond College, Staten Island, New York.

For sixteen years, Carole was the Executive Vice President of an electronics manufacturing company, Avant-Guard Devices, Inc., in Brooklyn New York. When the company relocated she went back to her first love, which is teaching.

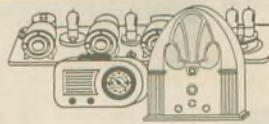
At Intermediate School 72 in Staten Island, New York, Carole was given the opportunity to introduce a pilot

program she had created called "Introduction to Amateur Radio." In this course, which uses Amateur Radio as a motivational tool, students get exposed to a myriad of communication modes while learning that school can be fun at the same time. The program was so successful that it soon became a course for all 6th, 7th and 8th graders to take at least one time while in attendance at the school. Between 200 and 225 children a year, over the past eleven years, have received Novice licenses; with at least 10% of them upgrading to the higher FCC licenses.

Carole began her own company, Media Mentors, Inc., which markets educational curricula, videotapes, audio cassettes, code practice oscillators and computer discs relating to the learning of Amateur Radio. In addition, she has worked on many exciting projects with the Johnson Space Center, and recently worked with them to promote the SAREX program to high school science teachers.

At the present time, Carole writes a column for 73 *Amateur Radio* magazine called "Hams With Class." She is also a contributing editor to *Radioscan* magazine. □

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Silent Keys

Charles E. Bell, K3HHP

It is with deep sadness that we report the passing of Charlie, K3HHP, on May 5, 1991.

Charlie got interested in Amateur Radio early and was licensed at the age of 12 in New York State prior to World War II. Around 1956 he again became active in ham radio and received the call K3HHP. In the late 50s he was very active on 75M phone with a group called The Shawnee Net which met late at night for general rawchews. From 1969 to 1974 Charlie worked as a design engineer planning stores for Thrifty Drug and JC Penney, at which point he decided he wanted to be his own boss and go back to his first love—radios.

He opened the Radio Pro Shop at the Bon Aire shopping center in Butler in 1974 and started selling and servicing Amateur Radio gear in addition to the main line which was commercial communications equipment. Soon there was a 2M repeater, WR3AGY, on 147.90/30, which brought hams from far and near to talk. For a few years he also taught Amateur Radio classes at the Butler County Community College, introducing ham radio to a new generation.

In 1978 Charlie spurred the Butler County Amateur Radio Association into holding its first annual hamfest by his enthusiasm, expertise, and assistance with the prizes. For many years thereafter, local hams would congregate at the Pro Shop to get advice, drink Charlie's coffee and generally talk among themselves when Charlie was busy running his business. Although amateur equipment was no longer sold at the Pro Shop, Charlie still found many people walking through the door with a favorite old rig (or a new piece of junk from a hamfest) that "just needs a few minutes" to get it working again. Charlie did so much work on the BCARA repeater that the club gave him a "defacto" life membership in appreciation.

On August 19, 1990, Charlie suffered

a heart attack. After a short stay in the hospital, he seemed to be recovering and was back at the Pro Shop for a while. Then in September he had another attack from which he was not able to recover.

Charlie had the type of personality that was very easy to like, and all who knew him got along well with him (or they didn't get along with anyone).

The "three-oh HHP" machine had moved to Allison Park and was well known and well used in the Southern Butler County area as well as Allegheny County. Now it is being moved back to the Butler area to be located on the property where Charlie was building his new home. It will continue to be on the air using his wife Dorothy's call, WA3KZS. Charlie is survived by an extensive family, many of whom are amateurs. —*Information submitted by Gerald H. Wetzel, W3DMB* □

Don Campbell, W0SWY

Don Campbell, W0SWY, of Mount Pleasant, Iowa, passed away on May 28 at the age of 73. He had been failing in health for several months.

Don was born in Salem, Iowa, and spent most of his life in southeast Iowa. He was first licensed as W9SWY in 1941. When the FCC realigned its radio call sign districts, Iowa was placed in the 10th call district, and Don assumed the call W0SWY. When he attended Bethel Bible College in Mishawaka, Indiana, he used the call W9VXX, but he took on his old call sign when he returned to Iowa.

He served in the Navy in World War II as a radar technician. Don had several jobs over the years. He served as a disc jockey and advertising salesman for a radio station and was employed by the City of Mount Pleasant. Don also worked for Emerson Electric and Motorola, where he retired in 1983.

W0SWY was one of the first Amateur Radio operators to set up a station at the Midwest Old Threshers Reunion. He was also a driving force to get a 2M repeater on the air back in the late 70s for the Mount Pleasant area.

Don was an active member of the Mount Pleasant Amateur Radio Club, of which he served as trustee for several years. He also participated in various area 2M nets, the Iowa 75M Net, as well as the Tripe H Net on 40M.

The funeral for W0SWY was attended by many area amateurs. Pall bearers were Gary McMeins, N0FIB; Dave Schneider, WD0ENR; Roy Lewis, WA0KLD; Bill Barber, NO0J; Dean Frish, W0QJF; Gene Carriker, N0BAE; and John Anderson, K0BKL. Don is survived by his wife, Frances, and three sons. □

Malcolm F. Judkins, W6AS

We regret to announce the passing of Malcolm F. Judkins, W6AS, on April 3, 1991, in Carmichael, California.

Malcolm, who held a master's degree in chemical engineering from Carnegie Institute of Technology, was a leader in developing the use of tungsten carbide and high-temperature alloys and, later, zirconium alloys for nuclear submarines. He was closely associated with numerous organizations including the American Society for Metals and the Society of Carbide Engineers.

Malcolm was a member of the Quarter Century Wireless Association, the North Hills Radio Club and the Old-Timers Ham Radio Club. He was an "old-timer" ham, first licensed in 1921 in Seattle, Washington, and he was well known to many hams in the Sacramento area. —*Information submitted by Paul Wolf, W6RLP.* □

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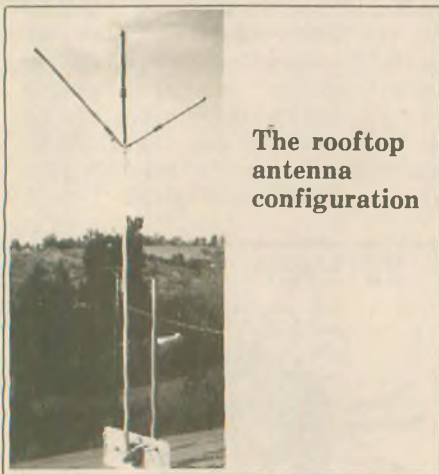
Working rooftop DX

MARK D. GOODLEY, N6RMM

If you're like me, working portable DX is about as exciting as Amateur Radio gets. In our case, it was done from the roof of the Omni Shoreham Hotel in Washington, DC, Jan. 26 to 30, 1990.

Kelly Coleman, AA5ID and I were back east for the National Religious Broadcasters convention, representing Hams for Christian Missionaries and Blessing for Obedience missionary nets. Since our regularly scheduled net each weekday night on 14.320 at 0200 UTC was on the air during our stay, we made plans to check-in and operate from the hotel. A few phone calls ahead of time cleared the stage with hotel management to set up our antennas on top of the hotel, as well as to make arrangements for a top floor room.

I've got to say that we were concerned enough to bring two verticals and enough uncut wire, 300 ohm feed, coax and solder to make a land line all the way to the Kremlin. It was all unnecessary. We could have brought one antenna to do the job.



The four band Spider antenna from Multi-Band Antennas, Canoga Park, California, was absolutely unbelievable. It outperformed all the others combined. That a 4 ft. vertical anten-

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N6RMM (center) shows off the top story shack to two visitors.

na with radials could outdo an 18 ft. vertical was incredible enough, but it also out-gunned about 100 feet of window wire.

We had 5×3 to 5×9 Q5 signals from New Zealand (the farthest point away from DC on the globe), to Africa (Surinam, South Africa, Ghana, etc. . .), to Europe (Germany), to South America, etc. . . We could have worked DX all night had our stamina and little red eyeballs allowed.

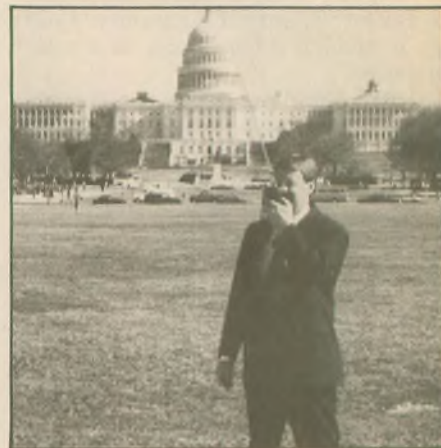
Our portable transceiver was the compact ICOM 730. A Ten-Tec tuner/antenna switch was utilized for the wire window. The most difficult job was to design a multi-purpose mount for the Spider that would be able to attach to a bedroom window, vertical pole, horizontal rail or any other scenario we had imagined might pop up. After careful consideration, I opted for the design pictured, which worked admirably well. The aluminum to build it was reclaimed, at no cost, from an old IBM PC keyboard. About 16 quarter-wave radials were attached directly to the mount, as well.

The coax feed lines were lowered over the roof to the room below, 10 turn, 6 in. RF chokes were wrapped

and taped at the antenna feed points, and we were on our way. Set-up time, not including the wire antenna and its mast we rigged, was accomplished in a very leisurely 15 minutes, including the tuning of the four bands on the Spider. Not bad for great DX I'd say.

And not one complaint from the hotel guests, even while operating during the Super Bowl!

We shipped everything, including



AA5ID CQs the "Hill."

the radio, MFJ keyer, phone patch, tuner, Palomar noise bridge and hardware, in a metal 30 × 19 in. trunk (purchased the weekend before at a swapmeet for \$6 and lined with camera case foam). The radials made their way in a canvas bag, which could have been loaded in the luggage. The whole enchilada amounted to one extra piece of luggage and a "hobo fishing pole" (the mast and radials) carry on.

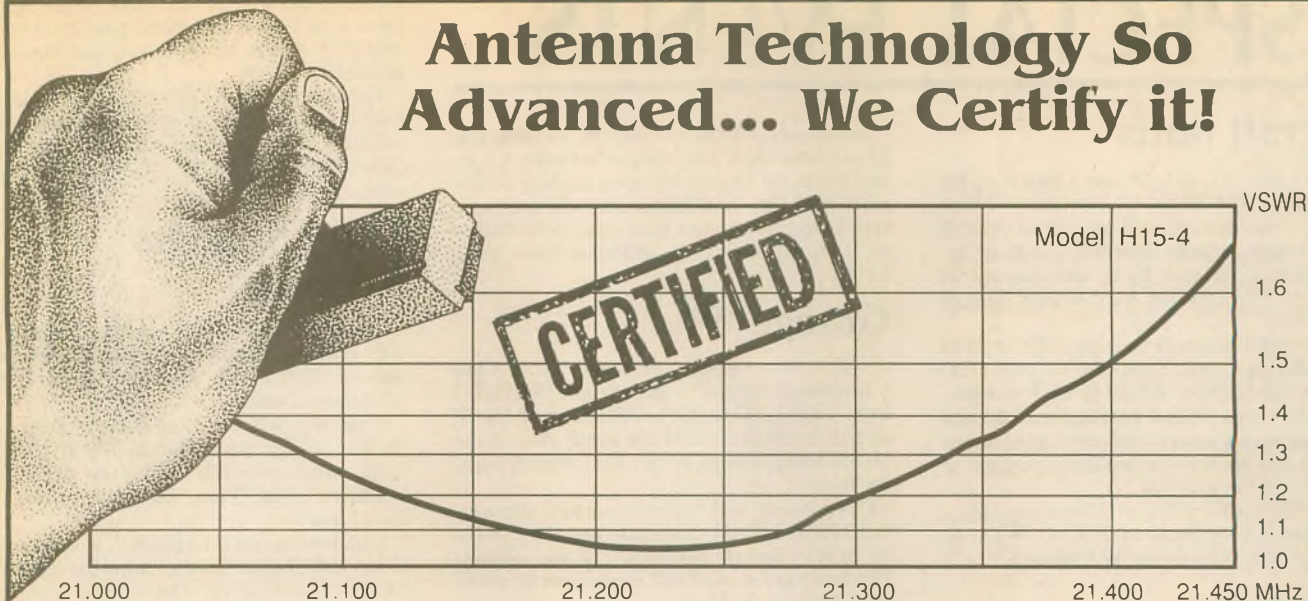
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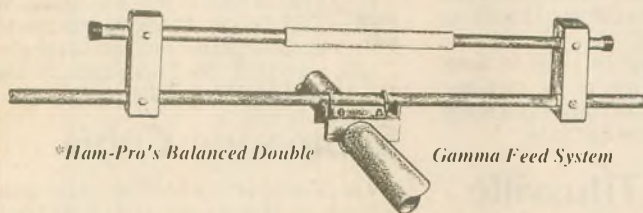
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braces. Four U-bolts are used at each element-to-boom saddle, and two bolts hold each element splice.

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H15-4	15m	8.80	1.65	\$340
H10-3	10m	6.46	1.79	\$190
H6-6	6m	9.41	1.91	\$200
H144-15H	2m	13.73	1.68	\$145
H144-15V	2m	13.73	1.93	\$145
H220-17	1.25m	13.53	1.29	\$150
H432-24	70cm	16.14	1.76	\$145



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SPECIAL EVENTS

Aircraft buffs

On August 17 and 18 the Clark County Amateur Radio Club of Vancouver/Clark County, Washington, will sponsor a special event station to help celebrate the 32nd annual antique aircraft fly-in and display at Evergreen Flying Field, located just East of Vancouver.

Operating times will be from 1800 to 2359 UTC Saturday, and from 1800 to 2300 UTC Sunday. Frequencies will be in the lower portion of the General Class part of the 40, 20 and 15M bands and, conditions permitting, on or near 28.455 in the Novice/Tech portion of 10M. Listen for W7A1A.

For a commemorative certificate showing a 1917 Jenny, SASE only to CCARC, W7A1A, P.O. Box 1424, Vancouver, WA 98668. □

Dog Days

The San Benito Amateur Radio Club will operate special event station WA2VJ, to commemorate the Hot and Humid Dog Days of Summer in the Rio Grande Valley of south Texas.

Operation will be from 1800 UTC to 0300 UTC August 9, 10 and 11. Suggested frequencies: 28.425, 21.315 and 21.125 (CQ DOG); exchange: local weather conditions and other weather facts.

For a folded certificate, mail a business size SASE (or 9½×11 for flat mailing) to San Benito ARC, P.O. Box 1382, San Benito, TX 78586. A weather data sheet will be included with certificate. □

Festival of Whales

The Hervey Bay Amateur Radio Club will activate special event station VI4HBW from August 1 to August 31 to coincide with the Festival of Whales.

An award and QSL will be available to operators who work this special event station. Further inquiries and applications for the award may be directed to Jim White, VK4JWW, P.O. Box 829, Hervey Bay, Qld. 4655, Australia. □

Flat Hammock Island

For only the eighth time in history, Amateur Radio is going to Flat Hammock Island. Tri-City ARC will mount its eighth annual expedition on Sunday, August 4, 1991 and will operate from this unique, uninhabited island from 1300Z to 2100Z.

Look for KA1BB in the lower 20 kHz of the General Class phone and CW bands, 10, 15, 20 and 40M and the center of 10M Novice band.

QSL with letter-size SASE via Tri-City ARC, Box 686, Groton, CT 06340. □

Gabby Hayes Days

The Allegany Highlands Amateur Radio Club will sponsor special event station WB2OQY (Gladys Keller) to celebrate Gabby Hayes Days. Born and raised in Wellsville, New York, Gabby was a side-kick of Roy Rogers. The area celebrates his fame annually with parades, outdoor events and shopping specials.

Operation will be on 20, 15, 10 and 2M. Those who work the station between 8 a.m. and 6 p.m. on August 10, upon sending confirmation of time and frequency, will receive a certificate. Send your contacts confirmation to R.D. #1, Box 46A, Hinsdale, New York 14743. □

Grange '91

The Warminster Amateur Radio Club will operate special event station WA3DFU from 1400 UTC to 0200 UTC August 15, 16 and 17 in celebration of the 115th year of the Middletown Grange at the 43rd annual country fair.

Operations will include packet through WA3TSW, 147.09(+) repeater and HF 25 kHz up in the General portions. CW on request. The band to be used will depend on the best conditions at the time.

We will have a message center where over 400 messages for the NTS originate, plus information about the ARRL, WARC and licensing classes. Please send 9 × 12 SASE for QSL certificate to WARC/WA3DFU, P.O. Box 113, Warminster, PA 18974. □

Cresco station

The Cresco Amateur Radio Club of Howard County will be operating several special event stations to commemorate the 125th birthday of this city and honor some of its notables, i.e. Dr. Norman Borlaug (1970 Nobel Peace Prize Winner); Ellen Church, recognized as the world's first airline stewardess; and five admirals who were born in Cresco, served on AD during World War II and were USNA graduates.

We will operate 24 hours a day starting at 1400Z August 23 through 0500Z August 25 in the General phone portion of all bands plus the Novice phone portion of 10M and 15 kHz inside the CW Novice band.

A unique certificate will be given to those making a contact with one of the stations. Send QSL and SASE to the station contacted by address listed in the 1991 *Callbook*. □

Oil Creek & Titusville Railroad

From the "birthplace of the oil industry," Titusville, Pennsylvania, a special event station will be operated again this year. Sponsored by the Oil Creek Valley Radio Society, this event commemorates the sixth year of operation of the Oil Creek & Titusville Railroad. Station WA3HJC will be on the air August 3 and 4, on site at the historic Perry Street railroad station, from 1300 to 1700 UTC and 1900 UTC Sunday.

Suggested modes and bands are: CW—Novice portion of 15 and 40M; SSB—Novice portion of 10M and General portion of 15, 20 and 40M. (Other times, modes and bands are possible).

For special photo QSL, cancelled from the only operating railway post office car in the country, send QSL and #10 SASE to Mike Dziubkowski, N3GCY, P.O. Box 22, Titusville, PA 16354. □

Old Threshers Reunion

The Mount Pleasant Amateur Radio Club will operate W0MME August 28 through September 2 during the 42nd Midwest Old Threshers Reunion.

Operation will be in the General portion of the 80 through 10M phone bands. To obtain a QSL, send an SASE to Dave Schneider, WD0ENR, 507 Vine, Mount Pleasant, IA 52641-2846.

Club members will be providing communications on the grounds, monitoring their 147.99/.39 and 449.95/444.95 MHz repeaters.

All Amateur Radio operators attending the event are invited to stop by the ham shack on the grounds and sign the guest book. Last year there were 147 hams representing 12 states who signed in.

Amateur Radio operations at the reunion will be headed by Gary McMeins, N0FIB; Julie Schneider, KA0UCN; Dave Schneider, WD0ENR; Bill Barber, N00J; and Dave Ruby KA0FBL. □

National Lighthouse Day

The Old Barney Amateur Radio Club of Manahawkin, New Jersey, will operate special event station W20B from the Barnegat Lighthouse on August 10 and 11 to celebrate National Lighthouse Day. Operating times will be 1200 to 2300 UTC each day.

Suggested frequencies are as follows: CW—7.040, 14.040, 21.040 and 28.040 MHz; SSB—7.275, 14.290, 21.390 and 28.390 MHz; FM—146.835 repeater and 146.52 simplex.

QSL via NU2F, Joe Fleishinger, 75 Joshua Dr., Manahawkin, NJ 08050. □

Submarine Cobia

The Mancorad Radio Club of Manitowoc will operate special event station W9DK from 1400Z to 0000Z August 17 and 1400Z to 0000Z August 18 from the WWII submarine *Cobia* to celebrate Maritime Week.

Suggested frequencies are 7.250, 14.250, 21.350 and 28.450 MHz.

For certificate, send QSL and SASE to the Mancorad Radio Club, P.O. Box 204, Manitowoc, WI 54221-0204. □

Yorktown

The Southern Peninsula Amateur Radio Klub (SPARK) will operate special event station N4KZR between 1400Z and 2200Z on August 16, 17 and 18 to commemorate the 300th anniversary of the founding of Yorktown, Virginia, where the last battle of the American Revolution was fought.

Phone operation is planned for the General portions of 80, 40, 20 and 15M as well as the Novice 10M phone subband.

For a commemorative certificate, QSL with SASE to M.C. Ellis, 300 Artillery Rd., Yorktown, VA 23692. □

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Youth in ham radio

"Youth in ham radio" is the theme of special event stations operating from three locations from 0001Z August 3 (Friday evening, August 2 local time) until 2359Z August 4. Sammy Garrett, AA0CR, the 1991 *Westlink Report* Young Ham of the Year, will operate from St. Louis, MO; Mary Alestra, KB2IGG, the 1990 *Westlink Report* Young Ham of the Year, will operate from New York City; and Darrel Craig, KK6BB, will operate from Fullerton, CA.

For QSL from any station, send QSL and contact number with an SASE to AA0CR, P.O. Box 5832, St. Louis, MO 63134. For a certificate for contacting all three stations, send three QSLs and three contact numbers with a 9x12 SASE. Suggested frequencies are General/Novice portions of 40, 20, 17, 15 and 10M (phone/CW). □

What a difference a ham can make . . .

. . . to our country and even the whole world!

Communicators whose successful careers were directly attributed to their long-ago teacher, W.C. Soderlund, W0LSC, have taken steps this year to acknowledge "Sodie's" positive influence.

In the mid 1930s Sodie, a licensed amateur and the superintendent of our high school in Minnesota, prevailed on the higher state authorities to permit him to write a curriculum and teach the first Radio Theory course in the Minnesota High Schools. Notice the title was *Radio*—although the course was relatively advanced, the word *Electronics* wasn't being bandied about much.

Both boys and girls enrolled in the class. In time the class blossomed out with numerous new radio amateurs and a club station, W9WBO, thanks to Sodie's many extra hours—and, yes, we suspect plenty of cash out of his own pocket. The classes continued right up to World War II.

All of Sodie's students greatly benefited from their specialized training as they went off and into the various military services. They all contributed much to the accelerated research and development during the war years. In several instances some of these students were dispatched, on loan, to allied forces to serve as consultants. Over the years you have seen many of these names mentioned in the various Media—how proud Mr. Solderlund must have been to have followed his students' careers.

However proud Sodie may be, he cannot be any prouder than his students are of him. So, in a small way—belated—this year at the high school's 75th anniversary, arrangements have been made for a special event station, in his honor, to operate from the Laporte High School where all the activity started over 50 years ago. At age 85, Mr. Soderlund will be present as the guest of honor and is also expected to do some operating.

The Cass-Hubbard County Amateur Radio Club will operate N0GFK in the General Class portion of all bands, from 1500Z July 6th to 0300Z July 7 to commemorate the birthplace of high school electronics in the state of Minnesota. For certificate, send QSL and SASE to W6AAQ, Box 595, Esparto CA 95627-0595.—Don Johnson, W6AAQ □

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STATION APPEARANCE

James W. Adkins W5YPJ/EL2AS

Send Worldradio a picture of your shack and the staff will choose a winner to receive a free one-year subscription! Stations will be judged by neatness (wires tucked away, etc.) and accessibility of equipment. Monetary value of equipment is not a consideration.

Winners will also receive a top quality, Laserjet-printed copy of the DXCC and WAS BeamHeadings list (a \$15.95 value) compliments of Jack Hurray, W8JBU.

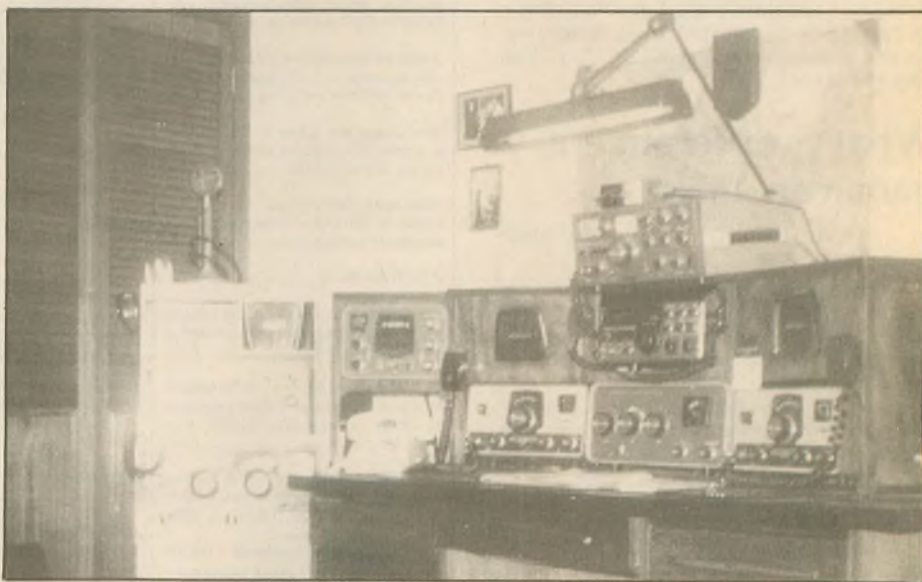
This month's winner is James W. Adkins, W5YPJ/EL2AS, of Kingston, OK. James has a lifetime license in Liberia. Following are descriptions of his shacks in Kingston and Monrovia, Liberia:

Kingston: Left to right, top to bottom — CDE rotor control; speaker for KWM-1, which is connected to Hornet tribander for 10, 15 and 20M; 3051 Collins amp for KWM-1; Heath 630 phone patch and Bell telephone; speaker for



EL2AS — Monrovia, Liberia

HW-22 for 40M, connected to inverted V; Heath HW-22A; Kenwood TS-520 for 80 through 10M, which is connected



W5YPJ — Kingston, OK

There ought to be a law

And there is one. FCC rules state that you must have control of your station and prevent use by unauthorized persons. This includes your kids when you leave them unattended in the car or at home. (Sometimes the death threat isn't enough on a boring afternoon.) —The LCARA Patch, Lake County ARA, Plainsville, OH.

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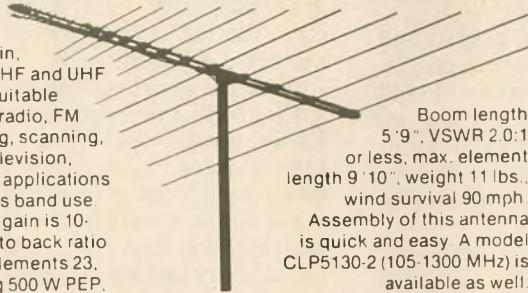


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Model	Height	Base Width	Max. Wind Load FT ²	Max Vert. Load Lbs.	Weight
CR18	5' 10"	31 1/2"	21 @ 90 mph	440	18
CR30	9' 10"	39	27 @ 90 mph	1,322	33
CR45	14' 9"	39	23 @ 90 mph	881	57

CLP5130-1 Log Periodic 50-1300 MHz

This high gain, wide-band VHF and UHF antenna is suitable for amateur radio, FM broadcasting, scanning, VHF/UHF television, government applications and business band use. The forward gain is 10-12 dB, front to back ratio 15 dB, # of elements 23, power rating 500 W PEP.



Boom length 5' 9", VSWR 2.0:1 or less, max. element length 9' 10", weight 11 lbs., wind survival 90 mph. Assembly of this antenna is quick and easy. A model CLP5130-2 (105-1300 MHz) is available as well.

CREATE ROTORS

Model	Rotation Torque (ft./lbs.)	Brake Torque (ft./lbs.)	Mast Size
RC5-1	43	506	1 1/2" - 2 1/2"
RC5-3	43	506	1 1/2" - 2 1/2"
RC5A-2	116	1085	1 1/2" - 2 1/2"
RC5A-3	116	1085	1 1/2" - 2 1/2"
RC5B-3	160	1450	1 1/2" - 2 1/2"

Model	Vertical Load (lbs.)	Preset	Indicator Accuracy	Square Feet	Weight (lbs.) (Rotor Unit)
RC5-1	880	...	± 5° Max	10	13
RC5-3	880	Provided	± 4° Max	10	13
PC5A-2	1540	...	± 4° Max	25	17
RC5A-3	1540	Provided	± 4° Max	25	17
RC5B-3	1540	Provided	± 4° Max	25	20

GEMOTO ROTATORS

1105 MSAX

Model	Wind Load (ft./lbs.)	Rotation Torq. (ft./lbs.)	Brake Torq.
201SAX	7.6	2	108
105TSX	10.9	37	215
747SRX	21.8	50	502
1105MSAX	27.3	57	717
1200FXX	27.3	143	1290
1300MSAX	32.7	215	1792
1800FSX	38.2	287	2150



1200FXX, 1300MSAX, 1800FSX with preset.
1105MSAX preset optional.
201 SAX 12v DC.

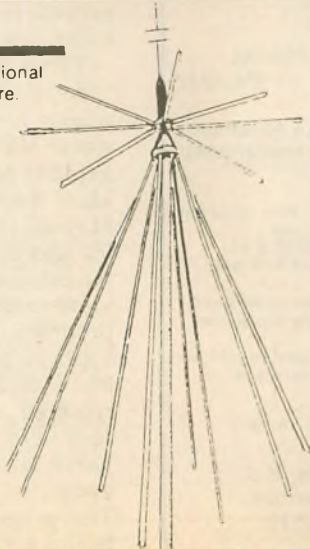
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Receive—25-1300 MHz
Transmit—50, 144, 430, 900 & 1200 MHz

Max. Pwr: 200 W
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Connector: "N" Type
Mast Dia.: 98" x 2"
Weight: 2.2 lbs.



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Model	PS120M	PS140II	PS304	RS3080	RS40X
Voltage (VDC)	3-15	13.8	1-15	1-15	1-15
Current (ICS)	12	14	30	33	40
Current (Cont.)	9.2	12	24	30	32
Ripple (Max)	3mV	3mV	3mV	3mV	3mV
Regulation	1%	1%	1%	1%	1%
Cooling Fan	NO	NO	NO	YES	YES
Size (inches)	5 x 4 x 9	5 x 4 x 9	7 x 6 x 9	7 x 6 x 9.5	11 x 5.5 x 9
Weight (lbs)	11	11	18	21	22

Cross Needle SWR/Power Meters for All Bands

NS-660PA



Model	Freq. Range Int. Sensor	Forward Power	Connectors
NS 660A/PA	1.8-150 MHz	30/300 W/3 kW	SO-239
NS-663BM/BN*	140-525 MHz	30/300 W	SO-239/N type
DP-810	1.8-150 MHz	0-1.5 kW	SO-239
DP-820/N	140-525 MHz	0-150 W	SO-239/N type
DP-830	1.8-525 MHz	0-1.5 kW/0-15 W	SO-239/N type
CN-101	1.8-150 MHz	15/150 W/1.5 kW	SO-239
CN-103	140-525 MHz	20/200 W	SO-239/N

MOBILE/BASE CROSS NEEDLE SWR/POWER METERS

CN-460M



CN-520

Model	Freq. Range Int. Sensor	Forward Power	Connectors
CN-410M*	3.5-150 MHz	15/150 W	SO-239
CN-460M*	140-450 MHz	15/150 W	SO-239
CN-465M*	140-450 MHz	15/75 W	SO-239
CN-520**	1.8-60 MHz	200 W/2 Kw	SO-239

* Back lit with mobile bracket

** Optional mobile bracket available

DAIWA Coaxial Switches

	CS-201 2 Position	CS-201G II 2 Position	CS-401 4 Position	CS-401G 4 Position
Frequency	500 MHz	1.3 GHz	800 MHz	800 MHz
Connectors	SO-239	N type	SO-239	N type
Isolation	-60 dB	-60 dB	-50 dB	-50 dB
Power Rating	2.5 kW PEP 1 kW CW	2.5 kW PEP 1 kW CW	2.5 kW PEP 1 kW CW	2.5 kW PEP 1 kW CW

Insertion Loss: All models less than 0.2 dB



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OLD-TIME RADIO



Some thoughts about words

GEORGE HINDS, N8CIX

Amateur Radio conversations are like any other—at times stupidity or dullness will prevail: the “lid” on the repeater who thinks he sounds like an “old timer” because he fills the air with “QSL” and “QSY” repeatedly; the person who time and again just has to interrupt a conversation in progress “to find out how my new antenna sounds” (think about that for a while); the “drone” who drones on for what seems to be forever about mere trivia; such major tragedies as a blown fuse three months earlier (and you wish it would hurry and blow again); etc.

Sometimes people need help to become conversational—years ago it probably was easier. After all, without TV, radio, etc., practice at conversation was almost the only thing open to pass the time. Today, sitting mute before the TV for hours, it’s a wonder that sanity survives.

But, when you’ve just about decided to turn the rig off, along comes someone on the air who, when he or she talks, tells a story in words that are almost pictures. Suddenly, folks listening don’t feel the urge to run away; they enjoy what they’re hearing.

“Picture-talkers” seem to have closed their eyes for a moment before speaking. They “see” a picture of what they will talk about and then they describe the picture in words, with plenty of attention-grabbing adjectives.

You and I listen with interest to such conversations—wouldn’t it make Amateur Radio infinitely more interesting if more amateurs spoke in

“picture-talk?” It’s too bad we can’t express ourselves with gestures and signs to enliven our over-the-air talk.

On the other hand . . . at least three topics of conversation on the air seldom, if ever, pay off in friendship with Amateur Radio operators: profanity, politics and religion.

Allowing yourself to become embroiled over such highly personal and contentious subjects as politics and religion with other amateurs is almost a guarantee in becoming involved in arguments, followed by splintered, perhaps even broken, friendships.

The hazards of on-the-air politics and religion are obvious to thinking people: the hazards of using profanity should be. A person constantly relying on “hell” or “damn” or worse on the air or off is demonstrating a lack of sufficient command of the English language to express himself effectively.

Profanity on the air is offensive; never mind that it may be in everyday use elsewhere, it never improves the

image that others have of the user! Try a simple home test: Turn on a tape recorder, then let forth with some profanity and play it back—that should do it for you!

I’m reminded of how often we’ve sat around over coffee and at meetings and talked of the vast number of listeners out there in “scanner land” to Amateur Radio conversations. You never know who is listening—people who may have considerable influence over the future well-being of the Amateur Radio service, such as congressmen, city and state officials, etc.—the list is long; the influence is unknown at the moment.

If we care (and we should) that they get a good impression of the Amateur Radio service and those who have been granted the privilege to use the airwaves allocated to amateurs, then it’s in our best interests to make one of our first priorities the “cleaning up of our act” by ending the use of profanity . . . —*Baltimore Radio Amateur Television Society* □

QSO Amateur Radio Network

MIKE STONE, WB0QCD

History was made this year on January 15th when a few brave souls in upper New York state devoted several hours of their own time and gambled some of their own financial resources to venture forward with a dream that has now become reality. The very first *QSO Amateur Radio TVRO* talk-show program hit the airwaves originally on GTE commercial space satellite on Spacenet 3, channel 4 from Fabius, New York. This March,

the program switched to Spacenet 1, channel 15 (120 degrees). With special arrangements made with The Blocktown Satellite Network for using up “dead” air-time on a usually busy race car network, valuable uplinking time was arranged to sponsor a then-twice per week (Monday and Tuesday) satellite dish reception program devoted entirely to Amateur Radio.

A few had talked about such an idea for several years, but Jim Bass of Syracuse, New York, actually went out and did it! Jim is not yet a ham but is working on his license. He has been around hams and electronics for over 30 years so he can hold his own on about any electronic related subject.

Three hours of total ham radio video/audio programming on Monday nights have been sent out each week since March over the GTE orbiting satellite to some 39 countries covering all of North America, Alaska, Mexico, Hawaii, the Caribbean, Central America and even parts of South America. An estimated 400,000 dish owners and viewers are said to be watching the program each week. Some pretty sophisticated equipment and 750-800W of TV video and audio power is required for a closed-circuit color picture and full quieting audio from Earth to the bird some 22,500 miles away.

The programming is interesting and fun to watch! One night you’ll see Bob

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Heil, K9EID, talking and demonstrating his audio filtration systems and microphones. Another night you might see Gordon West teaching a class in Connecticut. When videotaped programming is not running, attractive and colorful KRYON computer generated ads appear with a handful of early supporters like *CQ Magazine*, Wilson Electronics, VHF Communications, *The SPEC-COM Journal* and T.D. Systems. Videotaped programs using Super VHS or better is always sought-after material.

Hundreds of hams and non-hams alike have been calling in from all around the US and Canada. The "live" call-in talk show discusses every subject imaginable about our favorite hobby. One minute they will be talking about the benefits of FM television, while later on they may discuss how to get the lowest SWR on your feedline.

Some hams are taking the down-linked show's signals and relaying it into FM or ATV repeaters or are asking Cable TV or PBS facilities to pick up or tape the weekly broadcasts to air at a later time for other viewers who do not have TVRO dishes. Commercial advertising, music and other questionable material presented is being withheld from getting on the air by advanced warnings from the network. Check out the flea markets at hamfests and call your nearest TVRO dealer. Satellite TVRO receivers, demodulators, LNAs and dishes have come way down in price and this technology is now affordable to nearly everyone, even those living on a limited electronic budget.

QSO Amateur Radio is undertaking their next big step into going with not one but five nights per week audio with a possible added West Coast talk-show host and timeslots! An ad agency and a program coordinator were hired to try to gather both financial and moral support for such an undertaking. So far, lining up other talk-show hosts has not been a problem. Everyone wants to get in on the act! Finding committed financial sponsors has been a more difficult task. It is hoped that Amateur Radio organizations and major manufacturers as well as individual dealers will rally and get behind the *QSO Amateur Radio* show to keep it going and growing! □

*A glow worm with tendencies coarse
Used to tell shady stories 'til hoarse.
But he kept up his vice
By the clever device
Of learning to blink them in Morse.
—CHARRO, Brownsville, TX* □



The SARA held a successful mall exhibit.

Mall exhibit

The Schuylkill Amateur Repeater Association (SARA) presented an exhibit on Amateur Radio at the Schuylkill Mall in Frackville, Pennsylvania on January 20. The exhibit included a computer controlled Morse code display, slow-scan TV and a 2M FM rig with an antenna made of coffee cans. VHF equipment, transmitting tubes, *Callbooks* and QSL cards were also featured. ARRL pamphlets explaining ham radio were given to those

who expressed an interest in becoming a ham.

Pictured here are (kneeling) Andrew Hitzel, N3HHH; Marius Szostek, KA3PDY; and (standing) Joseph Yutz, W3LXY; William Dale, N3HST; Zane Rist, KA3TNC; Carmen J. Perfetta, WC3F; Francis Hillibush, K3KVK; Andrew M. McAloose, WB3Z; Gary Fleishut, KA3FUL; Stanley Mick, W3RPO; and John Smetona, K3SLJ. All are members of SARA. □

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Product Review

MFJ-207 HF SWR analyzer

STEVE HALL, WM6P

There are very few new products on the market. Most are refinements or merely duplicates of the competitors' products. Here is an exception. There is nothing like this analyzer that I have ever seen.

I do a lot of HF antenna building and experimentation. This means a lot of cut and try. You know the routine:

make an adjustment on an outdoor antenna, return to the transmitter and SWR bridge to measure the change and return to the antenna to make an adjustment, then back to the shack to check it out once again, over and over. The MFJ-207 eliminates this exercise.

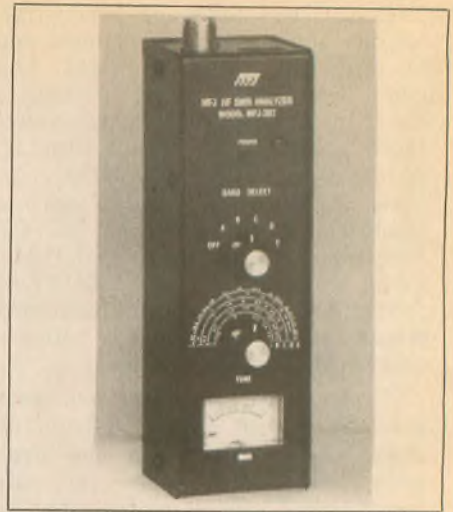
The MFJ-207 is a self-contained analyzer that connects to your antenna point or feedline and directly reads SWR. It measures $7 \times 2\frac{1}{2} \times 2\frac{1}{2}$ and has provisions for use of either an internal 9V battery or external power supply (9-15VDC). Contained in the circuit is a low power variable frequency oscillator and SWR meter. No external transmitter is required.

It's easier to use than to explain. Let me give you a few examples of applications that I've tried.

- You have put up your rooftop dipole according to the formula but want to trim it to resonance to your favorite part of the band. Connect the feedline to the SO-239 coax connector on the analyzer and sweep the frequency control on the unit to determine the resonant point. Trim or lengthen the antenna as you watch the SWR reading on the analyzer. This is done as you stand next to the antenna on the roof.

- The new beam is mounted on your tower but the final adjustment of the gamma or T-match remains. Just take the analyzer to the top of the tower with you and measure the SWR as you make adjustments in real time. As no more than a few milliwatts of power are involved, there is no danger of radiated RF power that would normally prevent adjustment of an antenna with your station transmitter on the air.

- The newly purchased swapmeet linear amplifier is now part of your station but a small adjustment of the tuned input circuit is in order. Use the MFJ SWR analyzer as you adjust the input circuit rather than the station transmitter. These adjustments can be made without turning on the amp.



The MFJ-207 HF SWR analyzer is a unique tool.

- You can use this unit with mobile installations to optimize coil resonance adjustments with success. Additionally, as you move magmount locations the effect of location and other mobile antennas can be determined.

As the unit covers 1.6 to 32 MHz in five bands, the frequency dial cannot measure to a resolution to allow accurate frequency readout on the higher bands. To supplement the analog readout I use an inexpensive battery powered frequency counter to provide an accurate digital display of the measurement frequency. MJF has provided an output jack on the analyzer for direct connection to a counter. If a counter is not available a receiver can be used to measure the frequency of the analyzer, although this cuts down on the portability of the system.

To evaluate the accuracy of the unit, I made comparative SWR measurements against the internal SWR bridge in my Kenwood TS-930S and an MFJ-989C. All three units were in agreement. Stability was excellent. When in use with a frequency counter, less than a few hundred Hertz of drift were observed. This is much better than required.

The primary benefits over and above conventional transmitter/SWR systems include:

- No exposure to RF while making real-time antenna adjustments.
- The SWR analyzer goes to the antenna location with you.
- The general coverage nature of the system allows multiple and out-of-band resonances with SWR values to be found quickly.

The price class for this SWR analyzer is \$99.95. For further information, contact MFJ Enterprises, Inc., Box 494, Mississippi State, MS 39762.

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Dual VFO's with displayed TX or TX offset with a range of +/- 99.9 kHz. The momentary "REVerse" button allows you to listen to, or set, the transmit frequency. An extremely agile frequency control system. Sixty-two tuneable or scan-able memories that store frequency, mode, filter selection, channel number plus a 7 character alpha-numeric "Tag" feature. Great for channel I.D. or storing amplifier or tuner control settings.

Fast receiver recovery provides excellent FEC/ARQ and QSK CW performance. All five I-F filter slots are selectable independent of mode. Pass-band tuning to optimize filter effectiveness. Rear panel inputs and outputs, using phono jacks, for interfacing auxiliary equipment. Provisions for separate RX antenna, transverter, digital gear and a QSK or conventional amplifier. Adjustable pitch and level cw side tone plus a sideband monitor. Optional RS-232 interface.

Other standard features include a 24 hour clock, calendar, speech processor and noise blanker. For the vision impaired operator an optional synthesized voice board will announce the displayed frequency and an ALC annunciator will simplify mic gain and speech processor adjustments.

Our unique amplifier design protects the power transistors with a current limiting system. This allows full input power operation at an SWR of greater than 2:1 and eliminates the need for an internal tuner. The transceiver operates at 12-14 Vdc. An external power supply is used. This design approach simplifies use of alternate power sources and contributes to cool operation, without a fan.

All aluminum construction. Top quality components and all PC boards are G-10 epoxy glass. Field serviceable to the board level. The Paragon is a top performing, do-everything rig. And even more good news, it is one of the least expensive premier transceivers available. Check it out.

The Omni V is unique in all the World. It uses a crystal mixed oscillator, rather than a synthesized oscillator, and a phase locked loop frequency tuning system. You trade general coverage operation for ultimate performance in the ham bands. Phase noise is eliminated as a significant variable, in both TX and RX! The sensitivity, quietness, selectivity and dynamic range are most impressive.

The I-F filtering system is pretty awesome too. There are slots for four filters in the 6.3 MHz I-F, and two in the 9 MHz I-F. Eight pole, 2.4 kHz, crystal filters are standard in both I-F's. When the optional filter in the 9 MHz I-F is in use, it is cascaded with the 2.4 kHz filter in the 9 MHz I-F. Up to 24 poles of crystal ladder filtering is possible. The resulting selectivity adds new meaning to the term.

The transmitter delivers 100 watts output 160 through 10 meters. USB, LSB, QSK CW and real FSK for the digital modes. FM is optional. Rear panel connections, using phono jacks, for virtually any auxiliary equipment, including a separate RX antenna input. Adjustable CW sidetone and monitor for SSB. RS-232 interface is standard.

The front panel features a large, easy to read, frequency display that doubles as a time and date display. The panel layout is spacious and user friendly. Dual VFO's with A=B, SPLIT, A/B controls that result in the most simple frequency management system around, and provides unlimited range offset tuning. The momentary "REVerse" button allows you to hear and/or set your transmit frequency. There are 25 tuneable memories, using battery independent nonvolatile RAM, plus the "scratch pad" feature to quickly store and recall a configuration.

Quality components and G-10 epoxy glass PC boards assure long term performance stability. Field serviceable to the board level. All aluminum construction. Power amplifier protection is with our current limiting circuit which allows full input power at an SWR of 2:1, or higher, without an internal tuner.

If you operate for extended periods, you will love the optional, Model 301, remote frequency tuning encoder. You will also appreciate the reduced fatigue factor that results from the quality (less than 2% THD) audio and superb signal to noise ratio.

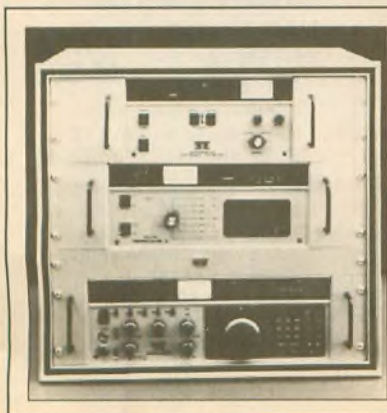
The Omni V is a delight to operate whether you prefer a single mode or work them all. This rig is simply outstanding, and at a very attractive price for equipment in this class.

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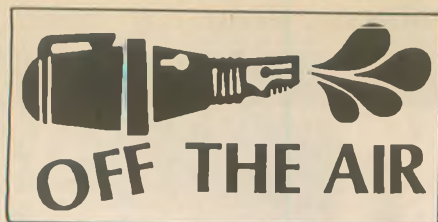
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No antenna, no sale

After reading the comments of Mark Forbes, KC9C, in the June issue, I thought readers might find my approach a bit more creative. I too discovered that several towns in Northern New Jersey were not "antenna friendly." When searching for my home, I made it very clear that "no antenna" meant *no sale*.

When the time came to install antennas, I was told that a building permit would be required. A bit of research revealed the following.

A permit was required for all "attached" structures. Radio antennas were required to be installed so that the antenna's height could not exceed the distance from the property line. This meant that a 75x100 lot could only accommodate an antenna 37½ feet high.

I found a loophole in that the ordinance specifically addressed antennas—not *antenna support structures*. After demonstrating that my tower, which I specifically called an antenna support structure, didn't transmit, the town lost their bite. Furthermore, it was to be free standing, and *unattached*, so the building permit was not required.

Installing the TVRO dish wasn't as easy. I decided to install it without applying for a permit. Some three months after installation I received a nastygram from the town, informing me it was in violation of the borough ordinance which limited size to 36 inches—a bit restrictive! I responded in person, armed with a copy of the federal ruling which prohibits restrictive zoning laws. This didn't seem to have too much of an effect so I scheduled a meeting with the borough attorney at the next town council meeting.

After introducing myself and reiterating my position, I quickly brought attention to the fact that the

local cable television company paid over \$10,000 in revenue to Elmwood Park during the previous year.

"This is a matter of public record," replied the attorney.

"Your ordinance denies me the right to receive those same signals which the cable company offers. In essence, you are requiring me to subscribe to cable TV in order to watch certain channels." I posed the question of how a higher court might view an ordinance which acted as an insurance policy to generate revenue from cable companies? Now I had their attention. Would you care to defend the town's position on denying me the right to free access to the airwaves (media)? I am granted these rights by our constitution. I am sure the ACLU would be very interested."

After a short discussion amongst themselves, I was told a written reply would be sent in a few days. I never received the written reply, but I did receive a call that evening informing me that they would not pursue the ordinance any further at that time. I haven't heard anything in six years. Who says you can't fight city hall?!

BOB KOZLAREK, WA2SQQ
Elmwood Park, NJ

Ham or hamster?

I must respond to the letter from Clint Danbury in the Off-the-Air column in the April issue.

After reading Mr. Danbury's letter, one must wonder how and why he became a ham. He complains that no one is manufacturing a rig that he can afford. Is he aware of the low-cost Heathkit CW rig? How about all the low-cost used equipment on the market?

Then he states that he wants a rig with "simple operating controls" and something he can just take out of the box and operate CW. And, it must have a built-in 120V power supply so

he wouldn't have to "become a genius and an expert in electrical engineering" in order to connect an external power supply.

This guy is not a ham—he is an appliance operator!

He is right on one point, however. He states that to be a ham "you must have your own home." Every ham knows this to be a fact: not only must you have your own home, you must also have a new car and a dog!

He says, "Looks like ham radio is not for me right now; maybe never." He has no argument from me . . .

D.D. Woodruff, K6BMA
San Rafael, CA

Scouting ham radio

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The data will be used in a future Scouting and Exploring Ham Radio manual. You will be given credit for your ideas and suggestions.

HAL CAMLIN, W3OLP
Glen Burnie, MD

Ham brothers

I have enjoyed my subscription to *Worldradio* over the past year. The magazine seems geared more toward the "Joe Average" ham (like me), rather than the techno-wiz type.

I know that *Worldradio* sometimes

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prints small notes regarding DX stations and operators and requests for help. I just received a note from Algeria asking:

"Would you publicize our need? 'Wanted: free ham equipment for two Novice ham brothers. Help would be greatly appreciated. 73'—Touati, P.O. Box 180, Constantine, Algeria.

I assume they got my name and call from a classified ad I have run in *Worldradio* for the past two years. I don't know these fellows and have no personal interest in this, other than the fact that I (like many others) would like to see more active hams in Algeria

STEVE FORST, N3FTT
Clifton Hts., PA

Or ... do what a lot of the older fellows are doing: sell the radios, take the money and buy a set of golf clubs. Or even better, you can always take up gourmet cooking. I could give the same case for all the other bands below 50 MHz but what's the use? CW, like the honest, well mannered hams, is a thing of the past. I am not going to mourn the passing of CW, because all things, unless appreciated and used by people, will sooner or later pass away. And even though some of us now are perturbed by the manners and practices of

certain members of the ham fraternity, I know that nothing can exist in this world without public acceptance and favor—bad manners and poor operating practices included.

I humbly suggest that the figures quoted in the October '90 issue's "Publishers Microphone" about the growth of ham radio be compared with figures from the year 2000 to see how many of those bright shiny new hams kept those licenses active for 10 years!

RAY MARTIN, KG5TP
Victoria, TX

The honest truth

For some time now, I have been reading all the articles, groaning, grunting and calling bad names, concerning the "no-code" license. After a lot of serious soul searching, I still cannot honestly understand what all this furor is about.

Oh, I understand well enough that many hams are worried that allowing people who are CW illiterate to operate on our ham bands will somehow cause a catastrophe ... or somehow allow people to have privileges with less pain than perhaps the other hams had to endure to get their licenses.

But I do not understand why anyone would worry for one minute about the loss of such an ability as sending and receiving Morse code. For one thing, who can find a place to send it? If you get on the Novice portion of 40M for instance, the foreign broadcasters cover you up, unless you are running a 5kW amp in the melt-down mode (which is contrary to the rules). If you choose to operate down below the Novice band, then the fellows with their "mail boxes" and packet clusters will run packet on top of you without ever listening to see if the frequency is occupied or not. You can't "shoe-horn" a CW signal into the band between 7.100 and 7.050 without getting run down or run over by unattended stations operating far in excess of power limitations.

Then of course, there is always that segment below 7.050 and on down to 7.025 where the Extra portion starts. That section is so full of DX stations running SSB that you are totally wiped out. Then the little bitty 25 kHz below that is so full of the "big boys" that you might as well forget it.

You do still have a choice though. You can operate your station sometime between 0900 GMT and 0915GMT when some of the foreign stations take a coffee break.



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possible ways. The team consists of four persons: myself and three more operators. They are fine DX and contest operators and they have large experience in the different conditions. The call of operators and exact call of expedition I will tell for you in five days before will go, in order to avoid the pirates. The QSL information: P.O. Box 812, Sofia 1000, Bulgaria.

"The operation will be go on all bands including 160, 6, WARC, and all days long from two positions. We are going to operate two weeks, maybe more. This is a very costly DXpedition (it will cost us 45,500 US and 48,000 SU rubles) and support will be greatly appreciated. Please send donations to NT2X, Edward Kritsky, P.O. Box 715, Brooklyn, NY 11230, USA. The donations from organizations can be sent to: Roman Stepanenko, account 432688.60, H'Union Bank of Switzerland, 8021 Zuerich-Hauptsitz, Switzerland. Any questions can be freely fielded by contacting me by FAX—(095) 267-22-33—in Moscow. The phone number is same, or by coordinators of expeditions by air. Coordinators of expedition: from USSR: RW3AH, UA3AB, RA3AR; outside USSR: NT2X, JH3DPB. We are waiting for your help and you will be able to see nice operation as it was 1S0XV/1S1RR and YA0RR."

We received the above via registered mail on May 28. With a five-day warning, we will not be able to keep you informed. Just keep your ears open!

Penguin Islands (ZS9Z/1)

By unanimous vote of 7 to 0, the ARRL awards committee has accepted the recommendation of the DX Advisory Committee that the Penguin Islands be added to the ARRL DXCC countries list. The recommendation was based on point 3(a) of the countries list criteria.

These islands, administered by South Africa, are situated off the west coast of Africa. Namibia (formerly Southwest Africa) separates the islands from South Africa.

QSL cards may be submitted for DXCC credit beginning September 1, 1991. Any cards submitted prior to that date will be returned without credit. This now brings the number of current DXCC countries to 323. Now, don't you wish you had worked them last December?

The DXCC reports to the best of their knowledge that there have been two creditable operations from the Penguin Islands. The most recent was the ZS9Z/1 operation in December, 1990, and the ZS9A/1, DK9KX/ZS1 and DL8CM/ZS1 operations the previous July.

Franz Josef Land (4K2)

Two active stations have been reported recently, operating on Heyss

Island in Franz Josef Land, and have been there for some time.

Vlad Malygin, UA0BDU, signs as 4K2BDU on the island and has been reported between 14.007 and 14.025 MHz at such times as 0400, 1400 and 2200 UTC. Vlad has also been reported on 17M near 18.074 MHz, at 2115 MHz, and on 15M at 1445 UTC on 21.035 MHz working the East Coast. Europeans reported working him on 40M at 2230 UTC on 7.002 MHz. All of Vlad's activity has been on CW.

The other active station is that of Serge Bushkov, UA1OIL, now 4K2OIL (the more active of the two). Serge also operates other modes. Look for Serge on 20M between 14.006 and 14.030 MHz from 0030 UTC, on 15M between 21.004 and 21.013 MHz from 1330 UTC, and on 10M around 2100 to 2330 UTC. On that band he has been reported on both modes. Try around 28.027 or 28.535 MHz.

On RTTY Serge has been worked between 14.086 and 14.092 MHz at 0400 UTC. He has also been on the WARC bands, particularly 17M CW near 18.077 MHz around 1800 UTC.

The QSL manager for these two stations is Gennady Kolmakov, UA9MA, P.O. Box 341, Omsk 644099, USSR. Both have attractive multi-color QSL cards.

Burundi (9U5)

An eight-week DXpedition by G4BZP and G0CLP, according to *DX News Sheet*, was scheduled to come on mid-May, signing 9U5BZP. The DX newsletters reported this one near the end of May on 21.279 MHz.

The only other report of activity from Burundi was a station signing 9U5XQ on May 5 near 14.024 MHz at 1100 UTC.

Rwanda (9X5)

We have at least three different calls reported active from Rwanda recently. All three of them have been on 10M. Try the following:

9X5HG	28,579 MHz	1900 UTC
9X5NH	28,479 MHz	2130 UTC



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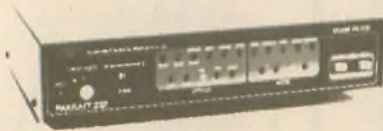
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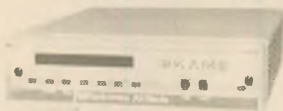


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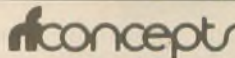
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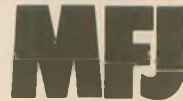
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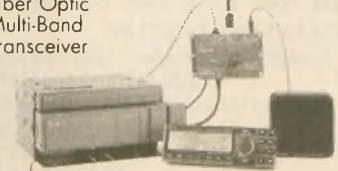


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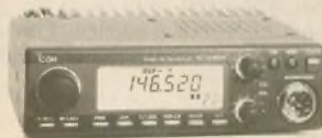
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9X5SW 28.007 MHz 1530 UTC
 9X5SW 28.486 MHz 1930 UTC

On 15M 9X5HG has been reported often between 21.002 and 21.018 MHz after 2130 UTC. He has been reported as far up as 21.062 MHz. He was also on SSB near 21.306 MHz around 0700 UTC working into Europe. On this band 9X5NH prefers SSB and has been found between 21.242 and 21.317 MHz during the same period.

Both 9X5HG and 9X5NH have been reported on 12M. 9X5HG was reported in early May on 24.950 MHz at 2330 UTC with 9X5NH near 24.945 MHz several times from 2230 UTC. On 17M 9X5NH was worked at 0030 UTC on 18.117 MHz.

IOTA

Here is some more reported activity of islands that have been chased by the island hunters recently:

- AS-023 Amami Archipelago JQ3UXM/6
14.020 MHz 1300 UTC
- AS-065 Kolyuchinskaya Bay Islands
4K4POL
21.018 MHz 0145 UTC
4K4/UA0KBZ
14.222 MHz 0100 UTC
- AS-066 Petra Velikogo Bay Islands
UW0MF
21.261 MHz 2330 UTC
- AS-084 Chuja Island HL0KTA/4
21.260 MHz 0030 UTC
- EU-34 Saaremaa group ES0NW
14.011 MHz 0100 UTC
- EU-065 Quessant Island FV6OST
7.074 MHz 2130 UTC
- EU-070 Levant Island FD1NZE
14.260 MHz 1800 UTC
- EU-109 Farne Islands G0EVV/P
7.069 MHz 2130 UTC
- EU-124 Anglesey Island GW0ONY
21.260 MHz 1630 UTC
- EU-124 Holy Island GW4WJO
14.258 MHz 0500 UTC
- NA-006 Victoria Island VE8CB
14.165 MHz 1800 UTC
- NA-019 Kodiak Island KL7HKX
14.274 MHz 0500 UTC
- NA-039 Adak Island WH6ASW/KL7
14.035 MHz 0530 UTC
- NA-041 Wrangell Island WL7CBI
14.256 MHz 0400 UTC
- NA-105 St. Eustatius Island PJ5/N4XO
14.018 MHz 2245 UTC
- NA-138 Amelia Island W51JU
14.260 MHz 2230 UTC

- OC-90 Calamian group I2YDX/DU1
14.260 MHz 1400 UTC
- OC-129 Panay Island DU6JS
21.275 MHz 1830 UTC
- OC-130 Mindanao Island DU9AXJ
21.250 MHz 1600 UTC
- OC-138 Thursday Island VK4CCC
14.315 MHz 0300 UTC
- OC-139 Kangaroo Island VK5VK
14.256 MHz 0530 UTC
- OC-144 Bangka Island YC4GDZ
21.330 MHz 1645 UTC
- OC-149 Munda Island H44MS
14.222 MHz 0600 UTC
- OC-150 Tenggara Barat Island YC9KP
21.300 MHz 1430 UTC
- OC-151 Flores Island YB9MRE
21.260 MHz 1630 UTC

J16KVR and JR6LRQ are supposed to be active on July 13 from Amakusa Archipelago (AS-012), as many other IOTA DXpeditions are expected during the summer months.

Mike Gauthier, K6ICS, reports that he will be operating from the islands of Oahu, Hawaii, Maui and Kauai, during most of August. These islands do not count separately. If you need the Hawaiian Islands (OC-019) look for Mike.

The latter part of June, Tom Cooper, N4VRR, operated from Topsoil Island (NA-112), which is located in Pender County, North Carolina. Unfortunately, we received this information too late for advance warning. We should have received this information the early part of May for proper notice.

We have already ordered our copy of the new IOTA Directory and strongly suggest that you also do the same if you are serious about the IOTA program. Although the cost is \$12, the new, 50-page version has been completely rewritten. There are many new island groups that were not included in the previous edition.

We would like to hear from amateurs who reside on islands that qualify for IOTA credit. There are several inhabited islands on the Atlantic coast of North America. Those who reside on Long Island (New York) need not reply.

DXCC Progress update

The weekly progress reports from the DXCC desk continue. These figures have been continued from our last issue, with new applications and endorsements combined:

Week ending	R	P	B
May 12, 1991	92	276	2,458
May 19, 1991	82	91	2,449

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Presently the DXCC is caught up on processing *new* applications. The backlog is mostly that of endorsements and they are about two months behind.

It is strongly advised when you do submit cards to the DXCC desk that you ask for a return receipt (to be included with registered, certified or insured mail). Otherwise enclose a return postcard, but we strongly suggest one of the former.

To give you an idea of how many cards are involved, the backlog includes over 66,000 cards to look at. However, the number of cards involving endorsements are far less, around 25,000.

Antique QSL Department

We came across these oldies the other day that somehow got filed away in the wrong files (we'll get organized one of these days). They were submitted by Joe McConaghy, K3JGJ, of Clarksboro, New Jersey. They were worked by Clarence Frey, W3KFQ, of Downingtown, Pennsylvania. He is not listed in the 1991 *Callbook*.

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(FRENCH WEST AFRICA)



FF8AJ

Yves Bijault

P.O. Box 63 Ouagadougou, Haute-Volta

FF8AJ, located in French West Africa, was worked by W3KFQ during the latter part of 1958 on 10M CW. The QSL card indicated that he was running a pair of 6146s to a long wire antenna. Remember those tubes? If I remember right, they were "fun" to neutralize. The operator was Yves Bijault.

Two years later French West Africa was added to the "deleted" list. Ouagadougou is the capital of present Burkino Faso (XT).

ZANZIBAR

VQ1HE

John Sainsbury
VQ3HE VQ4HE VQ5HE
 G1X GSHV G2CYW ZL6SH

The second card was for a contact W3KFQ made with VQ1HE in Zanzibar on August 15, 1959, on 20M CW. The operator was John Sainsbury,

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DX Prediction — August 1991

who also held the calls VQ3HE, VQ4HE and VQ5HE.

The island of Zanzibar was once a separate DXCC country until 1974 when it too was added to the "deleted" list. Contacts made with Zanzibar (5H1) now count the same as Tanzania (5H3). The whereabouts of John Sainsbury is unknown.

QSL Information

Nick Svintsov, RA4YM, informs us that he is the QSL manager for Soviet stations located in the Chuvash Republic (Oblast 097). This includes the prefixes RA4Y, RZ4Y, UA4Y and UZ4Y. Send your requests to Nick at P.O. Box 145, Cheboksary 17, Chuvash Rep, 428017 USSR. Nick is also the QSL manager for club station UZ4YWY.

If you still haven't received your QSL(s) from Kyoko, the Japanese YL DXer who operated from many different Pacific islands last year, please be patient. This young lady made some 60,000 contacts and it is going to take some time to answer them. She does not hold a Japanese call, so do not QSL via the JARL QSL Bureau. In Jim Smith's, VK9NS, column in *Amateur Radio Action*, she has a U.S. call, NH6RT. The *Callbook* gives the address for that as JH4IFF, which probably would be okay for another route.

QSL Routes

AA9AK/AH2	—WO0G	NP2DR	—IK2NCJ
AG9A/KH2	—AG9A	OD5VT	—HB9CRV
C30EUA	—HB9MM	OG4M	—OH3MMM
CQ7CNT	—CT1CNT	OG8M	—OH1VR
CR8EEN	—CT1CUM	OH2AP/OJ0	—OH2AP
CS8T	—CT1BOH	OH2AU/OJ0	—OH2BVM
CZ7Z	—VE7ZZZ	OH0WV	—WA4JTK
D2ACA	—LZ2DF	OL1A	—OK1DOK
D73CW	—HL1XP	OL9A	—OK31Z
E46/K9EL	—K9EL	OY/N6HR	—N6HR
EG8CAC	—EA8ZX	P29DK	—KE4EW
EH5TCD	—EA5EGT	P34A	—YU4YA
EJ0A	—W20RA	PA6WPX	—PA3CAL
EK0AC	—RK3KP	PJ5/N4XO	—RA10A
EM7BRN	—UB4RWW	PW2KP	—PY2KP
EM0CWN	—UC1WWR	PY0SK	—PS7KM
EN1AM	—UA1ZX	PY0SR	—PP5JD
EN2C	—UC2A	R6AQD	—RV6AGG
EN3AP	—UA3PPP	RJ1J	—UJ8JMM
EX1FU	—UF6FAL	RW3L	—UA3LU
EX2FF	—UF6DZ	RZ10A/A	—RA10A
EZ9AW	—RW9WA	RZ4W/UB4JKA	—UA4WAD
FG/G3PJT	—G3PJT	S13SM	—SM3CER
F00KAW	—JG1DUN	S14SM	—SK4BX
F00LIJ	—JF1WQC	S15SM	(see note 1)
F00VU	—DB5UJ	S16SM	—SK6E1
FQ2M	—F51N	S18M1	—SM0RBO
FSJG1TCB	—JG1TCB	S10SM	—SM0BYD
FV60ST	—F91E	SV0HS	(see note 2)
FY5EW	—F6BFH	SV0HV	—KA5EJX
FY5YE	—W5JLU	SV0MW/SV8	—K7MW
GB8FX	—G3FXB	T5RR	—12JSB
H44AP	—WA2NHA	TA2BU	—RW6AC
H44VG	—GW3WVG	TA9/FILZN	—FF6KGU
HF0POL	—SP3HLM	TA9/FD1PKE	—FF6KGU
HH4TT	—HA5TT	T12JJP/T19	—T12AOC
HL0KTA/4	—HL1XP	T19JJP	—T12AOC
HW6JUN	—FF1PFW	TV9RAT	—FF6KED
IP110TA	—IK1AO1	TW3M	—FE1JCG
IQ9ITU	—IT9TQH	UA10BA/A	—RA10A
IY4AJ	—IK4BWC	UA101D/A	—RA10A
J8/VP9GF	—G4BKI	UA10WA/A	—RA10A
J8/VP9GG	—G3DLH	UH8HAT	—UB5APW
JX3EX	—LA5NM	(see note 3)	—RC2AR
KG4AR	—WB6HGH	UL7BD	—UB5APW
KG6SL	—WA6AHF	(see note 3)	—RA4YM
KL7HXK	—KL7AF	UZ4YWY	—KJ4VH
KL7MH/HZ	—K4RZ	V2/KJ4VH	—W4FRU
LG5LG	—LA9DFA	V29A	—W5YZ
LZ3ZZ	—LZ1YE	V3YZ	

Maximum Usable Frequency from West Coast, Central U.S., and East Coast (courtesy of Engineering Systems Incorporated, Box 939, Vienna, VA 22180).

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.

AUGUST 1991 WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	(17)	*21	*26	15	*22
12	(23)	*19	*22	(15)	(20)
14	(28)	*21	*19	22	28
16	32	20	(18)	25	34
18	34	(16)	(17)	24	*38
20	32	24	25	22	*40
22	27	*30	37	19	*39
24	23	*33	41	14	*37
2	(21)	*35	41	(18)	*30
4	*21	*32	40	*22	*25
6	23	*31	*38	*21	*22
8	(20)	*26	*31	18	*20

V31KF	—W5ASP	ZF20J/8	—WA11ML
VE1DE/P	—VE1KE	3A2AF	—F6FNU
VE1MQ/P	—VE1BT	3A2/DK2WV	—DK2WV
VE8YQ	—KA1JC	3D2KW	—VK4BBA
VP2EOH	—K8BL	3W3RR	—UB1RR
VP2MDU	—KJ4VH	4J1FS	—OH2BU
VP2MU	—KJ4VH	4K3/RA3YG	—RA3YG
VP2VE	—WA2NHA	4K3/UA3YCA	—RA3YG
VP5VED	—AA4NG	4K3/UA3YFA	—RA3YG
VP5W	—AA4NG	4K4/UA0KBZ	—UA0KBZ
VP8SGB	—VK4MZ	4K4/UA0KW	—UA0KCL
VQ9AY	—G4RFV	4U91TU	—DL20BF
VS6TW	—G4IUF	5H1YK	—JH8BKL
YB0ARN	—K9XN	5K1R	—HK1LDZ
YC4GDZ	—YB4FNN	5R8AL	—F6HJY
YU400/5B4	—YU4YA	7PBRQ	—IS0LUN
YZ01TU	—YU2MM	7Q7MM	—N4RFN
ZB2X	—OH2K1	7530WG	—SM3CVM
ZD8Z	—W6CF	8P9FT	—G4BK1
ZD80V	—G4ZVJ	8P9FS	—G3DLH
ZF2AH	—N6RLE	9M2NA	—VE3CHZ
ZF2JT	—N6RLE	9U5BZP	—G3BZP

C91TDM	—P.O. Box 25, Maputo, MOZAMBIQUE
J49CR	—P.O. Box 1390, Iraklion, GREECE
RH6W/UZ4FXA	—P.O. Box 2551, Penza 440011, USSR
YC9KP	—P.O. Box 37, Mataram 83001, INDONESIA
ZD8GT	—P.O. Box 5, Ascension Island, SOUTH ATLANTIC OCEAN
6C1RJ	—P.O. Box 245, Damascus, SYRIA

Notes:

1. Contacts made during the WPX CW contest go via SM5MG. All others go via SM5DTC.
2. For direct QSL requests please use P.O. Box 952, D-3180 Wolfsburg 1, GERMANY. Otherwise, send your QSL through the bureau via DJ8MT.
3. Address for this manager: Romeo A. Rushenko, P.O. Box 59, Lipova Dolina 245950, Ukraine, USSR.

Many thanks to the following contributors: RA4YM, UB1RR,

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	22	17	*26	15	*19
10	26	*14	*23	(15)	*21
12	34	*19	*20	22	24
14	39	23	(19)	25	*31
16	40	20	(17)	26	*36
18	*39	(16)	(17)	25	*39
20	*32	26	33	22	*41
22	27	28	39	18	*41
24	*23	27	42	15	*34
2	*20	25	40	*14	*28
4	*21	24	*39	*21	*24
6	26	20	32	18	*21

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	23	16	*26	14	*20
9	24	*14	*23	18	*21
11	32	*20	*21	*23	24
13	*37	20	(19)	*26	*31
15	*40	17	(18)	*27	*35
17	*39	(15)	(17)	*26	*38
19	*36	(18)	(26)	*24	*40
21	*29	23	36	20	*40
23	*25	26	40	*17	*38
1	*22	25	40	*15	*31
3	*18	23	39	*16	*26
5	25	19	32	*17	*22

UB5APW, UB5COS, KB2RA, W2SZJ, W3BBL, W4BAA, K3JGJ, W3PLI, W4OWJ, N4VRR, K6ICS, W6TUR, KI6YE, Salt Lake City DX Association (KB2G), Western Washington DX Club (K7WA), Northern Arizona DX Association (W7YS), *Amateur Radio Action* (VK9NS), *The DX Magazine* (VP2ML), The American Radio Relay League, *Long Skip* (VE3IPR), *DX News Sheet* (G4DYO), *The Long Island DX Bulletin* (W2IYX), *QRZ DX* (W5KNE) and *The DX Bulletin* (VP2ML).

For the past several months Ron Faulkner, W6TUR, has been sending copies of his logs. We have found good information here as Ron seems to work everything he hears. This often gives a basis for picking the countries to report on. We also find information on the IOTA islands which Ron might not be aware of. We assume Ron isn't into the IOTA program.

This wraps it up for this month. We hope you are having a good summer. Very 73 es GL DX de John, N6JM. □

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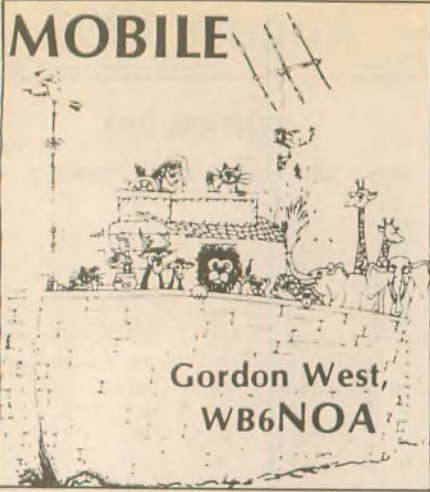
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CO, Dec. 1986 Mar. W.R. 91

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100 MEMORY CHANNEL HAM RADIO/MARINE RADIO/SHORTWAVE
RECOMMENDED FREQUENCY LIST

MCh	Frequency in MHz	Information about this MCh and Freq.
00	3.815	Ham, Caribbean weather net
01	3.967.5	Ham, West Coast AM/PM marine nets
02	3.930	Ham, Puerto Rico weather
03	3.968	Ham, East Coast waterway net
04	7.230	Ham, Caribbean maritime mobile net
05	7.233	Ham, recreational vehicle service net
06	7.268	Ham, East Coast waterway net
07	7.238.5	Ham, Baja maritime West Coast net
08	7.298	Ham, AM/PM West Coast mariner's net
09	14.313	Ham, 24-hour maritime mobile net for help
10	14.342	Ham, West Coast "Manana" net for AM
11	21.402	Ham, PM maritime mobile nets
12	28.400	Ham, Novice and Tech-Plus voice band
13	28.333	Ham, Gordon West net, Mon., 8:00 p.m.
14	Spare	Any ham
15	2.500	WWV nighttime signals
16	5.000	WWV evening time signals
17	10.000	WWV day and nighttime signals
18	15.000	WWV/WWVH/JJY time signals
19	20.000	WWV/WWVH time signals
20		Spare
21	4.344.1	Pacific weather FAX
22	8.380.1	Pacific long-range weather FAX
23	12.728.1	Pacific very long-range weather FAX
24	9.980.6	Pacific/Hawaii weather FAX
25	11.088.1	Pacific/Hawaii weather FAX
26	16.133.1	Long-range Pacific/Hawaii weather FAX
27	10.863.1	Atlantic Norfolk weather FAX
28	16.408.1	Atlantic Norfolk weather FAX
29	6.850.1	Gulf mobile, AL weather FAX
30	9.155.6	Gulf weather FAX
31	10.534.1	North Atlantic weather FAX
32	7.528.1	Boston-Atlantic weather FAX
33	8.843	Aeronautical weather
34	5.547	Aeronautical weather
35	11.282	Aeronautical weather
36	13.261	Aeronautical weather
37	13.300	Aeronautical weather
38	13.345	Aeronautical weather
39	23.329.4	USA weather FAX
40-49		These memorized frequencies in MCh 40-49 are AM shortwave news and music broadcasts, including VOA, BBC, Radio Moscow, Voice of the Andes, etc. Use higher frequencies for daytime reception, and lower frequencies for nighttime reception.
50	2.182	Marine, international distress and calling Coast Guard short-range
51	4.125	Ship-to-ship 4A, short-range
52	6.215	Ship-to-ship 6A, short-range
53	8.291	Ship-to-ship 8A, medium-range
54	12.290	Ship-to-ship 12A, long-range
55	16.420	Ship-to-ship 16A, very long-range
56	2.065	Ship-to-ship, nights, short-range
57	2.079	Ship-to-ship, nights, short-range
58	2.096.5	Ship-to-ship, nights, short-range
59	3.023	Ship-to-ship, search and rescue
60	4.146	Ship-to-ship 4B, short-range
61	4.149	Ship-to-ship 4C, short-range
62	4.417	Ship-to-ship 4D, daytime short-range
63	6.224	Ship-to-ship 6B, medium-range
64	6.227	Ship-to-ship 6C, medium-range
65	6.230	Ship-to-ship 6D, medium-range
66	8.294	Ship-to-ship 8B, long-range
67	8.297	Ship-to-ship 8C, long-range
68	12.353	Ship-to-ship 12B, long-range
69	12.356	Ship-to-ship 12C, long-range
70	12.359	Ship-to-ship 12D, long-range
71	16.528	Ship-to-ship 16B, very long-range days
72	16.531	Ship-to-ship 16C, very long-range
73	16.534	Ship-to-ship 16D, very long-range
74	18.840	Ship-to-ship 18A, quiet channel, long-range
75	18.843	Ship-to-ship 18B, quiet channel, very long-range
76	22.159	Ship-to-ship 22B, extremely long-range
77	22.162	Ship-to-ship 22C, extremely long-range
78	22.165	Ship-to-ship 22D, extremely long-range
79	22.168	Ship-to-ship 22E, extremely long-range
80	22.171	Ship-to-ship 22F, extremely long-range

All SSB frequencies changing

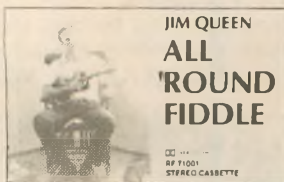
Don't get excited—none of the ham SSB high frequency allocations are changing. Well, maybe 3.675 MHz to 3.725 MHz for Novice operators, and the bottom 2 MHz of the (now) 222 MHz whacked off—but the high frequency changes as of July 1, 1991, are all marine SSB and some marine weather FAX frequencies.

This change was to align mariners with private and public marine coast stations throughout the world to all transmit on the same ITU frequencies. This change makes more room for marine SSB ship-to-ship channels and cuts down on some of those older frequencies used for CW.

Those of you with marine SSB transceivers will need to get your old channels switched out for new ones. If you own an ICOM M-700 or a Kenwood TKM-707, changing frequencies on marine SSB is easy—just flip a switch, or punch in new frequencies over old ones.

But if you own an older crystal rig or an SSB with older frequencies permanently programmed on a chip, the radio will need to go back to the maker where the old chip is popped out and a new chip plugged (or soldered) in.

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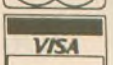
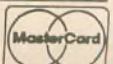
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RECOMMENDED FREQUENCY LIST

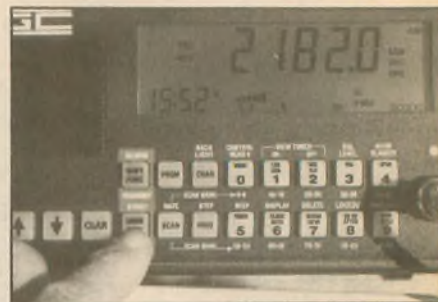
MCh	Frequency in MHz	Information about this MCh and Freq.	
81	25.115	Ship-to-ship 25A, quiet channel, extra-long day channel	
82	25.118	Ship-to-ship 25B, quiet channel, extremely long-range daytime	
83		Spare	
84		Spare	
85		Spare	
86		Spare	
87		Spare	
88		Spare	
89		Spare	
		West Coast	East/Gulf
90	Tel CH 416	4.402 RX, 4.110 TX	4.363 RX, 4.071 TX
91	Tel CH 804	8.728 RX, 8.204 TX	8.722 RX, 8.198 TX
92	Tel CH 809	8.743 RX, 8.219 TX	8.794 RX, 8.270 TX
93	Tel CH 822	8.782 RX, 8.258 TX	13.101 RX, 12.254 TX
94	Tel CH 1.201	13.077 RX, 12.230 TX	13.158 RX, 12.311 TX
95	Tel CH 1.203	13.083 RX, 12.236 TX	
96	Tel CH 1.229	13.161 RX, 12.314 TX	17.269 RX, 16.387 TX
97	CG 424	4.426 RX, 4.134 TX	
98	CG 816	8.764 RX, 8.240 TX	
99	CG 1.205	13.089 TX, 12.242 TX	

These changes were adopted by the Commission on January 10, 1991. (see Report and Order, PR Docket No. 90-133.) The revisions are required to incorporate in the Commission's Rules the changes adopted by the Final Acts of the World Administrative Radio Conference for Mobile Services, Geneva, 1987. Effective July 1, 1991.

And for those of you with ham rigs channelized for marine band reception, you will need to write over old marine frequencies with the new frequency allocations (which always end up in whole kHz).

"Here at the FCC, we will begin to take action as soon as July on any station found operating on the old marine channels," comments George Dillon with the FCC Marine Bureau in Washington, D.C. At the recent Radio

Technical Commission for Maritime Services Conference in San Diego, California, several FCC personnel indicated warnings would first be issued, followed by notices of violation for frequent offenders using old marine frequencies after the July 1 cutoff.



The only marine SSB channel not changed is the distress frequency 2.182 MHz.

The Kenwood TS-440 is one of the most popular maritime mobile amateur rigs because of its tremendous memory capacity. It will store and hold in memory 100 channels of ham and marine frequencies. Ten of those 100 memorized channels may also be used for emergency duplex operation. This allows you, in an emergency, to contact the United States Coast Guard or local public correspondence shore station directly to bail yourself out of a jam. Remember, using an amateur rig for transmitting on marine channels is only permitted in a life-and-death situation [FCC Rule Part 97.403 and Part 97.405(a)(b)]. In other words, when the chips are down and your life or the safety of your vessel is at stake, using a ham rig to squawk "Mayday" on a Coast Guard channel is perfectly within the rules. □

HTs, HTs, HTs ...



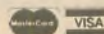
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It's a small world

On Nov. 4, 1990, Ed Pomeroy, KA6ACK, was monitoring the worldwide Amateur Radio at the ham shack in the Villages. He was listening to two hams talking to each other; one was in Miami, Florida, the other in Portsmouth, New Hampshire. They evidently knew each other.

They mentioned that they lived in Bath, Maine and knew Ed Pomeroy, a school teacher at Morse High School who was responsible for their obtaining their Amateur Radio licenses.

Ed then broke in and said he was the nephew of that school teacher and that he also was from Bath, Maine.

They all then had a long conversation about their common background. They agreed that this was a "one in a million" chance that had occurred—what a small world this really is! It is even smaller when you are an Amateur Radio operator! □

YL Roundup



The adventures of Pennsylvania Smoke

Indiana Jones and Crocodile Dundee may be bigger-than-life movie heroes. But "Smoke," a YL newcomer to the hobby, plunged into the adventure of being an Amateur Radio operator with the same bigger-than-life enthusiasm. Patricia S. Kline (Smoke), N3ICQ, of Lawn, Pennsylvania, was licensed in 1990 and now holds a General Class license.

As a newly-licensed YL married to a non-ham, Smoke purchased an old tube-model Yaesu, the FT101B. The OMs in the ham community waited patiently to see what Pat was going to do with this old rig.

She smoked the rig. That's when she earned her nickname. It's good that Pat has a good sense of humor, because she's received a considerable amount of ribbing. And her nickname has remained.

She had to admit, she'd truly smoked her first rig. Although Pat hooked up her rig carefully, as soon as she began transmitting, a cloud of smoke poured from the rig.

Perhaps another ham would have given up. But Smoke investigated the cause of the smoke and, after dismantling the rig, she found that a spider had built a nest inside which burned when the tubes began to glow. She pulled the sticky web out of the equipment and, with a bit of help from Jim, her husband, who is a calibration electrician, Smoke's rig was back in action.

N3ICQ, whose call has gotten as much attention off the air as on the air, has had numerous other exciting adventures in radio. Because she enjoys working the old equipment, which doesn't always cooperate,

Smoke's operating time often turns into an escapade just to complete one QSO. Fleamarket finds are also high on Smoke's list of fun gear. Her rotor for her beam is one of those items. And Smoke quipped, "My greatest 'DXpedition' was not really that but a signal-hunting party one night while trying to find the source of some 10M interference." Although the source was not located, she reported, "I am collecting information from other hams on local interference. We hope to call in the FCC soon."

And, like all great adventures, love has been intermixed with the dilemmas. "Morse is my first love. DX on 40, 15 and 20M in code are very exciting to me," Pat emphasized. Not everyone loves key-twitching, however. "Jim is Morse-ified," she laughed, explaining that her husband does not share her love of code. "He has rigor Morse. And he just can't learn the code! But maybe with the new no-code license, I can get him on the air." Her son, Mark, who is 10 years old, is studying for his license—with code.

Pat is involved with the Lebanon Valley Society of Radio Amateurs as their secretary, and her YL involvement is outstanding. Youth for Christ has asked her for a return engagement

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Patricia "Smoke" Kline, N3ICQ

to talk to the girls. Smoke has also organized a group of ladies for emergency preparedness, called *YL Run*. They meet on the air on Mondays at 8:30 a.m. (Pennsylvania time) on 147.915/147.315, the W3EIA 2M repeater.

"A lot of people enjoy goal-oriented activities," Smoke commented. She was a major contributor to the success of the YL involvement in a Memorial Day parade this past May. "For one YL, it was only her second time on the air. She had something written so it was easier for her," she added, explaining that mike-shyness runs high with some YLs.

Since she became a licensed ham, the people in her town refer to it as "the greater Lawn area," chuckles N3ICQ. "My little town has only 100 people and 50 houses. They tell me I've put Lawn on the map." Pat is also an elected county official. She is a jury commissioner and supervises the unbiased pick of jurors by checking to make sure the computer program has not been manipulated. Because of her elected position, she says, she has a unique perspective on the ham community. Serving the public has always been at the heart of Amateur Radio operating. "And my heart is right there," she remarked. "As a ham, I desire to see information disseminated as much as possible."

Smoke has helped spread Amateur Radio knowledge by manning the ARRL book table at the Appalachian Amateur Radio Group in Pine Grove, Pennsylvania, and teaching some of the basics to beginning hams.

Studying has been a major part of being an amateur for Smoke. She entered as a Technician, went to General, and is now studying for the Advanced. All this she has ac-

complished in barely more than a year. "I sense the importance of being able to manipulate the material learned versus just memorizing; as the increase in understanding comes, there is an added responsibility to share the new insights that I gain with others. I have found teaching the basics reinforces that goal," reflected Pat.

Her station, however, has outgrown the basics. She now has the ability to operate via packet. Her packet address is: N3ICQ @ KA3SOM.#MTJOY.PA.

Professionally, Pat is very comfortable with computers. She is a drafting consultant and works with mechanical, electrical and architectural drafting as well as graphic arts. Although computers drew her into the hobby, she realizes that there were several people who influenced her to become a radio amateur.

"It seems that radio came in the back door of my consciousness and touched me throughout my life," Smoke proclaimed. "The people who stood out in my memory as being 'special' were, to my amazement, all hams. Their technical expertise influenced me to reach beyond the common understanding of the workings of our advancing world and spurred me on to constant improvement," she added.

Pennsylvania Smoke's adventures, as well as other YLs' involvement in Amateur Radio around the country, may inspire ladies to join the ranks of operating or encourage them to advance in knowledge. But it is also good to remember that just being who we are and being a ham affects others, she pointed out. "I applaud the untold hundreds of hams who, unknown to them, are influencing people toward excellence everywhere," Smoke concluded.

If you have suggestions for columns, write to me at 1916 Parkside Dr., Denton, TX 76201 or at packet KB5LES N5LDD.NTX. □

Making variable capacitors like new

Frank Lambert, WB4OUF

After talking to several people on the air and the subject of restoration techniques comes up, I have found that sometimes what one takes for granted is possibly unknown to another. One thing in particular comes to mind and there are usually a lot of eyebrows lifted when I mention this. It is the technique I use to clean air variable capacitors. It has worked so well for me I wanted to share it with all who might be interested. It's not my idea; I read it somewhere years ago.

I remove the capacitors from the chassis, spray them with Fantastik or 409 and let them sit and soak for several minutes, then rinse clean in water. Then I immerse them in a mixture of 1/3 lemon juice (citric acid)—Real Lemon—and 2/3 boiling water. I let them boil for three to four minutes, then place them in clear water (rinse) for about half that time and let them drip dry. Then I spray them with compressed air to remove any water residue, re-lubricate the shaft bearing surfaces lightly with WD-40, re-install in the rig and they work great and look even better!

One word of caution, however. No plastic insulators, or anything that might become soft at 212 degrees! I don't recommend this technique on brass plates either. The citric acid etches the oxidation and the boiling solution "floats" the crud out of the bearing surfaces.

Note: most E.F. Johnson, National and Bud capacitors use aluminum plates, so this technique should work with these. Many Cardwell capacitors are made with brass plates (sometimes plated so that they may resemble aluminum.) Other Cardwells use aluminum plates, but the plates are assembled on brass supports. — AM Press Exchange, Woodlawn, TN □

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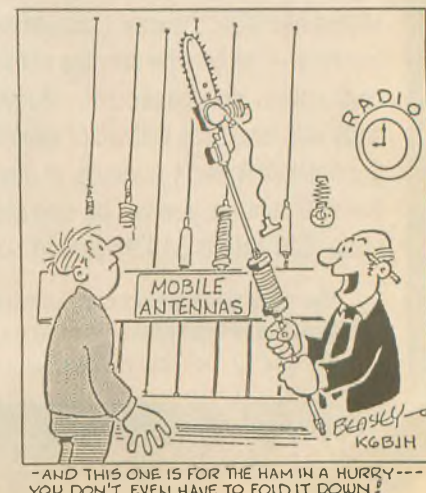
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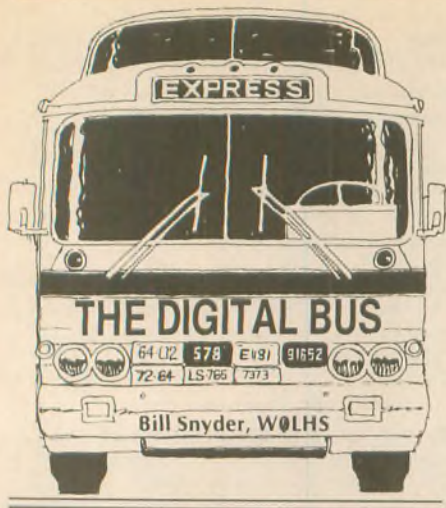
With the AL-80A you get the longest component life and peak operating efficiency -- regardless of your line voltage.

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Two large meters give you a complete picture of the operating condition of your AL-80A. They let you know right away if there is a problem.

Grid current of the 3-500Z is monitored continuously by one meter. Grid Current indicates proper amplifier operation better than any other parameter.



When Bob Leo, W7LR, and I arrived in Kenya to DX with the Gatti-Hallicrafters African Expedition in 1948, we parked our trailer homes and trucks on an escarpment overlooking a broad plain near a tiny native village named Kwale. We set up our semi-portable rhombic antenna, aimed it at the US and blasted away. Conditions were great. Ten meters was wide open to the states for about five hours a day. Contacts were land-line quality on phone and it seemed every station on the band was calling us.

The 10M band was open daily until about 11 p.m. local time. When we shut down our noisy war-surplus PE-95 AC generator, the noises of the African night became audible. On many a quiet, windless night we went to sleep in our Higgins pop-up tent trailers by listening to the African telegraph drums pounding out messages across the valley below. We could hear three or four village stations, each at a different sound level and pitch. Apparently the drums were relaying coded messages. I wondered what the messages said and if the text

that started out wound up with the same meaning at its destination.

I also wondered about the drummers. Who were they? Did they have licenses from the tribal elders and chiefs? How were they trained? Were they all volunteers, or salaried employees of the village? Now, when I recall those nights, I wonder if they had a redundancy check to make sure the message was correct, and if their code was universal all over Africa or just the local tribal area. I wished I had investigated their network system, but I wasn't the boss of the expedition. I also would like to know if they had all the problems, like lost messages, that we have with our sophisticated packet network. And, of course, I wondered who was the net control station of the network.

Ham radio networks are run by volunteers, people who, for the sheer love of the hobby, participate only for the enjoyment their efforts bring. Most do it for fun, but every now and then one or two volunteers slip in for the ego trip it might offer.

Over the years I have seen our local ham club cyclically grow like a weed and then, a few years later, collapse like a hot air balloon when the rip cord is pulled to let the heat out of the top. A lot of the boom and bust cycle is due to the level of enthusiasm exhibited by

the leadership personnel. Right now our local club is in the growing part of the cycle, and that's good. Somebody once said ham clubs grow and collapse with the sun spot cycle. There might be something to that theory; perhaps it should be the subject of high-dollar scientific investigation.

Another phenomenon I have noticed is this: volunteer clubs seem to polarize into factions. Our ham club, for example, has for years held a Saturday morning informal breakfast gathering. At the moment we have two breakfast gatherings in two different restaurants. It is a sort of "them and us" arrangement. Besides that, we have a few hams who regularly appear at one of the breakfasts, but who do not attend club meetings or even pay dues. I don't know if the sun spots cause club member polarization or not; it just seems to happen.

The problem with volunteer organizations is that you can't fire a member like you can in the commercial world. And, when the egos of members clash over the operations of the organization, look out! I'm on the board of directors for a local historical society. We operate a 15 acre historical museum/village that is a local tourist attraction. It is partially supported by county tax funds. It is operated mainly by volunteers; only four full-time and a few summer part-time helpers are paid employees. The place, an historical theme park, has thousands of visitors each year. We're proud of it. However, over the years we have acquired a group of former volunteer board members who don't like the way things are going at present. So they formed a dissident group to try and recapture the board through political maneuvering at election time. To boost their election efforts they sent press releases to the area papers in which they made charges of impropriety by the previous boards. They also went to the county commission and succeeded in delaying the tax funds and building permits for two years. Investigation by a blue ribbon panel showed nothing wrong anywhere, but the resulting publicity damaged the reputation of the museum complex.

The whole brouhaha, now nearly four years old, was caused by small differences of opinion among the two volunteer factions. We can't fire the dissidents. We'd like to use their talents but some refuse to follow the present leadership. They do, however, continue to hang around. It's egos on parade!

The same thing applies to ham radio networks. I have been watching the collision of minds on a nearby packet net. It's at a point where I'm growing disgusted with the whole system. Peo-

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ple with strong opinions on how things should go can really blow a net to pieces, and that is what has happened. One of the vital-link operators closed his BBS with a message addressed to "all" which took a verbal whack at one of the other SYSOPs. The guy at whom the missive was aimed was the self-appointed net manager. He was the kingpin, so to speak, and he sent long messages dictating the policies of the network, and apparently these messages annoyed the others to the point where they quit. And so we have egos clashing like in a soap opera.

When I was in Nairobi, Kenya, I heard a Kikuyu proverb that says: "When the elephants fight, it is the grass that suffers." It is a perfect metaphor for what is going on at our theme park and also in that local packet network. When the network BBS SYSOPs fight, it is the network that suffers.

Packet addresses

KA3BCO sends this idea: "I try to encourage people to use the packet mail forwarding system when I work with others on HF. I tried the following idea and have had some positive results: I always end my HF QSOs with something like this: 'Please send me a packet message via APLINK or the packet mail system. My address is: KA3BCO AT WB3JOE.PA.USA. NA 73 and have a good day.' I get a lot of DX mail."

Because Kevin is into AMTOR, instead of the @ sign he uses the word AT. This is because AMTOR does not have the @ in its code. On RTTY the @ will work but on the chirpy mode it will not transmit.

Marty Mullican, G0NJJ, offers these keys to overseas packet traffic success: "Use the complete hierarchical address—this includes the country and the continent; example: G0NJJ @ GB7DDX.GBR.EU—and keep your messages less than 1kB in length." Marty says he receives 60 to 70 messages a month and many of them have the accumulated header overhead larger than 1kB, so the total message gets to the upper limit of reasonable packet length. Remember each BBS adds an audit trail line to the message so the total word count grows with each relay.

Tom Clark, W3IWI, has proposed changing the continental designator from two to four letters to avoid conflict with the state and province designators. In other words, Tom suggests (and uses) NOAM for North America instead of the NA which has been in use. Tom's suggestion has merit and should be adapted by the packet system.

Eavesdroppings

"NO, NO, NO, A POX ON ALL QRP-ERS. THEY SHOULD BE SHOT TO DEATH WITH A GATTING GUN LOADED WITH GOAT DUNG ... THIS COUNTRY IS TOO WINDY FOR WEARING A TOUPEE ... I PASSED THE CODE TEST WITH ONLY ONE LUCKY GUESS ... HOW COME RARE DX ONLY APPEAR WHEN I AM OUT OF TOWN? ... I HAVE SO MUCH RF IN MY CAR FROM THE HF MOBILE IT KILLS THE ENGINE, THE MICROPHONE GETS TOO HOT TO TOUCH, AND THE WINDSHIELD WIPERS DANCE TO THE MODULATION ... YOUR SIGNALS ARE AS GOOD AS HOT HORSERADISH ... IT'S AS HARD TO FIND AS NEWS ON A RADIO NETWORK NEWS PROGRAM ... THE RAIN IN MAINE HAS MAINLY BEEN A PAIN ... I HAVE THE LATEST 386 COMPUTER LOADED WITH THE OLDEST PROGRAMS I COULD FIND FOR FREE ... THE SUN SPOTS HAVE NOT BEEN TOO GOOD TO ME LATELY ... I'M GETTING A NEW TRANSCEIVER AS SOON AS I WIN THE LOTTERY ... QRM IS MY BETE NOIRE AS THEY SAY IN FRENCH WITH A LITTLE UPSIDE DOWN CARROT OVER THE FIRST LETTER E ... REMEMBER WHEN KILOBYTES COST KILOBUCKS? ... NEXT YEAR I WOULD LIKE TO GO TO THE INDIANAPOLIS 500 RACE ON LABOR DAY ... I

THINK YOUR TROUBLE IS SOMEWHERE BETWEEN THE SOFTWARE AND THE HARDWARE ... I GREW UP NOT KNOWING ANYTHING ABOUT AGRICULTURE, I NEVER SAW A COW UNTIL I MET MY WIFE ... I NEVER WANT TO TAKE A FLASH PICTURE UNTIL THE BATTERIES ARE DEAD ... THE NICE THING ABOUT TRANSISTORS IS YOU CAN'T SEE THE PLATES GLOW RED WHEN YOU PUMP UP THE POWER ... WHAT TIME ZONE ARE YOU IN, THE EARLY ONE OR THE LATE ONE? ... RTTY IS A FUN MODE, TOO BAD THEY DIDN'T INVENT IT BEFORE CW ... I'M TYPING BETTER NOW THAT THE CAST IS OFF MY HAND ... WHEN ALL FAILS LOOK ON THE INSTALLATION DISK FOR A FILE CALLED READ.ME ... I CAN'T REMEMBER WHEN I BACKED UP MY HARD DISK LAST ... I'LL SAY A QUICK 73 AS MY SOUP IS BOILING OVER."

Thanks to WQ0M, W0HAH, KA0SLI and K0ZZ for the input to the eavesdroppings. My address is 1514 South 12th Street, Fargo, North Dakota. My packet address is W0LHS @ W0LHS.ND.USA.NOAM. I appreciate your comments and messages. 73 de Bill Snyder, W0LHS. DIT DIT. □

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ing and report of the board, and tours to the Pro Football Hall of Fame, McKinley Memorial, and the McKinley Museum of Science and Industry. Official activities will culminate with the Saturday night banquet where Roy Neal, K6DUE, will be the principal speaker.

Member registration is only \$10. Delta Air Lines is offering special air fares and the Parke Hotel in Canton is providing special room rates. (Be sure to mention you are attending the QCWA Convention.) September 10 is the cut-off date for the hotel and tour reservations.

See the spring issue of the *QCWA Journal* for a registration form or contact Convention Chairman Dennis Moriarty, K8AGB, at 2455 40th Street, N.E., Canton, OH 44705-2857; phone 216/452-3872. All QCWA members (and prospective members) and spouses are invited. We will look forward to seeing you there.

The QCWA Museum is well on its way to becoming a reality. Thanks to the efforts of Leo Meyerson, W0GFQ, the Western Heritage Museum of Omaha, Nebraska, has offered some very desirable space for QCWA in the communications wing of the museum. Other exhibits in the wing will include a Lee DeForest display and a telephone pioneers display. It is planned that the QCWA will provide an exhibit of "Amateur Radio of the Decades," with exhibits for each 10-year period since the beginning of radio. It will start with the spark gap era and continue through some of those old classics such as the Collins, Eimac, Gonsets, Hallcrafters, Hammurands, National, etc. The '90s display will feature an operating station which we hope to keep manned and active on the air on a regular basis.

Look through your attic and basement to see what treasures you may have. Some of those "boat anchors" headed for the dumpster may be just what we need for the museum. Let Leo Meyerson know if you have anything you would like to contribute—but don't ship anything yet. Contact Leo

first and send him a description (and, if possible, photos) of what you might offer. Watch for more details in the summer *QCWA Journal* and then plan to come to Omaha in the not too distant future to visit the QCWA national museum.

Hamfest recruiting

Thirteen new members joined QCWA at the Rochester Hamfest. President Harry Dannals, W2HD, Director Walt Brink, W3WPY, and Past Director Fred Hammond, VE3HC, manned a QCWA booth at the convention and were delighted with the response they received. Plans have already been made to have a booth at the ARRL Georgia State convention in Atlanta in July; the ARRL National convention in Saginaw, Michigan, in August; the ARRL Southwest Division Convention in Phoenix, AZ, in October; and the Miami (Florida) Ham-boree next February. Be sure to stop by the booth while you are at any of these affairs.

We would like to urge chapters to become involved in promoting QCWA at all local conventions and/or ham-fests. We find most sponsors will provide free both space for QCWA, and headquarters can provide information, supplies and assistance. We will even try to have an officer or director there to help you man the booth. See if you can schedule a QCWA forum on the program, too, where members (and prospective members) can share ideas. Drop a note to QCWA headquarters if you are interested in this kind of effort to promote QCWA.

Input for this column is eagerly solicited. If you have any reports and/or pictures that would be of general readership interest, please send them to us. Timeliness has to be taken into consideration, since deadlines are about two months ahead of publication date. Send copy to The Owl at 2012 Rockingham Street, McLean, VA 22101. We will appreciate it very much. Help us make this a column *everybody* will want to read.

The National QCWA Convention is only a few weeks away. Have you made your reservations yet? This promises to be one of our finest conventions and you won't want to miss it. The date is September 27 to 28 and the place is Canton, Ohio.

A full schedule of business and social activities is planned. In keeping with President Dannals' "theme" of encouraging membership participation in the affairs of the organization, an open forum will be held Friday afternoon so that input from this session may be considered by the board of directors in its planning meetings. The report of the board will be made on Saturday and there will again be an open forum for final questions and comments. Here is your opportunity to have your voice heard.

Friday evening will feature the traditional sing-along with Leo Meyerson, W0GFQ, and the Hamstrings from Akron, Ohio. There will be a buffet breakfast on Saturday, general meet-

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ALABAMA

Montgomery Amateur Radio Club (W4AP). P.O. Box 3141, Montgomery, AL 36109. Meets 3rd Mon./monthly, 7 p.m., State Trooper Dist. Office, Coliseum Blvd. & Federal Dr. Nets Sun. 8:30 p.m. 146.84 and Thurs. 8:15 p.m. 147.18+. Info: Fred, K8AJX, (205) 270-0909.

ALASKA

Arctic Amateur Radio Club. Geophysical Institute West Ridge U of A, P.O. Box 81389, College, AK 99708. 1st Fri./monthly, 7:30 p.m.

ARIZONA

Cochise Amateur Radio Assn. Meets 1st Mon./monthly, 7:30 p.m. at club facility on Moson Rd. Sierra Vista, AZ. Net: WOLKI info Net every Thurs., 7 p.m., WA7KYT/R 146.16/146.76 rpt.

Scottsdale Amateur Radio Club. Meets 1st Wed./monthly, 7:30 p.m., 7375 E. 2nd St. in Scottsdale, AZ. Net is Mon., 9 p.m., 147.18 rpt.

Tucson Repeater Assoc., P.O. Box 40371, Tucson, AZ 85717-0371. 2nd Sat./monthly, 7:15 p.m., Pima Co. Sheriff Bldg., 1750 E. Benson Hwy. Net Thurs. 7:30 p.m. 146.22/82 (146.88-), 147.08-, 448.550- & 145.15 Packet).

Western Arizona Radio Club. Meets 2nd & 4th Thurs./monthly, 7:30 p.m., First Baptist Church, 1700 Palma Rd., Bullhead City, AZ. Net Tues. 7 p.m. on 147.12 + 600. Info call Dave Adams, W6DRM, (602) 758-5171.

CALIFORNIA

Amador County Amateur Radio Club. P.O. Box 1094, Pine Grove, CA 95665. Senior Citizens Center, Jackson, CA. Meets: first Thur./monthly, 7:30 p.m. WA6WYI Rptr., 146.835, 146.235. Net Tues. 7:30 p.m.

Associated Radio Amateurs of Long Beach, W6RO. P.O. Box 7493, Long Beach, CA 90807. Meets: 1st Fri./monthly, 7:00 p.m. Signal Hill Recreation Hall, 1708 E. Hill St., Signal Hill, CA.

Butte Amateur Radio Club. Meets 1st Fri./monthly, 8 p.m. at Chico Community Hospital Conf. Cntr., 670 Rio Lindo, Chico, CA 95926.

Conejo Valley Amateur Radio Club (CVARC). P.O. Box 2093, Thousand Oaks, CA 91358-0917. Meets 1st Thur./monthly at King of Glory Lutheran Church, 2500 Borchard Rd. Newbury Park, CA, 7:30 p.m. Info on 147.885/285 and 445.925/0.925 (PL 123) or call N6LQ Ernest (805) 499-5398.

Contra Costa Communications Club, Inc. WD6EZC/Rptr. P.O. Box 661, San Pablo, CA 94806. Meets 2nd Sun./monthly at 9 a.m. Hickory Post Restaurant/Lucky Lanes. Nets: 07:10-08:30 M-F; 7:30 Thur. eve. all 145.110. 224.300 & 444.275 w/possible PL 82.5. Info call Ed, KA6OFR, (707) 996-0962.

Downey Amateur Radio Club. Meets 1st Thurs./monthly, 1930 in the Cafeterium of South Middle School, 12500 S. Birchdale Ave., Downey, CA.

East Bay Amateur Radio Club, Inc. Meets 2nd Fri./monthly, 8 p.m.-10 p.m., Northbrae Community Church, 941 The Alameda, Berkeley, CA. Info: Gordon Firestein, (415) 527-9382.

The Electronic Museum ARC. Meets 1st Fri./monthly, 7:30 p.m., Electronic Museum at Foothill College, Los Altos, CA 94022. Call-in 145.27/144.670.

Fullerton Radio Club, Inc. W6ULI. P.O. Box 545, Fullerton, CA 92632. Meets: 3rd Wed./monthly, 7:30 p.m., Sr. Citizens Center, 340 W. Commonwealth, Fullerton. Net ea. Tue., 8 p.m. 147.975 (-600). Info, Phil Gray, KJ6UV (714) 524-5223.

Gabilan Amateur Radio Club GARC. P.O. Box 2178, Gilroy, CA 95020-2178. Meets: South Valley Jr. High School, 385 I.O.O.F. Ave., Gilroy. 2nd Thur./monthly. 7:30 p.m. Talk-in 145.47/144.87.

Hilltop Amateur Mastertie System (HAMS). Informal mtgs. weekly/Mon. 5 p.m. at Shakey's Pizza, 12924 Washington Blvd., Mar Vista, CA, except 3rd Mon. Call for location. Info, N6FD 213/823-0767.

Kern River Valley Amateur Radio Club. P.O. Box 2611, Lake Isabella, CA 93240. Meets 4th Sat./monthly at 4 p.m. (Pot Luck). Veteran's Hall, Lake Isabella WB6ODZ Rptr. 224.50 down 1.6 low-level, 144.50 simplex.

Livermore Amateur Radio Club (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, 859 Chippewa Wy., Livermore, CA 94550.

Marin Amateur Radio Club (MARC) W6SG. Box 1231, San Rafael, CA 94901 Meets 1st Fri./8 p.m.; MARC Clubhouse Bldg. 549, HAFB, Novato, CA (415) 883-9789 (Summer exceptions; contact Pete N6IYU, 924-1578). Sun. AM Club at Red Cross, San Rafael.

Monterey Park Amateur Radio Club (MPARC), K6GIP. P.O. Box 403, Monterey Park, CA 91754-0403. Meets 2nd Thurs./monthly, 7:30 p.m., Community Rm.—City Hall, 320 W. Newmark, Monterey Park. Nets: Tues. 7 p.m. 147.48 Simplex — 7:30 p.m. 28.385 MHz. Info: John Duce, N6EDX (818) 280-7052.

Moreno Valley Amateur Radio Assoc. P.O. Box 7642 Moreno Valley, CA 92303. Meets 4th Mon./monthly, 7 p.m., City Council Chambers—City Hall, corner of Cottonwood & Frederick Sts. Net Tues. 8 p.m. 146.655- (PL 1A). Info, Larry Marcum, KA6GND, (714) 656-1643.

North Hills Radio Club. Meets 3rd Tue./monthly, 7:30 p.m., Elks Lodge, on Cypress at Hackberry in Carmichael, CA. Net K6IS Thurs., 8:00 p.m. 145.190. 220 Net, Tue. 8 p.m. 224-7800.

North Shores ARC. Meets 1st Tues./monthly, 7:30 p.m., So. Clairemont Rec. Cntr., 3605 Clairemont Dr., San Diego, CA. Info: (619) 224-1294.

Orange County Amateur Radio Club. Meets 3rd Fri./monthly, 7:30 p.m., Mercury Savings & Loan, 1895 Irvine Blvd. (4th becomes Irvine), Tustin, CA 92680. Net each Wed., 9 p.m., 146.55 Simplex.

River City A.R.C.S. Meets: 1st Tue./monthly, 7 p.m. SMUD Bldg., Room B & C, Elkhorn & Don Julio, Sacramento, CA. For info: (916) 483-3293.

Sacramento Amateur Radio Club. Contact: Gary Bryant, KB6KZZ, (916) 646-1171. Meets Sacramento Blood Bank, 32nd St. & Stockton Blvd., Sacramento, CA, 2nd Wednesday/monthly, 7 p.m. Info net every noon on Rptr. W6AK/R 146.910.

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.

San Fernando Valley ARC. Meets 3rd Fri./monthly, 7:30 p.m., Red Cross, 14717 Sherman Wy., Van Nuys, CA. Net every Thur., 8:00 p.m. KB6C/R 147.735(-).

San Gabriel Valley ARC. P.O. Box 88, Monrovia, CA 91017-0088. Meets 1st Tues./monthly, 7:30 p.m. (except Dec.) at Bowling Green Clubhouse, 405 S. Santa Anita Ave., Arcadia, CA 91006. W6QFK, Rptr. 147.165/765.

Santa Clara County Amateur Radio Assoc. (SCCARA) W6UW & W6UU. P.O. Box 6, San Jose, CA 95103-0006. (408) 249-6909. Meets: 2nd Monday/monthly, 7:30 p.m. at Agnews Developmental Center Aud., corner of Circle Dr. & Palm Dr., Santa Clara. Net all other Mon., 7:30 p.m. W6UUR 146.385 + / 442.425 + PL 107.2

Santa Clara Valley Rptr. Society (SCVRS). P.O. Box 2085, Sunnyvale, CA 94087. (408) 247-2877. 146.76 (- 600 kHz), 224.26 (- 1.6 MHz), 444.60 (+ 5 MHz), 2 meter/220 net Mon. 9 p.m. Mtgs. 3rd Fri.

Santa Monica—Westside Amateur Radio Club. Meets 3rd Thurs./monthly, 7:30 p.m., Santa Monica Red Cross, 1450 11th St., Santa Monica, CA. Info Net every Tues., 8 p.m., 146.670, -600.

Shasta Cascade Amateur Radio Society (SCARS) P.O. Box 664, Anderson, CA 96007. 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.

Sierra Amateur Radio Club. Meets 3 Mon./monthly, 7 p.m., Hamilton Branch Fire Dept., Big Springs Rd., Lake Almanor, CA 96137.

Simi Settlers Amateur Radio Club. P.O. Box 3035, Simi Valley, CA 93063. Meets: 2nd Thur./monthly, 7:30 p.m., at Seventh-Day Adventist Church, 1636 Sinaloa, Simi Valley. Rptr. 147.93/33.

Southern California Amateur Transmitting Society, SCATS, WB6LRU. P.O. Box 1770, Covina, CA 91722. Meets 1st Mon./monthly, Community Presbyterian Church, 540 E. Vine St., West Covina, CA. Net, Sun., 7 p.m. 147.765 -, W6QFK/R. Classes. Contact: Pat McNulty, N6GXZ (714) 622-8315.

Southern California Six Meter Club. P.O. Box 10441, Fullerton, CA 92635. USB Net Tue., 8 p.m., 50.150. FM Rpt. Net Thur., 8 p.m., 51.80/51.30 tx. FM Smpx call freq. 50.300.

Southern Humboldt Amateur Radio Club. P.O. Box 701, Redway, CA 95560-0701. Meets 4th Wed./monthly, 7 p.m., SHARC Clubhouse, Garberville, CA. Rptr. 146.19/79. Info: (707) 923-2373.

Stanislaus Amateur Radio Assoc. (SARA). P.O. Box 4601, Modesto, CA 95352. Stanislaus Co. Administration Bldg., 12th & H Streets, 3rd Tues./monthly, 7:30 p.m. 145.39 MHz. W6EJF, 223.68 MHz.

Tehama County ARC. Meets 1st Fri./monthly, 7 p.m., Sept.-June, CA Div. Forestry Training Rm., Antelope Blvd., Red Bluff, CA. For info: 145.850/145.50 W6SY/YR.

The Trinity County ARC. P.O. Box 2283, Weaverville, CA 96093. Meets 2nd Wed./monthly, at the CD Hall in Weaverville, 7:30 p.m. WA6BXN Rptr. 146.13/73.

Tri-County Amateur Radio Assoc. P.O. Box 142, Pomona, CA 91769. Meets: 2nd Mon./monthly, 7:30 p.m., 703 N. College Way, "The Faculty House," (lower level), Claremont, CA.

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., 7:30 p.m. Monitors 145.52 Simplex 10 a.m.-5 p.m.

Vaca Valley Radio Club. Meets 2nd Wed./monthly, 7 p.m., Vaca Fire Dist. Stn. on Vine St. in Vacaville, CA. Repeater: WX6F 147.475 (-1 Meg) PL 107.2. Ph: (707) 447-0163.

Victor Valley Amateur Radio Club. P.O. Box 869, Victorville, CA 92393. Meets 2nd Tues./monthly, 7:30 p.m., Yucca Loma Elementary School, Yucca Loma Rd., Apple Valley, CA. Talk-in 146-940/340, info net Sun. 7 p.m. 146.940/340.

West Coast Amateur Radio Club. Serving the Greater LA/Org. Co. area and beyond or 145.44-4zpl. Meets 3rd Thurs./monthly, net: ea. Mon. at 01715 pmt/dst & on 144.33S.

West Valley Amateur Radio Assoc. 18011 Saratoga — Los Gatos Road, Los Gatos, CA 95030. Meets: 3rd Wed./monthly, 7:30 p.m. W6PIY/R. Net Tue., 8:30 p.m., 147.39 + . 223.96 -

Yucaipa Valley Amateur Radio Club. Meets 3rd Mon./monthly, 7:30 p.m. at Far West Savings, 1195 Calimesa Blvd., Calimesa, CA.

CONNECTICUT

Middlesex Amateur Radio Society (MARS). 5 North Rd., Cromwell, CT 06416. Meets Tues./weekly 7 p.m., Portland Methodist Church, Main St., Portland, CT. Novice classes, VE sessions monthly. Contact Jack, WA1K, (203) 347-8754. Rptr. 147.090 +

Tri-City Amateur Radio Club. P.O. Box 686, Groton, CT 06340. Meets 2nd Tue./monthly 7:30 p.m. Alternating, Groton Public Library at Rt. 117 & St. Lukes Lutheran Church at Rt. 12. Novice classes. Info, contact Bob, KA1BB, (203) 739-8016.

DELAWARE/PENNSYLVANIA

Penn-Del Amateur Radio Club. P.O. Box 1964, Boothwyn, PA 19061. Sponsor of KA3TWG/Rptr. on 224.220 serving all of S.E. Penn. and Northern Del. Info/net every Thurs. at 20:00 hrs. or call Hal Frantz (302) 798-7270.

FLORIDA

Gulf Coast ARC, Inc. P.O. Box 595, New Port Richey, FL 34656. Meets 4th Mon./monthly, 7:30 p.m., Colonial Hills Civic Ctr., 87 Peacock Dr., New Port Richey. WA4GDN Rptr. 146.67/07.

Indian River ARC, Inc. (IRARC). 597 Capri Rd., Cocoa Beach, FL 32931. Martin Andersen Senior Center, 1025 S. Florida Ave., Rockledge, FL. Meets: 1st Thur./monthly, 7:30 p.m.

Platinum Coast Amateur Radio Society. P.O. Box 1004, Melbourne, FL 32902. Meets 2nd Mon./monthly, 7:30 p.m., Brevard Co. Red Cross Hdqtrs. Bldg., 1150 Hickory St., Melbourne, FL. Talk-in on 146.25/85 or 146.01/61.

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

West Palm Beach Amateur Radio Club, Inc. W4HAW. P.O. Box 6834, Southboro Station, W. Palm Beach, FL 33405. Meets 2nd Tue./monthly, 7:30 p.m., Palm Beach Co. Emergency Op. Cntr., 3723 Belvedere Rd., W. Palm Beach, FL. Rptr.: 147.135 MHz. Info: Jeff, WB2OUK, 586-5120; Charlie, K2GNZ, 582-1164 or Henry, WA4HXZ, 655-4632.

GEORGIA

Dalton Amateur Radio Club (DARC). P.O. Box 143, Dalton, GA 30722-0143. Meets 4 Mon./monthly, 7:30 p.m., Dalton College Voc. Tech. Bldg., Dalton, GA. Info net: Sun. 9:30 p.m., 145.230 MHz; Wed. 9 p.m., 147.135 MHz.

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets: 2nd Tue./monthly, 7:00 p.m., Helco Auditorium, 1200 Kilauea, Hilo. Talk-in on 146.76(-).

ILLINOIS

Amateur Cross Link Repeater Club. 29.680, 52.825, 147.225, 224.480, 921.225, 1292.10 and ATV on 916.25. Meets 1st Sat./monthly, 7:30 p.m. For info call (312) 594-1628. KD9FA Repeater/Chicago.

Bolingbrook Amateur Radio Club. Meets 3rd Mon./monthly, 7:30 p.m., Bolingbrook Pk. Dist. Rec. Ctr., Briarcliff Rd., Bolingbrook, IL. Info net Thursdays, 8 p.m., WD9AKO/R 147.33 MHz + 600 and WA9DIP/R 224.54 MHz - 1.6. Info hotline (708) 759-7005. ARRL affiliated club.

Central Illinois Radio Club, W9AML. Meets 4th Wed./monthly, 7:30 p.m. (from Sept. to May). McLean Co. Law & Justice Center, ESDA Rm., Bloomington, IL. Club Rptr. 146.94 - 600KHz.

DuPage Amateur Radio Club, (DARC). Meets 4th Mon./monthly, 7:30 p.m., Holy Trinity Catholic Church, 111 S. Cass Ave., Westmont, IL. Club rptrs. are 145.25-, CTCSS 107.2; 224.68- and 442.55 + CTCSS 114.8.

Elgin Amateur Radio Society. P.O. Box 1351, Elgin, IL 60120. Meets in EOC Rm. of Elgin Municipal Bldg. 2nd Fri./monthly, 8:00 p.m.

Fox River Radio League. Valley National Bank, Lower Level, Northgate Shopping Ctr. & RT. 31, Aurora, IL (312) 584-4925 for more info. Meets: 2nd Tue./monthly, 7:30 p.m.

Hamlesters Radio Club, W9AA. P.O. Box 42792, Chicago, IL 60642. Meets 1st Fri./monthly, 8 p.m., Crestwood Civic Center, 139th & Kostner Ave., Crestwood, IL. Nets: Sun. 8 p.m., 28410 MHz and Mon. 9 p.m., 146.43 MHz.

Northwest ARC/W9ML. Meets: 2nd and 4th Tue./monthly, 7:00 p.m., Oehler Funeral Home downstairs community room, Lee & Perry Street, Des Plaines, IL. Net 28.375, 8:30 p.m., non-meeting Tuesdays.

Schaumburg ARC (SARC). Meets: Schaumburg Park District Community Rec. Cntr. at Bode and Springinguth Roads, Schaumburg, Illinois. Third Thur./monthly, 7:30 p.m. Net 28.350, 8:00 p.m. Thur.

Six Meter Club of Chicago K9ONA. Bank of Lyons, Lower Level, 8601 West Ogden Ave., Lyons, IL. 2nd Fri./monthly, 7:30 p.m. Club Rptrs: 146.37/97, 448.30/443.30.

Wheaton Community Radio Amateurs, (WCRA), P.O. Box QSL, Wheaton, IL 60189. Meets 7:30 p.m., 1st Fri./monthly, College of DuPage, Glen Ellyn, IL. Nets Sun. & Tue. 8:00 p.m., 145.39 MHz.

York Radio Club. Meets: 3rd Fri./monthly, 8 p.m., Elmhurst College (Science Bldg.) Elmhurst, IL. Net Mon., 8 p.m. W9PCS/147.42 simplex.

KANSAS

Pilot Knob Amateur Radio Club. Meets 1st Thurs./monthly, 7 p.m., 525 Shawnee St., Leavenworth, KS. ARES net every Thurs., 7:30 p.m. 147.60/147.00. For info call (913) 682-6904.

LOUISIANA

Southwest LA Amateur Rptr. Club, Inc. (SWLARC). Meets 4th Tues./monthly, 7 p.m. in the EOC Rm. Net ea. MWF, 7:30 p.m. Rptr. 146.730 minus 600.

MARYLAND

Peninsula Radio Operators Society, Inc. (P.R.O.S.) Salisbury, MD. Quarterly dinner mtgs. & VE Test sessions. Spring & fall classes. Rptr. K3SVA 146.325/146.925; KC3UV 449.05/444.05. Info: (301) 749-7444.

MASSACHUSETTS

Mohawk Amateur Radio Club. P.O. Box 532, Athol, MA 01331. Meets: 4th Wed./monthly, 7:30 p.m., at the Athol American Legion Hall, Exchange Street, Athol, MA.

MICHIGAN

Hazel Park Amateur Radio Club. Hoover Elementary School-Hazel Park, P.O. Box 368, Hazel Park, MI 48030. 2nd Wed./monthly, 7:30 p.m. Sept. thru May. 147.51 Simplex Call-in. W8JXU Club Call.

Oak Park Amateur Radio Club. Oak Park Community Center, 14300 Oak Park Blvd. (same as 9 1/2 Mile Rd., west of Coolidge). Oak Park, MI 48237. 2nd Mon./monthly, 7:45 p.m. Talk-in on our 224.36 MHz or 146.64 MHz.

MINNESOTA

Minneapolis Radio Club. P.O. Box 25167, Minneapolis, MN 55458. Meets 3rd Fri. (exc. June, July, Aug.), Mpls. Red Cross, 11 Dell Place, Mpls. 7:30 p.m. Making waves since 1916.

MISSOURI

Joplin Amateur Radio Club. Meets 2nd and 4th Tue./monthly, 7:30 p.m. at Joplin Municipal Bldg., (basement), 303 E. 3rd, Joplin, MO.

PHD Amateur Radio Assn. Inc. P.O. Box 11, Liberty, MO 64068. Meets last Tue./monthly, 7 p.m. Red Cross Bldg. (816) 781-7313, Volunteer Examiner Coordinator.

NEVADA

Frontier Amateur Radio Society, (FARS). Meets: 3rd Mon./monthly, 7 p.m. Denny's Restaurant across from Nevada Palace, 5318 Boulder Hwy, Las Vegas, NV. Net Mon. 7:30 p.m., 145.39 Rptr. on Black Mountain. Club info, Jim Frye, NW70, 456-5396.

Sierra Intermountain Emergency Radio Assoc. (SIERA). P.O. Box 2348, Minden, NV 89423. (702) 882-0451. Meets: 2nd Tue./monthly, 7:30 p.m., Douglas County Lib., Minden, NV. Talk-in: 147.330.

NEW HAMPSHIRE

Great Bay Radio Assn., W8ICAG. P.O. Box 911, Dover NH 03820. (603) 742-0130/742-1374. 2nd Sun./monthly, 7:00 p.m. Dover City Hall. Talk-in 147.57.

NEW JERSEY

Bayonne Emergency Mgt. ARC (BEMARC). 16th St. & Ave. A Firehouse, Bayonne, NJ 07002. Meets 2nd Tue./monthly, 7:30 p.m. Tri-Band linked repeaters: 145-430/224-280/445.575 MHz.

Delaware Valley Radio Assoc. (DVRA). Our Lady of Good Counsel Church, 137 W. Upper Ferry Rd., West Trenton, NJ 08628. Meets: 2nd Tues, Wed./monthly, 8 p.m.

Garden State Amateur Radio Assoc., W2GSA. Meets 1st & 3rd Wed./monthly, 8 p.m. at Bicentennial Hall, Fair Haven, NJ. All are welcome.

South Jersey Radio Assoc. (SJRA). Pennsauken Sr. Hi Sch. at Hylton Rd. & Remington Ave., Pennsauken, NJ 08109. Jan.-Oct. 4th Wed./monthly, 7:30 p.m. Nov.-Dec. 3rd Wed. due to Thanksgiving and Christmas. Talk-in 145.290 rptr. Club call K2AA.

NEW YORK

Communications Club of New Rochelle, NY. Harrison Street Firehouse. Richard Sandell, WK6R, (914) 834-2322. Meets: 1st Mon./monthly, 8 p.m.

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

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 at 7:30 p.m. For info call Arnie, WB2YXB, (718) 343-0172.

Lockport Amateur Radio Assoc. (LARA) Meets last Sat./monthly, 7:30 p.m., Mt. Olive Church, Chestnut Ridge Rd., Lockport, NY. Info net Sun. 9 p.m. on W2RUI/R (146.82-). Contact Jim, KB2CUX, (716) 433-8564.

Orleans County Amateur Radio Club (WA2DQL). Meets: Office of Disaster Preparedness (CD), West County House Rd., Albion, NY 14411, 4th Wed./monthly, 7:30 p.m., 145.270 - WA2DQL.

PROS, Pioneer Radio Operators Society. Meets: 1st Wed./monthly (except July/Aug.) 7 p.m., Masonic Temple, Rt. 78, Java Village, NY. Other Wed., 8 p.m. 145.170/144.57- Repeater KC2JY.

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!

Suffolk County Radio Club. 3rd Tue./monthly, 8 p.m. Bohemia Rec. Ctr., Ruzicka Wy. W2DQ/R 144.610/145.210, 223.080/224.680 rptr. Info call Jim Heacock (516) 473-7529.

Westchester Amateur Radio Assoc. (WARA). Scarsdale Village Hall, Scarsdale, New York. Meets: 1st Wed./monthly, 8:00 p.m. For info call Dan Gabel, N2FLR, Pres. (914) 723-8625.

Westchester Emergency Communications Assn. (WECA) 147.66/147.06, 222.80/224.40, 447.475/442.475. Meets: 2nd Mon./monthly, 7:30 p.m., Westchester County Ctr., White Plains, NY. Info: P.O. Box 831, N. Tarrytown, NY 10591. (914) 631-7424.

NORTH CAROLINA

North Carolina Chapter TSRA. Meets: Mondays, 28.350 on the air, 8:30 p.m. local time, Sat. 10 a.m. on 7240 and Wed. 9 p.m. on 7259. "The Alligators" - all mouth, no ears.

Stanly County Amateur Radio Club. P.O. Box 188, Stanfield, N.C. 28163. Meets 4th Thur./monthly, 7 p.m. at Stanly Community College, Albemarle, N.C.

OHIO

Ashtabula County ARC. Ken Stenback, A18S (964-7316). County Justice Center, Jefferson, OH. 3rd Tue./monthly, 7:30 p.m. County Rptr., 146.715.

Clyde Amateur Radio Society (C.A.R.S.) Meets 2nd Tue./monthly, 7:30 p.m., Municipal Bldg., Clyde, OH 44811. NF8E Rptr. 144.75/145.35. 444.60 (+5 MHz). Net Sun. 9 p.m.

Dayton Amateur Radio Assoc. P.O. Box 44, Dayton, OH 45401. Meets 1st & 3rd Fri./monthly (Sept. thru June) 8 p.m., Career Academy on River Corridor Dr. Info on W8BI 146.34/94 & 222.34/223.94.

Lancaster & Fairfield County A.R.C. Meets 1st Thur./monthly, 7:30 p.m., City Hall, Basement Club Rm., Broad & Main. Info Net every Mon. 8 p.m. K8QIK/R 147.63/03 Rptr.

North Coast A.R.C. P.O. Box 30529, Cleveland, OH 44130. Meets 2nd Thurs./monthly, 7:30 p.m. at North Olmsted Middle Sch. cafeteria, 27351 Butternut Ridge Rd., North Olmsted, OH.

Northern Ohio Amateur Radio Society (NOARS). Meets 3rd Mon./monthly, 7:30 p.m., Gargus Hall, Rt. 254, Lorain, OH. Info: Rptr. K8KRG 146.70, DX Alert Rptr. 145.15. "Ohio's Largest General Interest Club"

Toledo Mobile Radio Association. P.O. Box 273, Toledo, OH 43697. Meets 2nd Wed./monthly, 7:30 p.m., Luke's Barn, Lucas County Rec. Ctr., 2901 Key St., Maumee, OH. W8HHF 147.87/27 Rptr. Rptr. info/swap & shop, Sundays, wkly - 8:30 p.m.

Triple States Radio Amateur Club. Meets Wed./weekly on 28.480 at 8:30 p.m.; 7260 at 9 p.m. Rptrs. 146.31/91 and 146.115/715. P.O. Box 240, Rd. #1, Adena, OH 43901. (614) 546-3930.

Warren Amateur Radio Assn. Meets 1st & 3rd Tue./monthly, 7:30 p.m. at Kent State Univ. Trumbull campus, Rt. 45 in Champion, OH. Club rptr. WBVT D 146.97MHz.

OREGON

Central Oregon Radio Amateurs, (CORA). P.O. Box 723, Bend, OR 97709. Meets last Thur./monthly, 7 p.m., Bend Senior Cntr., 1036 NE 5th, Bend, OR. Net Sun. 7:30 p.m. 147.06 + MHz. Info call: (503) 382-1685.

Keno Amateur Radio Club. P.O. Box 678, Keno, OR 97627. Meets 3rd Thur./monthly, 7 p.m., Keno Fire Station. Rptr. 147.32 + W7UFM. Info: Tom Hamilton, WD6EAW, (503) 883-2736.

Umpqua Valley Amateur Radio Club. Meets 3rd Thurs./monthly 7:30 p.m., Douglas County Courthouse, Rm. 311, Douglas St., Roseburg, OR. Info W5PII/R 146.90/30.

PENNSYLVANIA

Mercer County Amateur Radio Club W3LIF. P.O. Box 996, Sharon, PA 16146. Meets 4th Tue./monthly at 7:30 p.m., Shenango Valley Med. Center, Farrell, PA. Net, Thur. 9 p.m. on 147.75/15 W3LIF, Digi. 145.010.

RF Hill Amateur Radio Club. Meets last Thurs./monthly, 7:30 p.m. at First Federal Savings & Loan of Perkasie, 600 Market St., Perkasie, PA. Nets: Wed. & Sun., 8 p.m. on 144.71 - 147.310.

Warminster Amateur Radio Club, WA3DFU. P.O. Box 113, Warminster, PA 18974. (215) 443-5428. Meets 1st Thurs./monthly, 7:30 p.m., Neshaminy-Warwick Presbyterian Church, Warminster, PA. Net on 147.690/147.090 Wed. 8:30 p.m.

TEXAS

Arlington Amateur Radio Club, (AARC). Meets 3rd Fri./monthly, 7:30 p.m., Arlington Human Resources Bldg., 401 Sanford, Arlington, TX. Talk-in-444.2, 224.8 and 147.14.

Beaumont Amateur Radio Club. Meets last Tues. of each month at the GSU Aud. South and Oxford Streets, Beaumont, TX, 7:30 p.m. Talk-in on 146.16/76 or 146.10/70. Join the fun!

Brazos Valley Amateur Radio Club (B-VARC). P.O. Box 1630, Missouri City, TX 77459. Meets 2nd Thur./monthly, 7:30 p.m., Sugar Land Community Cntr., 226 Matlage Wy., 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.

Sun City Amateur Radio Club. Meets 1st and 3rd Fri./monthly, 7:30 p.m., 3709 Wickham Ave., El Paso, TX. K5WPH 147.240, 443.4 with remote operation on 6M and 10M.

VIRGINIA

Southern Peninsula Amateur Radio Klub (SPARK). Meets: 1st and 3rd Tue., Salvation Army Community Bldg., Hampton, VA. Rptrs: 146.13/73 & 449.55(-5) T. VE Exam Info: (804) 898-8031, WARTZ.

Virginia Beach Amateur Radio Club (VBARC). Open Door Chapel, 3177 Virginia Beach Blvd., Va. Beach, VA. Meets First Thur./monthly, 7:30 p.m. For info (804) 497-1235.

WASHINGTON

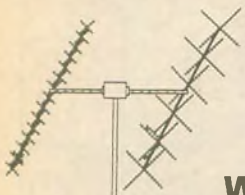
The Mike & Key Amateur Radio Club. Meets 3rd Sat./monthly, 10 a.m. United Good Neighbors Cntr., 305 S. 43rd, Renton, WA. Talk-in on 146.82 rptr.

WEST VIRGINIA

Jackson County Amateur Radio Club. Robert D. Morris, WA8CTO, Sec.-Treas. 308 Edgewood Circle, Ripley, WV 25271. Meets 1st Thur./monthly, 7:30 p.m., United National Bank of Ripley. Net Mon. 9 p.m. on 146.67/07 WDBJNUJ/R.

Tri-state Amateur Radio Assn. Meets: 3rd Tue./monthly, 7 p.m., Green Valley Vol. Fire Dept., Norwood Rd. & 16th Street Rd., Huntington, WV. ARES net Thur. 9 p.m. on 146.76(-) W8VA/R. Info KB8EHJ (304) 824-5958.

Amateur Satellites



WB5ZDP
Keith Berglund

Sorry this column has missed a couple of months since the beginning of the year. As with the majority of us *Worldradio* columnists, I have a day job, too. It gets to be real inconvenient when the employer starts cutting into your Amateur radio time. This month I'm going to take a page right out of the Aerials column written by Kurt N. Sturba. If you can't write a long column, at least write a good short one.

By the way, speaking of Kurt and Aerials—as an engineer who gets paid for designing antennas, I can tell you that Kurt knows what he's talking about. A lot of antenna theory is shaded in mystery and half-truths. In some cases, a little knowledge is dangerous. And, it seems, many Amateur (and professional) antenna companies' sales departments are doing nothing to help the problem. It's refreshing to see Kurt take these guys on and expose them for what they are.

In many of my past Amateur Satellites columns, I've been trying to convince you that you don't have to have a moon-bounce type station to operate on the satellites. In fact, on many of the satellites, simple omnidirectional antennas will do. One of the best satellites to "cut your teeth" on is RS-10/11. RS-10/11 is primarily a Mode A bird which means that you uplink to the satellite on 2M SSB or CW and then downlink from the satellite on 10M SSB or CW. Omni antennas will do just fine.

"Two meter SSB?" you say; "I don't own a 2M SSB rig, and neither does anyone else around me. There, I told you, I can't operate on the satellites."

You are *wrong*, transponder-breath! I'm going to give you yet another chance. There is another amateur satellite out there that is yet easier to use. RS-12/13 is in orbit and doing well (sort of). RS-12/13 was launched in February of this year. It seems that the primary 150 MHz payload is interfering with the 2M receivers aboard

RS-12\13 TRANSPONDER DETAILS

	RS-12	RS-13	
Mode-A:	uplink	145.910 to 145.950	145.960 to 146.000
	downlink	29.410 to 29.450	29.460 to 29.500
	beacon	29.408 (or 29.454)	29.458 (or 29.504)
Mode-K:	uplink	21.210 to 21.250	21.260 to 21.300
	downlink	29.410 to 29.450	29.460 to 29.500
	beacon	29.408 (or 29.454)	29.458 (or 29.504)
Mode-T:	uplink	21.210 to 21.250	21.260 to 21.300
	downlink	145.910 to 145.950	145.960 to 146.000
	beacon	145.913 (or 145.959)	145.862 (or 145.908)
Mode-KA:	uplinks	21.210 to 21.250 and 145.910 to 145.950	21.260 to 21.300 and 145.960 to 146.000
	downlink	29.410 to 29.450	29.460 to 29.500
	beacon	29.408 (or 29.454)	29.458 (or 29.504)
Mode-KT:	uplinks	21.210 to 21.250 and	21.260 to 21.300
	downlinks	29.410 to 29.450	29.460 to 29.500
	beacons	145.910 to 145.950 29.408 (or 29.454) 145.913 (or 145.959)	145.960 to 146.000 29.458 (or 29.504) 145.862 (or 145.908)

the satellite so they have the Mode A transponder turned off. What they do have turned on is the Mode K transponder. On Mode K you transmit to the satellite on 15M and receive the downlink from the satellite on 10M. That's right boys and girls—HF!

I guess the reason for an all HF mode is that the Russians generally have only old WWII surplus tank radios to play with. It's very hard to generate 2M or 435 MHz from radios that have problems even at 28 MHz.

I remember when they had RS-11 in Mode K when there was worldwide propagation. It was a real zoo! There were folks calling CQ on 15M who didn't even know that their signals were being picked up and rebroadcast via satellite. On the other hand, when propagation was not so good (for HF), several people made their first satellite contact on Mode K. Believe it or not, bad HF propagation means good satellite operation.

All that is required in the way of equipment is a transmitter on 15M and a separate receiver on 10M. On the antenna side, anything that you already have will probably do. I use the tribander to transmit (because it's resonant on 15M) and the 40/80 dipole to receive on (because it's there and not being used). The typical power level that I run is about 20 to 50W.

The question that some have asked me is whether their new age synthe-

sized transceivers will do for Mode K; after all, it will transmit on one band and then receive on another. The answer is NO. Remember, on satellite work, you're working full duplex. That is, you are transmitting and receiving simultaneously. Due to the doppler shift caused by the moving satellite, you must be able to correct your transmitter frequency on the fly.

The only thing left is to know which frequencies to use and when the satellite will be in view. The frequencies for the Mode K transponders (and all of the other transponders on RS-12/13) can be found in Table 1. As far as tracking goes, as I've discussed before, AMSAT sells a variety of inexpensive satellite tracking programs for all sorts of computers, or there is still a good graphical tracking method (see the March 1991 *Worldradio*).

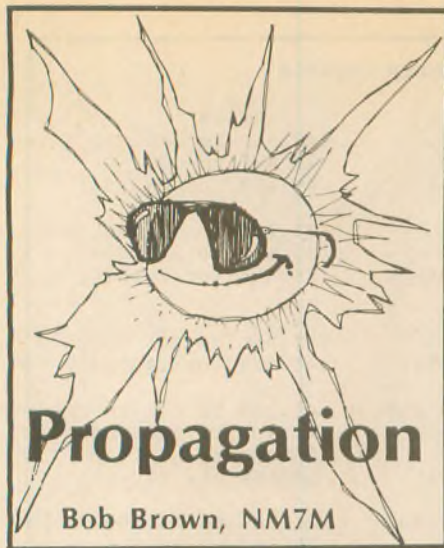
As I've made the offer before, if you don't have access to a computer, I would be happy to mail you a printout of when this bird will be over your QTH (SASE please). The only promise that you have to make is that when you receive the printout you'll try to make at least one QSO through the bird. After you do, I think you'll be hooked. □

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—Rolla ARS, Rolla, MD

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It's funny how one thing leads to another, even taking one full-circle. Thus, if you look at my recent columns, you'll see I've dealt with critical frequency maps for the F-layer from the USSR, propagation items on short and long paths, even round-the-world (RTW) echoes. So here I am, about to go full-circle with a few remarks on RTW echoes which lead to those world maps for foF2 and then tie into chordal hops on long-path.

Earlier, in talking about long path, I made mention of chordal hops, ionosphere-to-ionosphere reflections which do not involve surface reflections on part of a great circle path. That's nothing new but just where do those chordal hops come from? What's required in physical terms? Good question!

One of the most common phrases that deals with this question is "ionospheric tilts"—ionospheric regions which are not always spherically concentric with the earth, creating spatial structure of a different nature with horizontal and vertical variations, called gradients, in the electron density. Thus, as a "mirror," the ionosphere could be tilted in one way or another, perhaps perpendicular to or even along

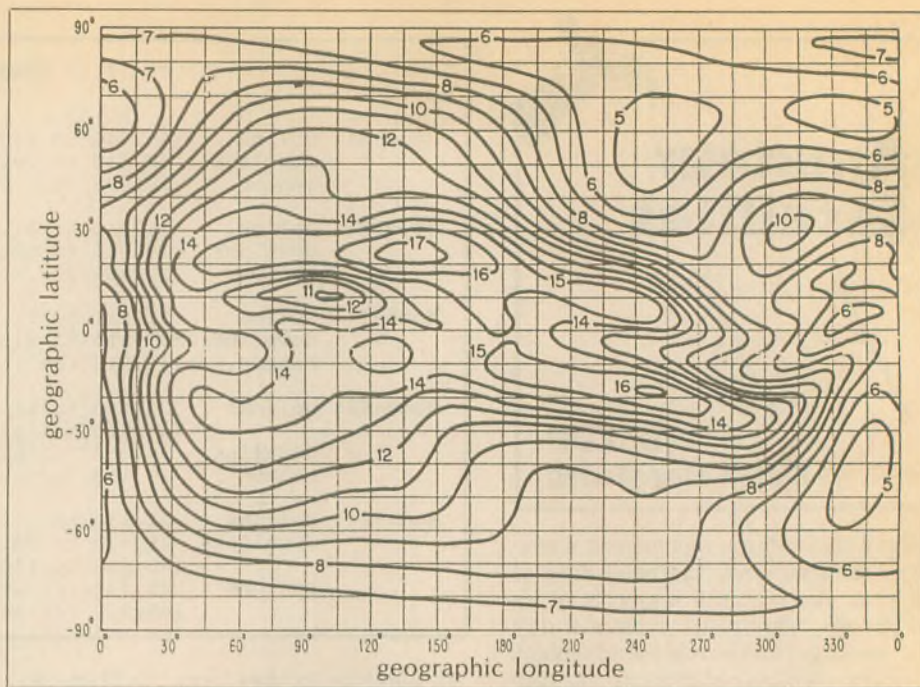


Fig. 1

the direction on a path. That way a ray coming upward for refraction would not go back to Earth in a symmetrical manner. In short, the hop length could be longer than a concentric model would indicate, perhaps as much as 10,000 km instead of the usual 3,500 km and even missing a ground reflection so as to go on to another ionospheric refraction.

Recently, a discussion of horizontal gradients in the ionosphere came up in reading through an article from back in '63 by R.B. Fenwick, K6GX, and O.G. Villard, W6QYT, of the Radioscience Laboratory at Stanford University. They reported on RTW echoes which started from Okinawa and finally reached Guam in the Western Pacific. For that, their signals in the 15-22 MHz range headed westward on a looping great circle path, going above and below the equator by about 45 degrees in latitude. They made the point that ionospheric tilts were expected on that path, at least for around 0200 UTC in

February, judging by the orientation and spacing of critical frequency lines on the foF2 map for a sunspot number of 50.

Okay, just to make sure that we have everybody on board at this point, I should remind you that foF2 world maps show how the F-layer critical frequencies (in MHz) vary with latitude and longitude for a given month, time and sunspot number. These maps are based on data from the worldwide network of vertical sounders (ionosondes), with contours drawn at constant frequency intervals, say 1.0 MHz on the Russian maps mentioned in a recent column and 0.5 MHz on the old CRPL

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maps from Boulder, and with maps for every two hours of the day.

On these maps the sunlit portion of the earth is enclosed with lines of constant foF2 which loop around, closing on themselves. But the F-layer maps are more complicated than what one would expect from the lower ionosphere, say the E-region. There, the layer is under direct solar control with lines of constant foE centered around the point where the sun is directly overhead (sub-solar point) but extending outward within the boundary of the terminator or ground day-night line.

Not so for the F-layer; being at much higher altitudes where ionospheric chemistry goes at a much slower pace and continues after sunset, foF2 contours in local hours of daytime just drag on into dusk. For that reason, the F-layer contours at a given time loop around the sub-solar point but have something of a "tear drop" extension toward the evening hours.

To see what I mean, look at Fig. 1 which shows an foF2 map from the recent book "Ionospheric Radio" by Dr. Kenneth Davies of NOAA; here, the time is 0600 UTC and the month is March. The sub-solar point is located at 90 degrees east longitude on the map and you can see both the looping of the foF2 lines as well as the "tear drop" feature toward dusk. In addition, note the close spacing of the foF2 lines in the morning (about 30 degrees longitude) and evening (around 210 degrees longitude). More on this last point later.

After that digression, let's go back to the case of the RTW echoes. On that world map the great circle path crossed perpendicular to the closely spaced lines of constant foF2 to the north and west of Okinawa. That configuration suggested significant horizontal gradients or ionospheric tilts in the region, contributing to their successful recording of RTW echoes. And, consistent with that interpretation, the signals were not heard at European sites (Greece and Malta) along the great circle path that were beneath the regions with chordal hops.

I thought that was a neat result but, alas, we can't get world maps of critical frequencies any more here in the US. For prediction purposes, whatever we have of that nature is buried deep down in the HF propagation programs we use on our computers. Thus, what I'd call "world map info" is held in data files or algorithms and the programs call up only those portions needed in connection with the great circle path in question.

Just to explore that idea with my computer, I tried to re-create the small portions of the foF2 map along Fenwick and Villard's path from Okinawa to Guam. But to have flexibility as well

as be able to do calculations in a reasonable time, I needed to use a good F-layer algorithm in BASIC. So I chose Raymond Fricker's MAXIMUM algorithm, the best of six or so algorithms that have been tested against NOAA's IONCAP. With that choice, I thought I had the right approach and went ahead, writing some 18K of code in BASIC.

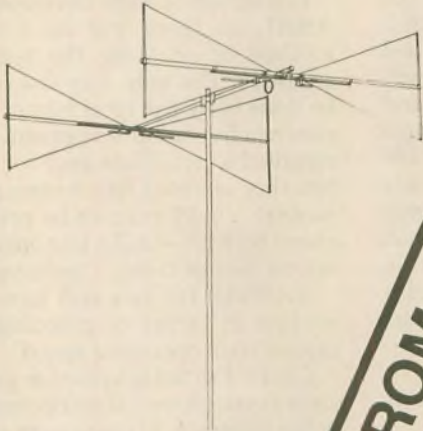
Wonder of wonders, when finally written and de-bugged, the results from my program really looked pretty good; the graphics screen showed portions of lines of constant foF2 along the great circle path quite similar to those on Fenwick's and Villard's map, and the values for foF2 were in the right range along the path. Score one for Mr. Fricker and one for me, too!

With that success, I started to look for other issues to use the program on. For one thing, long path contacts from this QTH are not equator-hugging affairs like those for the RTW echoes, paths from here going much more toward the poles and close to the grayline. That would mean paths crossing lines of constant foF2 in regions at higher latitudes and different local times, in all probability with different tilts of the ionosphere.

So I put the BASIC program to work in an effort to see what it showed in the way of paths, critical frequencies and, most importantly, foF2 gradients for some long path QSOs into Eastern Europe. The results were quite interesting but they'll have to wait for next time. □

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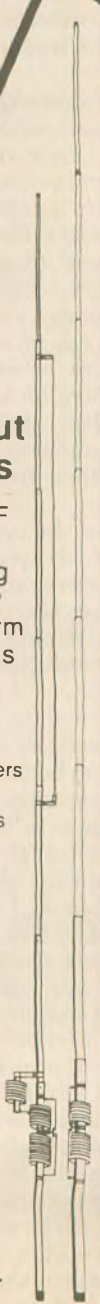
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An interview with W7JWJ, world champion Morse code operator

What is it like to really be in the fast lane? Ask W7JWJ, Harry Lewis. He knows. He was certified (76 wpm) in 1988 by the ARRL as the world champion Morse code operator and has held the record ever since. The following is an excerpt from an interview I had with him recently.

AA6WQ: How did you get started in Amateur Radio?

Lewis: In high school I was assigned a part-time job operating a motion picture projector. One day, for some reason, three of us were assigned the same task. A buddy of mine said, "Let's split," so the two of us climbed through a hatch in the top of the school, slid down a drain pipe three stories and went across the street to his house where he had a ham radio station. He called "CQ" and in the process his equipment caught fire. He put it out with a fire extinguisher. About that time there was a knock on the door: it was the principal. It seems the radio signals were coming in on the sound system and wiping out the movie. From then on I was hooked.

AA6WQ: When did you first learn Morse code?

Lewis: I don't remember whether I learned the continental code first or the American Morse code. But I learned them both while in high school from a physics book which had a copy of the code in it.

AA6WQ: What is it about CW that you like the most?

Lewis: I don't particularly like or dislike CW. It's just a condition that exists, shall we say. I don't get on the air with very many CW contacts. Unfortunately, I don't find too many people who like to go at the speed which I would prefer to copy.

AA6WQ: Who has been the major influence in your interest in achieving a goal in high-speed CW?

Lewis: Walter Candler, who taught some of the best telegraphers back in the 1920s and 30s; he developed what he called a "mental process." I began to accept this concept after seeing that he had produced telegraphers who were up in the 60 and 70 wpm bracket.

AA6WQ: You have said that becoming proficient in high-speed code operating was a personal challenge related to your own health. So you really didn't have the goal of achieving the world's record?

Lewis: Right. It was a personal goal to get my own health back. At one time I gave Jerry Ferrell, WB7VKI, a certificate for 72 wpm while he was still a Novice. The next year I gave him one signed for 73 wpm. My intention was to try to pace him through it. I wanted a Novice to beat the world's record. Unfortunately, on the day of the contest, I beat him instead of the other way around.

AA6WQ: Has Jerry Ferrell come back to try again?

Lewis: No, he has not made an attempt since that time. But he certainly has the capability to do it. And WB7LLD, Evelyn, from Washington State, also has the capabilities if she would learn to use the typewriter for copying code. She writes the code between 55 and 60 wpm and it's nice and legible.

AA6WQ: What standard is used for judging these high-speed contests?

Lewis: Rules were developed by the ARRL so there will be a standard method of counting the text during contests. The only way the count can be done is by the total bits of information in a five-minute segment. MacIroy received a certificate once for 77 wpm, but they counted four letters per word so that would have to be prorated at about 60 wpm—still a fine operator but not as fast as today's techniques.

AA6WQ: Do you still have a daily routine in terms of practicing to increase your operating speed?

Lewis: I'm not involved in practicing code at the present time because I have other interests. If there were some major incentive for copying code faster (like defending my record), then I would go back to the routine of making myself go faster.

AA6WQ: What is it like to be copying at that high speed?

Lewis: At 75, 80 or 85 wpm there is absolute concentration, almost to a state of self hypnosis. I am not aware of anything; everything else is blacked out.

AA6WQ: Could you start copying code immediately at 75 wpm if we were to start right now?

Lewis: No. If you turned on a computer at 75 wpm, I would have to prepare myself psychologically.

AA6WQ: Wouldn't it take a while to get into that concentration?

Lewis: The preparation varies from a few minutes to as much as 45 minutes.

AA6WQ: What types of demonstrations could be done with the skills you have developed?

Lewis: I've put on demonstrations copying at 40 to 50 wpm wearing kitchen mittens—you know, copying with my thumbs. Something I do at home occasionally is copy American Morse code with one text and the continental code with another text simultaneously, using two typewriters. I'm not good at it—yet. I can only go the slow speed of 20 to 25 wpm now. But when I get up to 50 or 60 wpm, I'll put on a public demonstration.

AA6WQ: How do you feel about the new "no-code" license?

Lewis: We like to be on the leading edge of technology and still hold on to the old traditions. I'm not particularly sorry to see code going away. In my opinion there should have been a no-code license thirty years ago. There are many people who would enjoy radio but have no motivation to learn code. Usually that has nothing to do with their physical well-being or anything of that nature. They simply don't have the motivation. But they do have an interest in communicating and perhaps they have something to offer.

AA6WQ: How can you tell whether a new student has the potential of becoming a proficient operator?

Lewis: Let's assume that a person took a hundred hours to get to 5 wpm. The likelihood of his increasing to 20 wpm in his lifetime is negligible. But if he gets to 5 wpm in five hours, then he is going to be a very proficient Morse code operator.

AA6WQ: Is there some practical upper limit to what can be achieved in code speed? Maybe no one knows what it is. Could it be above 100 wpm?

Lewis: It's definitely above 100 wpm, much above. I have transmitted to my friend Jerry Ferrell at 125 wpm which is about my top typing speed (I have had no reason to go any faster). At that speed he copies 90 percent of it solid. If there were a reason to go at that speed, then I would be interested in proving to myself that I could do it. I don't believe there is an upper limit. □

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PATRICK TICE, WA0TDA

"Aw . . . well, uh, I dunno, Maureen. It's been pretty busy around here and I've got a lot to do and . . ."

"You *really* should, you know!"

"What does Sister Alverna think?"

"She thinks you should, too. And before you ask, so does Jane."

"Oh, okay. I'll write your column this month. But you owe me."

That's the thing about having really smart co-workers. They can see right through you when you make up excuses and hem and haw instead of getting things done. Well, there *has* been a lot for me to do since I assumed my duties as the new Handi-Hams director, taking Bruce Humphreys' place here at Courage Center. You have to attend lots of meetings to find out how to do things. And you have to meet people. Zillions of people; our wonderful staff, our generous volunteers and donors and, most of all, members! —Members who help others; physically handicapped members, working for their tickets or upgrades; students dreaming of the day they can key the rig for the first time.

But there are many of you across



The new Handi-Hams director, Patrick Tice, WA0TDA.

the country and around the world whom I can't meet face-to-face, so maybe I should tell you a bit about myself.

I'm 43, married with one son (a two year old who loves all of the dials and buttons on the ham gear), and I've been on the air for 24 years. I was bitten by the radio bug while a student at Mankato State University and made good use of the club station, W0CIV. After I graduated, I taught school in the Bahama Islands, operating as VP7DT and later as C6ADT after the Bahamas became independent from Great Britain.

In 1976, I co-founded Butternut Electronics with my good friend Don Newcomb, W0DN, who is still busy building some of the niftiest antennas around. After I left Butternut in 1978 I went into police work and also dusted off my First Class Radiotelephone ticket and ran my own business, selling consumer electronics

products and doing contract broadcast engineering.

I hold an Advanced Class license and am active on CW, HF and VHF packet, AMTOR, 2M FM and SSB. I've been in SKYWARN since it started and have been chased by a couple of tornados. (Isn't it supposed to be the other way around?)

So that's me. But how about you? I'd love to meet our *Worldradio* readers, so please stop by and visit us at Courage Center if you are in the Twin Cities. Or say hello when you meet me on the air! A packet message will reach me too; just address it to WA0TDA@WB0GDB.MN.USA. □

*There once was a ham named Lew
Who always had too much to do
His rig took a jolt*

*From a huge lightning bolt,
Leaving Lew in a terrible stew.*

—Paul Lottes, KD9CM; Argonne ARC, IL □

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Search And Rescue Communications

Jerry Wellman, WB7ULH
P.O. Box 11445
Salt Lake City, UT 84147

A fellow came up to me outside a local Radio Shack store and, seeing the Amateur Radio license plate on the truck, asked me how active I was on the air. I explained that some weeks it was all packet, some days I'd have a QSO on 2M and some evenings I'd look around the low bands. After answering a few other radio questions, he said, "I've had my Technician license for four months and have had one contact."

What evolved was a discussion about how one becomes "radio-active" and has fun. He'd gotten interested in Amateur Radio after listening on a scanner, signed up for a class, passed the test, and then wasn't sure what to do with the new radio. Apparently the class focused on the book but not a lot on what to do after you have a license and have no close radio friends to ask. After some "elmer" coaching in the parking lot, I heard him later in the week checking into the local swap net. He understands now that there are no "rules" keeping him from just jumping in and becoming active on the bands.

There are lots of newcomers on the airwaves. When you hear someone

who sounds new or doesn't quite know the right procedure, give him a call. Make a friend and help make Amateur Radio fun. Perhaps you're the net control for the swap or ARES net. Take a few moments to explain what the net is and invite new people to check in. That first time can be mighty intimidating. If you're having an emergency exercise, spread the word and get these new folks involved—sometimes they'll think they're not welcome because they have no experience. If you make the effort to include that "new call" you may just ignite some serious involvement!

Finding time

I received a nice letter from John, KB7GYS, in Boulder City, Nevada. He asked how one finds the time to participate in the many emergency service groups that exist. When you add up Scouts, church, family, work, and all those million and one little things that need doing, there's just not much time left for "fun."

Making your time productive is the key to enjoying what you do and feeling you're moving forward. It's an attitude—an SAR attitude if you will. If you look at what you do with "SAR-colored glasses," a lot of it will mesh with emergency preparedness. Take

cleaning out the storage shed: if you keep response readiness in mind, you can sort out your response gear and improve how you've got it stored. I put my stuff in several plastic buckets and plastic crates. The shed looks better and I found all that "lost" stuff from the winter. I was running wires for remote stereo speakers and pulled an extra for that monitor speaker I'd always wanted to install for the scanner.

It's a waste of time to do something over and over again. Why clean your storage shed and then go find all your emergency gear? A co-worker has a motto: "My job is re-inventing the wheel on a daily basis." Being prepared for one group should mean being prepared for another. The ARES group may respond to a public service event and the CAP may respond to search for a missing plane. What's required for each response is similar if not the same. My camping checklist is the same as my SAR response checklist so getting ready for a family overnighter closely resembles an SAR response. Finding the time isn't as much the problem as wasting the time you have.

Flywheel strategy

Remember the flywheel on an old steam engine? (Or in the tuning section of an old Zenith shortwave? It's a balanced mechanism that, once started, keeps spinning with just a little energy.

Your SAR group's going to behave a lot like that flywheel. It can go forward or backward. If you have to change direction it takes energy to stop the momentum and energy to get it going the right way. Once you've got it going you can give it some energy at the right time to keep it going or a little extra energy to move it a little faster.

Many businesses fail because they go too fast, too quickly. Growth should be a controlled (seemingly slow) process. When something gets started, results can only be measured over time. Remember the flywheel. Uncontrolled speed often caused it to spin out of control and even break apart, fragmenting when it became unstable. Many business managers want the immediate results or the quick sell and immediate hefty cash flow, but accomplishing this too quickly can cause poor quality and poor consumer satisfaction. Keep your group together with momentum at a good pace and your long-term results will be impressive.

Improve your SAR and communication skills consistently. Taking on more than you can comprehend or more than you can adequately ac-

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comply may damage the group over the long term. No one can sustain high energy output for long periods of time without some consequences. Take it one step at a time. Get something working and keep it working. Once something is in place, keep it in place unless you gradually improve upon it. Don't re-invent the wheel on a daily basis.

On the air

During an emergency remember there are priorities while you're on the air. Generally, units at the scene of the rescue have priority. During a search the high risk units have priority—aircraft in a search grid, climbers on the technical slope, mobiles in the snow storm or ground teams on the mountain.

It's something that you have to experience and learn as you go. Teach yourself by looking at the situation and deciding how the radio response should be. If you're at the microphone, explain what's happening: "Unit one, standby—I have aircraft traffic on channel two," or, "All units hold your traffic unless it's an emergency; I'm handling response traffic on the aircraft channel." Rather than a short "please stand by" message, a few more explaining words will cool tempers and help your volunteers learn. When you're not at the net control console, it's often difficult to be aware of what's going on.

Key click exercise

Back in the old days when battery packs went dead and no one carried spares, I observed a radio "conversation" on a search where the base station asked questions of the field unit, who would click once for yes and twice for no. The batteries were almost dead so long-winded replies were out.

You can develop a scenario for your communicators where several teams (on different simplex frequencies) would find the "dead battery team" by asking questions and getting a key click reply. (You'd still need to give a callsign at the appropriate times to keep legal.) The exercise could be evaluated on the number of questions asked and by the "dead battery teams" as to how questions could be improved. Set a time limit of, say, 90 minutes and give it a try. It's a quick and dirty exercise with lots of learning potential. Learning to communicate is often our largest obstacle!

You are "they"!

Repeater broken? They'll fix it. BBS down? They'll fix it. Upcoming training exercise? They'll plan it. New amateur on the air? They'll help him. Need someone for the marathon? They'll always be there.

Who is "they"? *We're all "they"!* It's pretty obvious that we've got to pitch in. This is *our* hobby. If we're an SAR responder, it's our responsibility to be ready. If you and I don't stand up and pitch in, we're not doing our job. You're a part of the group, you're an emergency responder, you're a communiator, you're an Amateur Radio operator. Voice your opinion—make yourself heard. Get involved. Questions and opinions are foolish only when unexpressed!

Enjoy Amateur Radio. Get involved in public service communications. It's fun!

Good ideas

I've started reading the ARRL field organization reports in *QST*. (These are the fine print reports that appear each month toward the end of the magazine.)

I was impressed! There's a lot of information there. Some of you have really gone to great lengths to tell about your exploits and it's a shame if others (like me) were put off by the fine print and short reports of our own areas. I clipped quite a collection of ideas and benefited from the comments. To those of you who prepare more than a traffic report, THANKS! Until next month, 73, Jerry.

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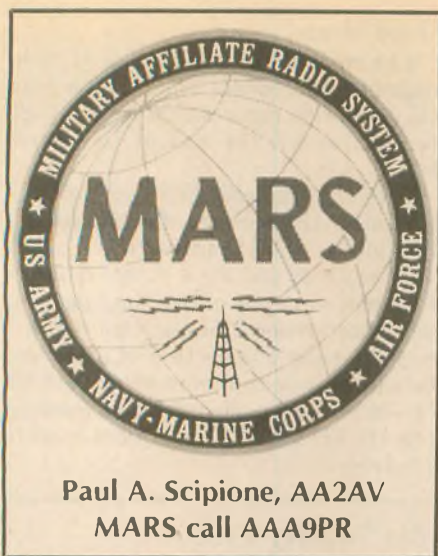
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"RA" stands for "real able"—
"real able" stands for
Robb Adams

There is an intensity about Robb Adams (AAV5TW Army MARS, WA9ZMO civilian) that just never lets up. It's in his voice. It's in his goals. It comes through in everything that he does, which is *a lot*. To paraphrase an Army recruiting ad, "Robb Adams accomplishes more before 9 a.m. than most people do all day."

According to Central Area MARS phone patch coordinator Henry Hicks, AAR6QI, in less than three months Robb ran more patches for our troops in the Persian Gulf (nearly 2,000 completed for service men and women at the AEM3 stations) than the combined total of those run during the entire Korean War.

Robb has done this singlehandedly, sometimes operating up to 18 hours a day from his own QTH. His wife, Vicky, and their six kids (soon to be seven!) usually bring Robb his dinner in the shack so that he doesn't miss a single call.

"He'd take a bite when this side was talking," Vicki said, "then chew it when the static from the other side covered the noise. Sometimes he wouldn't eat at all until the band went dead. He said our soldiers came first."

Robb has been able to accomplish all of the phone patches just since January 9 of this year, which was one day before he actually got written confirmation of his AAV5TW MARS call sign in the mail.

During the peak of AEM3 traffic from the Persian Gulf in February and March, Robb was averaging more than 60 phone patches per day. During 26 days of running Gulf phone traffic during the month of March, Robb put in 282 volunteer hours to MARS. In the process, he has made many good friends among the MARS

ops on the gulf end of the calls: Eddie and David at AEM3UB; Larry Burris at AEM3USG; Vicki and Debbie at AEM3VP; and Ricky at AEM3UW.

It takes a good station as well as a good operator to accomplish such phenomenal things. Two free-standing towers (80 feet and 60 feet) sport a Telrex TB-6EM tribander, a 17/12M WARC duobander, a 40M rotatable dipole at 90 feet and an impressive network of wire antennas, accessing nine HF bands plus MARS coverage. I have heard him 5×9+30 when I operate AAR2USI at Ft. Monmouth but was doubly impressed upon learning that he ran all these patches with a *barefoot* Kenwood TS-940S.

Robb Adams has been active in ham radio and electronics for a long time. He was first licensed at the age of 13 and upgraded from Novice to General within months. He got his First Class Radiotelephone license at age 15 and was working as chief engineer of a commercial radio station at age 17. Robb then went off to Purdue and earned a degree in electrical engineering. Later on he was CEO of the Adams and Hamilton communications consulting firm, designing and setting up commercial (mining, banana plantations, etc.) stations all over the world. He was based in Central and South America for six and a half years.

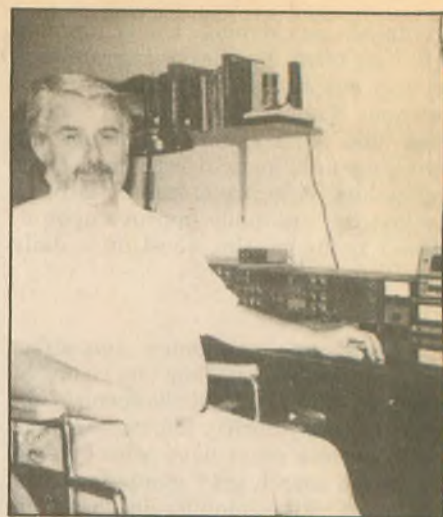
When I asked Robb what first got him interested in ham radio, he gave me a hearty laugh and said, "Well, I was about four years old and got the shock of my life when I stuck some of my older sister's metal hair pins into the wall outlet. That just got me curious about what electricity was all about."

What motivated Robert Adams to get so involved in the MARS effort to provide radiotelephone service to our service men and women in Saudi Arabia, Bahrain, Kuwait and Iraq?

"They wouldn't let me back in uniform," Robb chuckled. "Nine generations of my family served the United States in its wars. I wasn't going to let this one get by. Tradition is hard to break."

A totally disabled Vietnam veteran, classified (he says "misclassified") physically unfit for active duty, he wanted to serve again. As a young noncommissioned officer he had run SEA patches out of AD4VPN, the Special Forces MARS station at Ft. Bragg.

"You can accomplish a lot from a wheelchair if you are motivated and have a great family behind you. I absolutely refuse to waste the rest of my life by worrying about something that happened 20 years ago and that I can't change. I like to keep busy!"



Robb Adams, WA9ZMO, ran thousands of phone patches during the Gulf War.

Busy—that's an understatement when it comes to Robb. Recently, a fellow resident of Kalamazoo, Michigan wrote a poignant letter to US Senator Carl Levin (D-MI) urging that Levin nominate Robb Adams to President Bush to receive the prestigious Medal of Freedom. I would like to second that nomination!

When I asked Robb about the possibility that he would be awarded the Medal of Freedom, his response was what I expected: "It would be nice . . . fantastic really. But they forgot about us after the last war. I don't know if it'll be different this time."

If anyone would like to second the nomination of Robb Adams for the Medal of Freedom, clip this article from *Worldradio* and send it along with your name and other comments to either Senator Carl Levin (United States Senate, Washington, DC 20510) or directly to President Bush (The White House, 1600 Pennsylvania Ave, NW, Washington, DC 20500).

Dr. Paul Scipione, AA2AV, is National Coordinator of Public Relations of Army MARS. He became involved in MARS as a direct result of the calls he was able to make home from Vietnam where he served as a sergeant in the 101st Airborne Division. He is now at work on MARS: Calling Back to the 'World' from Vietnam, which the government will publish in 1992. Vietnam-era MARS operators can receive a questionnaire by writing (5 Burr Dr., Metuchen, NJ 08840) or calling (908/548-8096) Paul. □

Tom Stevens, W6GAG, recalls that on one of his birthdays, his folks gave him two batteries with a note attached. "Toys not included."

—Sacramento ARC, CA

10-10 INTERNATIONAL News

Chuck Imsande, W6YLJ
10-10 19636

Meet Tom McKeown, KA1NKM

Tom McKeown, KA1NKM, 10-10 #43015, is retired but, like so many, he wanted a part time job to keep him busy. He found just what he wanted, something with variable part time hours: he is driving a limo for a large funeral establishment in the greater Boston area. In addition to providing funeral limo service, the company provides other limo services including airport transportation, proms, weddings and general transportation.

Tom carries his 2M hand-held with him on all of his limo runs but says he does not use it during a funeral. There was one exception however, when one day the widow, who was riding in the front seat with Tom, asked him some questions about his "radio" just as he came to an intersection where he would have normally made a left turn. At the last minute the "box car" went straight and he made the turn. All of a sudden there was a truck in front of him and he said, "Where is the hearse?"

The widow burst out laughing and said, "It went the other way." The other six people in the back broke up and, according to Tom, it was the most comical funeral he was ever on.

Tom has been a ham for over 50 years, having a number of calls while moving around the country in his earlier days. He has been a 10-10 member since 1987, operates a Yaesu FT-101B with a Butternut beam and likes DX and chatting on 10M with 10-10 members.

Alexandria Chapter Sunday nets

The Alexandria (Virginia) Chapter has announced that they are holding two, yes two, 10-10 nets each Sunday. The Sunday morning net will be informal and convene on 29.200 MHz at 1300UTC and the Sunday evening formal net will also meet on 29.200 MHz at 1900 UTC.

All 10-10 members who check in to the net will be awarded a basic certificate. The Sunday evening net will be a "paper chasers" net and the chapter is planning a number of awards. To receive the basic award, exchange 10-10 information with the net control station and provide the chapter's cer-

tificate manager with an SASE (9x12 size).

The Alexandria Chapter's primary purpose is to promote the use of the high end of the 10M band. For more information drop an SASE to the chapter head, Jim Hurysz, AB4YP, 10-10 #56905, 115 South Royal Street, #B-2, Alexandria, VA 22314-3327. If you live around the Alexandria, Virginia area, or if the band is open in that area, how about looking way up at 29.200 for this net.

10-10 Information Manual

In an effort to answer all of those questions about 10-10 awards and chapters and provide a bit of history about the 10-10 International Net, 10-10 has produced a 24-page Information Manual. The manual includes an excellent history provided by Jim Michaels, W6PGM, 10-10 #10 (yes, 10-10 #10). A series of questions and answers provide information to the most frequently asked questions. There are sections about the 10-10 scholarship program, awards, contests, paperchasing and 10-10 conventions. A section provides details about the daily 10-10 Net and lists the daily net control stations, times and frequencies. The chapter net guide lists almost 200 10-10 chapters and their day, time and frequency of operation. All officers, directors, managers, award managers and district managers are listed for a ready reference to anyone you may be interested in contacting. There is also a list of special 10-10 numbers that have been issued. For example, did you know that the Johnson Space Center in Texas, W5RRR, has 10-10 number 1123, and Oscar Seven was issued 10-10 #10000? There is also a membership application, a time conversion chart from local (US) time to UTC, and an official ARRL-ICAO phonetic alphabet chart.

This 24-page handy Information Manual is available for \$1 and an address label. Please, *no* SASE, as the manual will not fit in a standard #10 envelope. The \$1 almost covers the cost of printing and postage. If you are interested, send your \$1 and address label to my address listed below.

Finally

This column is being written just prior to leaving for the 10-10 Convention in Arlington, Texas, and by the time you read this the convention will be history. Next month I will cover the important happenings of the convention. This convention will provide the opportunity for the newly elected officers and board of directors to meet in person, many for the first time. There are many items on the agenda for discussion and action by the board. The column next month may prove to be very interesting, based on the actions of the board of directors. We shall see!

If you have lost your 10-10 number just send me your call, including all previously issued calls, with an SASE and I will check the computer records. Once we find your 10-10 number, you can get back into 10-10 easily just by renewing your dues. Remember, once a number is issued, it is yours forever.

If you are not a member of 10-10 and are interested in finding out more about 10-10 and how you can become a member, send \$1 and two first-class stamps (*no* SASE) to me at 18130 Bromley Street, Tarzana, CA 91304-1701. This will get you a complete information package, consisting of the new Information Manual and a copy of the latest issue of the *10-10 International News*. Please also include an address label so I can send your package right back to you.

—73, es cu next month.

"Where Do We Go Next?"

New book by OH2BH,
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Following a one-year stint in the United States, Martti Laine is introducing his first work in the field of DX literature. Tentatively entitled "Where Do We Go Next?", this new publication comes in response to public demand for a presentation in book form of the author's spectacular DXploits over the past quarter-century.

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Sense the heat and excitement of being at the production end of that pileup that you once worked for a new one. Go to *Jarvis Island* and *Conway Reef* with today's prominent DXers and examine the profile of "a complete DXpeditioner" as Martti depicts the people with whom he was traveling to all those rare spots.

Maybe the author is also able to pinpoint the real causes of malicious interference always experienced on the DXpedition frequencies as was the case with the 3Y5X operation, and much more. "Where Do We Go Next?" is a must on the bookshelf of every deserving DXer and anyone who would like to become one.

Price: US\$ 22.95 plus postage. USA add \$3; Canada add \$5; others, add \$7. CA residents, add sales tax.

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CONSTRUCTION

Apt Antennas

GEORGE G. MANNING,
K2RRR

Living in an apartment rather than a house all my life, I've faced a problem common to many hams: what can possibly be used as an effective antenna? Most of us who live in apartments are not faced with VHF and UHF problems but, rather, with HF frequencies. Most antennas devised by apartment dwellers represent a compromise. However, some are far better than others.

For the apartment dweller, the points on which an antenna must be judged are visibility (or rather its lack of!), frequency coverage and performance.

After obtaining a new HF rig last year, I've tried several antennas including indoor dipoles; helically wound, continuously loaded dipoles; a commercially-built vertical; and a loop antenna running around the perimeter of my apartment.

The helical dipole and the shorter dipoles cut for frequencies of 21 MHz and higher performed moderately well, but were either limited to one band or—in the case of the helical dipole—required what I came to consider too much effort to change bands.

For many months last year, my major interest was in Working All States in the Extra Class portion of the 75M phone band. The helical dipole was barely adequate for QSOs over distances within several hundred miles. Stations farther away than 1,000 miles could hear my signals only with great difficulty.

At that time, I purchased and put into use a Cushcraft AV-5 vertical. Finally my signals could be easily

heard on the West Coast as well as in Alaska and Hawaii, albeit with some difficulty. On other bands, generally speaking, if I could hear the station, I could work it with the vertical. The only exception was during a contest, when the "big guns" would have a 10dB to 20+ dB advantage over me with multi-element beams and legal-limit amplifiers.

Obviously, the vertical's performance was outstanding. However, it could not be left in place because it was highly conspicuous, and outside antennas of any kind are forbidden where I live. Consequently, when used, it would be disassembled after the evening's operation was completed.

Although I became adept at doing this (the antenna could be assembled and in place within five or 10 minutes and disassembled even more quickly), this could hardly be described as convenient. A better solution was needed.

About this time, an article appeared in *QST* about the Loop Skywire Antenna (November 1985, p. 20) which indicated that it was a stellar performer on all bands. Conversations with other hams who were using it confirmed this.

Personal experience operating a station equipped with one of these fantastic antennas convinced me of its inherent superiority. What could be heard well with the vertical was, quite literally, armchair copy with the loop. All that was needed was a small amount of real estate—something which I did not have and was not likely to obtain in the foreseeable future.

However, further investigation of the full-wave loop antenna's characteristics indicated that it was rather forgiving with regard to dimensions and actual length. A look around my apartment indicated that if I were to severely distort the loop's dimensions, I would have enough space around the perimeter of the apartment for nearly 225 feet of wire—enough to be resonant just above the 75M phone band.

The addition of 30 feet of feeder would bring the theoretical point of resonance to the middle of the 80M band. If built, how could this monstrosity of a loop operate? Now I can answer that question: "Quite well!"

Since Amateur Radio is experimental, among other things, I decided to construct the "Indoor Loop" just to see how it would operate. I felt I had nothing to lose but a few dollars for twin-lead and a few hours time. However, if it were to work less than half as well as the Loop Skywire—or not even as well as my vertical, it would still out-perform other indoor antennas I have tried.

Over the last year, my experience with this antenna has been more than satisfactory. Although it does not provide DX QSOs with the ease that the vertical does, I've worked some reasonable DX with it. At distances of over 1,500 miles, the vertical provides a stronger signal. Also, I've had QSOs with it on all ham bands from 160M to 12M. The only reason I've not had any QSOs on 10M is because I've not found anyone on frequency at the same time I was!

Several of those with whom I have had QSOs have suggested that I describe the antenna in the amateur literature. It seems to perform so well, and its advantages of being able to remain permanently in place and to enable QSY between bands as well as within a band seem to heavily outweigh whatever limitations in performance there are.

It will load on 160; what other indoor antenna can do this? On 80, one can QSY from 3.5 to 4.0 MHz with ease. I've had enjoyable QSOs on 30M and 12M. Precious few antennas, whether home or commercially built, can make claims of this nature.

To construct such an antenna, the details will be dictated by the physical structure within which it is to be built. In my case, 225 feet of #22 wire was run around the perimeter of the apartment, just below ceiling level, going through all rooms. As a result, the "loop" doubles back upon itself at several points, with several lobes coming relatively near each other in a central hallway where there is a smoke detector. There has been no RFI to this smoke detector at any frequency of operation!

At one corner of the living room, which I had planned as the feedpoint of the "loop," the wire it is constructed with is brought down to a point near the floor with the two leads held parallel but separated by about three inches. At this point, "Faston" connectors were soldered to the ends of the "loop" and to a 30 ft. length of 300 ohm twinlead, which forms the feedline to this antenna.

The other end of the feedline is connected to the balanced line output of an antenna tuner, and the tuner is then adjusted for each band and frequency of use in the usual manner.

Making a chart of the inductor and

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Adapted from Nov. '85 QST article by Al Hellrick K2BLA



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capacitor settings for several points in each band of interest will make QSY rapid and easy in the future.

Use of an RX Noise Bridge, which has been adjusted to show a null at 50 ohm resistive load is recommended, as it allows the adjustment of the tuner to resonance without once having put a signal on the air. Any remaining adjustments required may be done by brief on-the-air checks with proper identification of signals.

Of late, I have been operating mostly 80, 40, and 30M CW, with the rig in the living room in a wall unit located about seven feet from our TV. At the same

time, my wife and daughter are often watching their favorite shows.

I've advised my neighbors that I am a radio amateur and will be operating radio equipment from time to time, and to please let me know if there has been any interference to their television, stereo or other electronic devices so we can correct the problem. No one has complained!

It's worth noting that we are on cable in our area, and there are no individual antennas for TV. There is a strong video signal at the input of the TV receiver and the TV lead is well shielded.

On frequencies higher than 10.1 MHz, I've experienced some TVI to my own set of the fundamental overload variety. Apparently, it does not affect the other TV sets in the building.

Finally, I live on the top floor, end unit of a three-story garden apartment, so I have an advantage for the use of both a vertical and any indoor antennas, as opposed to someone living on a lower floor.

I've thought of experimenting with other antennas, but my "Indoor Loop" works so well, I would rather use my Amateur Radio time playing radio operator than antenna engineer!



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The 5/8 wave vertical antenna

HARRY R. HYDER, W7IV

Every Amateur seems to know that a 5/8 wave vertical antenna gives the best low-angle radiation. But why such an odd number? We must go back in history to answer that one.

A broadcast station wants to provide the best possible signal within its service area with a minimum of high-angle radiation. Any high-angle radiation can cause interference at night to distant stations on the same frequency.

During the 1920s broadcast stations used mostly inverted L or T antennas. It was known that most of the useful low-angle radiation came from the ver-

tical downlead of these antennas. The multi-wire flat top merely provided top loading to raise the maximum current point of the downlead as high as possible.

Methods for calculating the radiation patterns of all forms of antenna had been developed and these were applied to broadcast transmitting antennas. It was found that the best form of broadcast antenna was a halfwave vertical radiator with its base 1/8 wave above a perfect ground. This gave maximum groundwave with no high-angle lobes.

Unfortunately, such an antenna was impractical. A halfwave antenna for the broadcast band (1600 to 550 kHz) would have a length of between 308 and 895 ft. Mounting such a vertical antenna 77 to 308 ft. above the ground was a structural impossibility.

The current at the ends of a halfwave antenna is theoretically zero, and the end 1/8 waves carry little current and produce little radiation. So why not extend the lower end of the halfwave vertical all the way to the ground? This was run through the equations and the only difference noted was that a small high-angle lobe was produced. This could be virtually eliminated by shortening the antenna slightly to about 60 percent of a wavelength.

All of these pattern calculations assumed a perfectly conductive ground. This was not unreasonable for a broadcast station, which can plow lots of wire into the ground for little cost.

I do not know how many 5/8 wave broadcast antennas were actually erected. I suspect not too many, particularly for the lower frequency end of the band. As height goes up, cost goes up geometrically. Until a short time ago there was a 1060 kHz station about a mile from my QTH. Its towers were only 230 ft. high: 1/4 wavelength.

There is a horizontal analog to the 5/8 wave vertical. It is called the "extended double zepp," and is described in most antenna manuals. It consists of two 5/8 wave wires mounted end to end and fed in the center, in phase. In this antenna the two 1/2 + 1/8 wave elements act in conjunction with each other in space. The 5/8 wave vertical acts in conjunction with its image antenna in a perfectly conductive ground.

Reference: Directional Properties of Transmitting and Receiving Antennae, J. K. Clapp and H. A. Chinn, QST March 1928, pp. 17-30. □

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WRITE!

HAMFESTS



Alabama

The MOBILE AMATEUR RADIO CLUB will sponsor a hamfest on August 17 and 18 at the ABBA Shrine Temple.

Doors will be open from 8 a.m. to 4 p.m. on Saturday and from 8 a.m. to 3 p.m. on Sunday. Admission is \$3, and YLs enter free. Tables are \$12 (there are 200 tables available but advanced registration is a must). VE session will be held at 9 a.m. on Sunday only.

Talk-in on 146.82/22.

For further information contact MARC, P.O. Box 9315, Mobile, AL 36691, or call Jess Ferguson, N4HPL, at 205/957-6674. □

Illinois

The HAMFESTERS RADIO CLUB will sponsor its 57th annual Hamfest and Computerfest on Sunday, August 4 at the Will County Fairgrounds in Peotone.

Admission is \$4 in advance or \$5 at the gate. Children under 12 enter free. Gates will open at 6 a.m. and exhibits will be open from 8 a.m. to 3 p.m. This event will be held in a fully air-conditioned, 14,200 sq. ft., handicapped accessible exhibit building. Convenient loading and parking will be available. The date remains, rain or shine, and there are six covered pavilions for the flea market.

Talk-in on CMFC repeater 146.16/76, 146.52 simplex, club call W9AA.

For further information, contact David F. Brasel, NF9N, 7528 W. 109th Pl., Worth, IL 60482; 708/448-9432. □

Indiana

The FORT WAYNE RADIO CLUB will sponsor the Summit City Hamfest on Sunday, August 25 at the 4-H Fairgrounds.

Admission is \$3 or \$5 at the door. Set-up will begin at 6 a.m. and doors will be open to the public from 8 a.m. to 3 p.m. Vendors can purchase tailgate space for \$7; table and chair in open-air building for \$10; and table and chair with electricity in an enclosed space for \$15.

Talk-in on 146.16/76 or 449.875/444.875.

For further information contact Frank Jaworski, P.O. Box 15127, Fort Wayne, IN 46815; 219/485-2634. □

Iowa

The CVARC Summerfest '91 will be held on August 11 in Cedar Rapids. For information contact Archie Blackford, KF0OP, 330 Charlotte Ave., Robins, IA 52328; 319/393-4598. □

Louisiana

The SHREVEPORT AMATEUR RADIO ASSOCIATION will sponsor a hamfest on August 17 and 18 at the Bossier City Civic Center.

Admission is \$3. Features will include commercial exhibitors, ARRL forum, digital mode listening forum, LCARC meeting, SKYWARN and guest speaker Steve Nagel, N5RAW, astronaut of the STS-37.

Talk-in on 147.03/63.

For further information contact Ric Crouch, N5OML, 3201 Knight St., Apt. 2508, Shreveport, LA 71105; 318/865-0313. □

Michigan

The upcoming Five County Swap-n-Shop, August 23 through 25, will host the ARRL National Convention at the Saginaw Civic Center in Saginaw, Michigan. Major exhibits and many forums will be featured.

This event is sponsored by the Saginaw Valley Amateur Radio Association, the Genesee County Radio Club, the Bay Area Amateur Radio Club, the Shiawassee Amateur Radio Association and the Lapeer County Amateur Radio Association. For further information contact one of the above or contact Saginaw '91, P.O. Box 1783, Saginaw, MI 48605-1783 or call 1-800/444-9979. □

Minnesota

The ST. CLOUD AMATEUR RADIO CLUB will sponsor a hamfest on Sunday, August 11 at the Whitney Senior Center in St. Cloud.

Ticket donation is \$4. There will be a lunch counter, free coffee and prizes.

Talk-in on 34/94 primary or 615/015 secondary.

For further information contact SCARC, Box 141, St. Cloud, MN 56302. □

Missouri

The ST. CHARLES ARC will sponsor Hamfest '91 on August 25 at Blanchette Park in St. Charles from 6:30 a.m. to 3 p.m. There will be forums, family activities and license exams (10 a.m.).

Admission and parking are free. Handicapped parking will be available. Fee for flea market space. Dealers are welcome in air-conditioned hall.

Talk-in will be on 146.67 and 444.65 repeaters and 146.52 simplex.

For further details, contact John Lehnhoff, N0HMZ, 155 Bentwood, St. Charles, MO 63303; 314/928-2510 (after 5 p.m.). □

New Mexico

The ALAMOGORDO AMATEUR RADIO CLUB is presenting their seventh annual hamfest on Labor Day weekend, August 31 to September 1, 1991, at the Otero County Fairgrounds in Alamogordo.

The fairgrounds will be open from 8 a.m. to 5 p.m. on Saturday and 8 a.m. to 2 p.m. on Sunday. Admission and parking are free with RV parking for self-contained vehicles.

Tables and booths are available on a first-come basis. Commercial exhibitors and swap areas are included. ARRL VEC exam sessions will be held both days.

For additional information or reservations please contact Larry Moore, WA5UNO, 1830 Corte del Rancho, Alamogordo, NM 88310-4717; 505/437-0145. □

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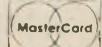
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Maryland-DC QSO Party

The Antietam Radio Association of Hagerstown, MD, is sponsoring this event from 1600Z Aug. 17 to 0400Z Aug. 18 and from 1600Z to 2359Z August 18.

Rules: Stations may be worked once per band using each mode. CW QSOs in the CW band only. Non-Maryland stations must work Maryland stations; Maryland stations may work anyone. Portables and Mobiles that change Maryland counties during the contest count as a separate station in each new county of contact. No repeater QSOs count. Other HF and VHF contacts do.

Exchange: Signal Report and QTH (county for Maryland stations; state or province or, if DX, country as QTH for others).

Suggested frequencies: SSB—1.86, 3.92, 7.265, 14.28, 21.37, 28.37, 50.15 and 146.55 MHz; CW—3.643, 7.06, 14.04, 21.115 and 28.06 MHz.

Scoring: Each Maryland county, Baltimore city and DC are multipliers. QSO points—10 points for contact with any club station; five points for contact with any mobile station; two points for CW contact with a Maryland station; one point for any other valid contact.

Special note: Points are cumulative. Example: A CW mobile contact is worth five points (three for mobile + two for CW).

Final score: Add up all QSO points and multiply by the sum of the multipliers (maximum of 25 multipliers possible, each multiplier may be claimed once only and do not repeat on different bands). Mobiles may add 100 bonus points to their final score for each county outside their home from which 20 QSOs were made.

Awards: Certificates will be awarded to the high score verified from each US state and Canadian province. In addition, there will be awards to the high score from a Maryland club station, a Maryland mobile, the three best Maryland logs, a Novice licensee, Technician licensee, a DX station and a QRP entry.

Logs should be mailed to the contest chairman by Sept. 10. Indicate on your entry if you are competing in a special operating class (Mobile, Club, Novice, Technician, QRP, etc.).

Mail Logs to: Antietam Radio Association, P.O. Box 52, Hagerstown, MD 21741. Please include an SASE if you wish a copy of the contest results.

Direct any questions to WA3EOP, Contest Chairman

New Jersey QSO Party

The Englewood Amateur Radio Association Inc. invites all Amateurs the world over to take part in this 32nd annual event from 2000 UTC Saturday, Aug. 17 to 0700 UTC Sunday, Aug. 18, and from 1300 UTC Sunday, Aug. 18, to 0200 UTC Monday, Aug. 19.

Rules: Phone and CW are considered the same contest. A station may be contacted once on each band, phone and CW are considered separate bands. CW contacts may not be made in phone band segments. New Jersey stations may work other New Jersey stations. General call is "CQ New Jersey" or "CQ NJ." New Jersey stations are requested to identify themselves by signing "DE NJ" on CW and "New Jersey calling" on phone.

Suggested frequencies: 1810, 3535, 3950, 7035, 7135, 7235, 14035, 14285, 21100, 21355, 28100, 28400, 50-50.5 and 144-146. Suggest phone activity on the even hours; 15/10M on the odd hours (1500 to 2100 UTC); 160M at 0500 UTC.

Exchange: QSO number, RST and QTH (ARRL section or country). New Jersey stations will send county for their QTH.

Scoring: Out-of-state stations multiply number of complete contacts with New Jersey stations times the number of New Jersey counties worked (maximum of 21). New Jersey stations—W-K-VE-VO QSOs count as one point; DX stations count as three points. Multiplier total number of points times the number of ARRL sections (including NNJ and SNJ), KP4, KH6, KL7, etc. count as three point DX contacts, as well as section multipliers.

Awards: Certificates will be awarded to the first place station in each New Jersey county, ARRL section and country. In addition, a second place certificate will be awarded when four or more logs are received. Novice, Technician and mobile operator certificates will also be given. A total of four plaques have been donated by the ARRL Section Managers for NNJ and SNJ to the highest scoring single operator station residing in each of their sections (separate for Novice/Technician and all other classes).

Logs: Must also show the UTC date and time, band and emission and be received not later than Sept. 1. The first contact for each claimed multiplier must be indicated and numbered and a check list of contacts and multipliers should be included. Multi-operator stations should be noted and calls of participating operators listed.

Logs and comments should be sent to: Englewood Amateur Radio Association Inc., P.O. Box 528, Englewood, NJ 07631-0528. A #10 SASE should be included for results.

Stations planning active participation in New Jersey are requested to advise EARA by Aug. 1 of your intentions so they may plan for full coverage from all counties. Portable and mobile operation is encouraged.

YLRL Howdy Days

This contest will take place from 1400 UTC Wednesday, Sept. 4, to 1359 UTC Thursday, Sept. 5.

Eligibility: All licensed women operators throughout the world are invited to participate.

Procedure: Call "CQ YL."

Operation: All bands and modes of emission may be used. A station may be worked and counted once on each band and mode for QSO points. The maximum power output that may be used at any time during the contest is 750W on CW and 1,500W PEP on SSB.

Exchange: YLRL member or non-YLRL member. Entries in log must also show date, time, band and call of station worked.

Scoring: Score two points for each YLRL member worked and one point for each non-YLRL member worked. NO MULTIPLIERS.

Logs: All logs must show if the operator is a YLRL member or non-YLRL member to be eligible for awards. Logs must show score and be postmarked by Oct. 6. Please type or print logs and do not send carbon copies. Logs must show claimed score (file separate logs for each contest) and must be signed. No logs will be returned. If 200 or more QSOs, submit a separate log for each band and submit a "dupe sheet." Mail logs to Dana Tramba, NØFYQ, RR 1, Box 2B, Peck, KS 67120.

Awards: Top scoring YLRL member will receive her choice of a YLRL pin, charm or stationery. Top scoring non-YLRL member will receive a one year membership in YLRL.

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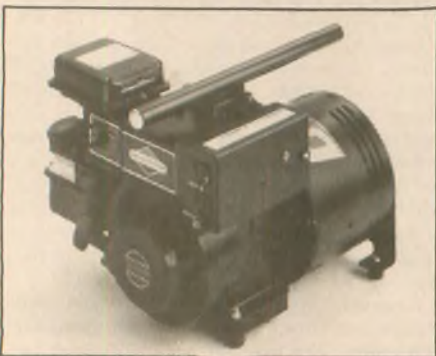


NEW PRODUCTS

Information in "New Products" is supplied by the manufacturers to acquaint *Worldradio* readers with new products on the market.

Emergency generator

Signal Core Generator announces the introduction of the Winco DYNA LC1500 lightweight portable generator. Powered by a popular standard Briggs and Stratton 3 HP gasoline engine with solid state ignition, the unit is rated at 1500W maximum and 1250W continuous at 120VAC, 60 Hz.



Made in the US, the generator features a state of the art, brushless, copperwound alternator employing capacitive excitation. These premium features are rarely found in bargain store generators. What is unique about this machine is its ability to start and

run up to a 1/2 HP electric motor. (The unit can start and run a sump pump.)

At only 65 pounds in weight the Amateur has a power source that is "one man portable," yet it can power an entire station—HF rig, VHF rig, packet computer and lighting. The station can be run for up to two and a half hours before refueling.

An indescribable silent thrill is experienced when affirming that your station is emergency powered. The engine carries a one year limited warranty by Briggs and Stratton and the alternator end has a two year limited warranty. The LC1500 can be ordered directly from Signal Core Generator at 521 N. Fourth St., Telford PA 18969-2132; 215/723-8223 for \$448 including free shipping in the contiguous US. □

Reflections

In 1984 John Haerle, WB5IIR, published a compendium of his antenna papers in a book called *The Easy Way*. Reviews were published in *Worldradio* as well as other Amateur Radio journals. This was a book that should have been in every radio amateur's library. Unfortunately, shortly after the book was published, John was killed in a car accident on his way home from a meeting of the Dallas Amateur Radio Club; the book was sold out and no further printings were made.

Lengthy arrangements were underway to rewrite, edit and publish John's book; however, in the meantime, a book was published that covered everything written about in *The Easy Way*—and then some!

That is what I want to tell you about: M. Walter Maxwell's most recent book, *Reflections*.

How often do you sit, cringing, hair standing on end—listening to the *experts* on the ham bands spouting off about all the aspects of antennas, passing out bum dope to the unsuspecting newcomers who have complete faith in their advisors? Unfortunately, this bum dope is then passed on and on—just like any story—losing something in the translation every time. This misinformation has snow-balled in such magnitude that respected Amateur Radio journals have published time and again so many of these untruths, yes, under by-lines that you recognize at a glance.

We have all been so brain-washed about antennas and antenna matching, etc., that our only salvation is to go stick our head in a degauser and start over from scratch. Hey, what did we do before SWR, that we hear all this advice on now, was invented?

Reflections is a book that belongs on your desk, your bedside stand or in your shop. When you get the book, buzz through it . . . go through it again, making references to chapters and pages you feel you want to go back and study more thoroughly. I've tracked mud into the house from the garden when I suddenly thought of something . . . sure enough—there was the answer in *Reflections*!

What I like particularly about Maxwell's writing is that he doesn't just tell you something and let you sit there taking him at his word. He leads you by the hand step by step, letting you prove it for yourself. Then, just as if you still didn't get it, he lets you do it a different way to get the same answer—something like being hit on the head with a two-by-four—it feels so good when you finally see the light.

Fair warning to every one of us who think we really have antennas sewed up: what a revelation to open up a real reference book that permits us to explain everything to ourselves correctly.

Reflections is an ARRL publication available from ARRL and other dealers in Amateur Radio publications. I called a local distributor late one afternoon and UPS had it on my stoop at noon the next day. —Don Johnson, W6AAQ □

Repeater controller

The CAT-500 Repeater Controller is packed with the features you have been looking for at a price you can afford. Fully automatic, the sixty position scheduler controls every facet of your repeater's operation. The voice synthesizer IDs your repeater, announces the time and interacts with you during control and programming operations. Select from over three-hundred words carefully chosen for Amateur repeater operation. Customize your ID, squelch tail, transmitter drop and site alarm messages. The grandfather clock feature will announce the time on the hour.

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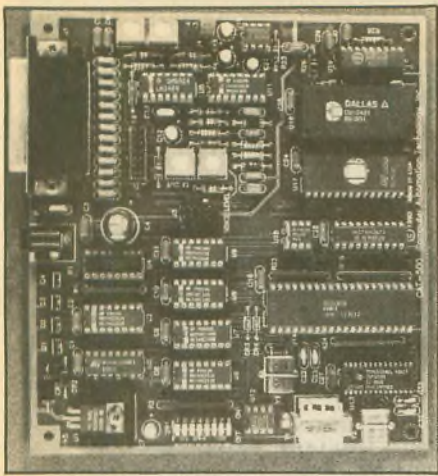
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Yagi gain spec revisions

Using new and highly accurate computer modeling programs, Telex is revising the gain specs of its Hy-Gain HF amateur monoband Yagi antennas. It is the first manufacturer to do so. Roger Cox, the company's antenna design engineer, stated that since more accurate measurements are now available, it

behoves manufacturers to publish the true figures even though, in some cases, gain may seem to be lower than previously published and may put the product at a competitive disadvantage. He said the company hopes others will follow its lead in the interest of providing consumers with factual data.

Specifications for antenna gain have been considered controversial for some time, mostly because the EIA Standard RS-409, dating back to December of 1973, has been only loosely adhered to by some antenna manufacturers. Often the gain for a given brand or model appeared optimistically high. In fact, a leading Amateur Radio publication will not accept advertising containing antenna gain figures for just that reason.

The company's new gain measures use highly accurate "method-of-moment" computer codes to calculate directive gain. According to Cox, the codes, MININEC 3 and Yagi Optimizer[®] are two of the most accurate computer codes available for modeling HF Yagi antennas. Hy-Gain's measured radiation patterns of full size antennas match within one degree of the calculated half-power beamwidth, and within 2dB of the calculated backlobe levels. The calculated gain figures produced by MININEC 3 and Yagi Optimizer can be validated against W2PV's Yagi design data and experimental measurements in NBS Technical Note 688.

For further information, contact Telex Communications, Inc., 9600 Aldrich Avenue South, Minneapolis, MN 55420; 612/884-4051.

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— Western ARC, Cerritos, CA

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WARNING

Don't be fooled by antennas that are also sold with a windom label. Most of them use a 1:4 balun. That balun will never work. You'll always need a tuner with those fake windoms. The laws of physics make sure that it doesn't work, despite what the manufacturer promises you. Honestly, why buy an antenna that needs a tuner to operate?

Here's Proof

Read what our satisfied customers wrote us about their genuine Garant Windom Antennas. All originals are on file for your inspection, as the FTC requires it. Fred_W8YFK: "I purchased one of your GD-9/2KW antennas. It works great. Nine bands, no external tuner. Who could ask for anything more?" Howard_W3HHM on his GD-9/2KW: "Service was fast! The antenna is first class. It does all it was advertised to do. Now, I have one antenna, one feedline and all (9) HF amateur bands for the first time in 27 years of hamming. The xyl likes that too." John_KA3SDO on his GD-8/500W: "Prompt delivery, helpful phone ordering and information, combined with a quality product. Garant truly has an unbeatable combination." Don_N01GE: "I am very pleased with the shipping speed, service and the GD-8/500W antenna. This is my only antenna for 10 to 80 meters. What a great performing antenna. I am very pleased." John_W0HBE: "I was extremely anxious to put my new GD-8/500W on the air. The instructions make the assembly fast and simple. I was impressed by the low SWR on all bands and comparison tests have proved to me that the Garant GD-8 windom is far superior to any other wire antenna." Paul_N1PL on his GD-8/500W: "The antenna is dynamite on 20 meters." Charles_W9JLZ: "Garant GD-8/500W antenna performs very well on all bands. Great antenna. Get great signal reports." Michael_N8BED: "Order received promptly as promised. GD-8/500W works as promised, using your measurements. No trimming required." Herbert_WD9GBH: "My GD-9/500W works fine. Great multi-band antenna." For more letters with genuine call signs see our free data report.

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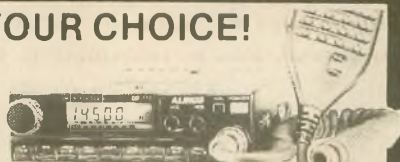
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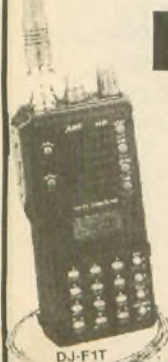
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VE exam schedules

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 September, please have the information to us by mid June.

Worldradio, 2120 28th St., Sacramento, CA 95818.

Please mark the envelope "VE Exams."

List the location, any information examinees should have (advance registration, etc.) and the name and telephone number of a person to contact for further information.

p/r=pre-register

w/i=walk-in

Date	City	Contact	Notes	Date	City	Contact	Notes
Arizona				Minnesota			
Sept. 7	Tucson	K7OPX (602) 886-7217	w/i only	Sept. 7	St. Paul	K0QBE (612) 222-7253	p/r pref
California				Mississippi			
Sept. 7	Burbank	KE6AR (818) 349-0927	w/i	Sept. 10	Ocean Springs	AA5SP (601) 875-9341; AA5TX (601) 875-2142	p/r pref.; w/i OK
Sept. 28	Carson	AA6TC (213) 830-0242	w/i OK	Missouri			
Sept. 7	Cupertino	(408) 243-8349	w/i OK	Sept. 7	Antonia	Jim WD0GDY (314) 671-4243	no w/i
Sept. 28	Fairfield	Jerry (916) 662-0801	w/i only	Sept. 7	Kimberling City	NQ0G (417) 739-2888	w/i
Sept. 19	Fountain Valley	KI6WK (714) 846-6984	p/r	New Jersey			
Sept. 28	Hawthorne	WS6T (213) 600-4160	p/r	Sept. 21	Bayonne	WA2QYX (201) 451-9471	w/i OK
Sept. 14	Hesperia	NF6I (619) 241-4732; K6BET (619) 244-6080	w/i OK	Sept. 19	Bellmawr	WA2VQG (609) 546-7710	w/i
Sept. 26	Long Beach	KA6HOQ (714) 897-6331	w/i OK	Sept. 14	Cranford	N2XJ (201) 635-7686	
Sept. 7	Los Angeles	Ali Hassan, AA6WC (213) 778-6226	w/i OK	Sept. 11	Fort Monmouth	WB2GYS (908) 532-5353	w/i
Sept. 7	Modesto	W6XK (209) 883-2968	w/i	Sept. 2	Sayreville	K2FD (201) 442-9215	w/i
Sept. 14	Novato	(415) 897-8950	w/i OK	Sept. 14	West Trenton	Don Wright (609) 737-1723	
Sept. 9	Oakhurst	(209) 683-8430	w/i OK	New Mexico			
Sept. 14	Redding	NT6E (916) 253-REVA	w/i	Sept. 1	Alamogordo	WA5IPS (505) 437-5896	w/i
Sept. 21	Redwood City	Dudley (408) 245-4801	w/i only	New York			
Sept. 9	Riverside	(714) 780-2680	p/r 7 days prior; w/i space permitting	Sept. 14	Greenvale	WA2BGE (516) 921-0085	w/i OK
Sept. 7	Sacramento	Lyle AA6DJ, (916) 483-3293; (916) 925-0159	Novice/Tech only; w/i	Sept. 22	North Babylon	KA2RGI (516) 957-0218	w/i OK
Sept. 21	San Diego	KB6WB (619) 465-EXAM	p/r by 9/11	Sept. 1	Yonkers	AC2V (914) 237-5589	w/i OK
Sept. 14	San Pedro	N6DYZ (213) 325-2965	w/i OK	Ohio			
Sept. 14	Santa Barbara	AA6JG (805) 964-8946	w/i	Sept. 7	Cincinnati	Herb WA8PBW (513) 891-7556	p/r pref.; w/i OK
Sept. 21	Signal Hill	NN6Q (213) 420-9480	p/r pref; w/i	Sept. 14	Columbus	William Tabor (614) 864-8370	w/i
Sept. 8	Thousand Oaks	Cathi AA6KL (805) 484-3309	p/r pref.; w/i OK	Sept. 28	Norton	KA8MPH (216) 882-6387	p/r pref.; w/i OK
Colorado				Sept. 14	Ravenna	Joanne KJ30 (216) 274-8240	
Sept. 29	Boulder	Barbara, N0BWS (303) 530-2903	p/r pref.; w/i OK	Sept. 14	Toledo	NC8M (419) 825-3423	
Sept. 14	Denver	W0IJR (303) 366-9689	w/i OK	Oregon			
Sept. 21	Westminster	N0CFM (303) 451-1231; N0HNR (303) 278-4280	p/r or w/i	Sept. 11	Roseburg	W6OFF (503) 673-0558; AA7GC (503) 673-7564	w/i OK
Connecticut				Pennsylvania			
Sept. 29	Milford	NB1M (203) 933-5125; WA1YQE (203) 874-1014	w/i	Sept. 7	Erie	W3CG (814) 665-9124	w/i
Sept. 25	Shelton	WJ1T (203) 736-0488	w/i pref.	Sept. 21	McKeesport	KQ3W (413) 466-5204	p/r 2 days prior
Idaho				Sept. 5	Philadelphia	ND3Q (215) 482-0386 or (215) 879-0505	w/i
Sept. 14	Boise	W7JMH (208) 343-9153	w/i	South Carolina			
Illinois				Sept. 21	N. Charleston	AA4IX (803) 873-9465	w/i
Sept. 14	Bloomington	NX9M (309) 662-3910	w/i OK	South Dakota			
Sept. 21	Godfrey	KF9F (618) 466-2306	w/i OK	Sept. 13	Rapid City	KA0SEZ (605) 394-1298; NU0F (605) 348-6564	p/r 30 days prior; w/i OK
Sept. 8	Joliet	Bill, NW9K (815) 886-5135	w/i OK	Texas			
Sept. 21	Loves Park	W9SS (815) 877-6768	p/r; w/i	Sept. 21	DFW Airport	KF5BL (214) 252-8015	w/i
Sept. 14	Oak Forest	KA9HDN (312) 247-0650	w/i	Sept. 10	Houston	WB5IGG (713) 777-3345	p/r pref; w/i OK
Indiana				Sept. 14	Midland	KT5G (915) 694-9450	w/i OK
Sept. 7	South Bend	N19Y (219) 255-4455	w/i OK	Sept. 28	San Antonio	K5JWK (512) 657-1549	w/i
Sept. 20	South Bend	NY9A (219) 232-6883	w/i OK	Vermont			
Iowa				Sept. 21	Berlin	WB1AJG (802) 433-6172	p/r pref.; w/i OK
Sept. 15	Des Moines	NA0R (515) 964-0900 or (515) 967-3890	w/i	Virginia			
Kansas				Sept. 14	Richmond	Ron WU4G (804) 798-5191	w/i
Sept. 11	Great Bend	WA0PSF (316) 792-5363	p/r pref.; w/i limited	Sept. 22	Virginia Beach	Ed W4RTZ (804) 898-8031	
Maryland				Washington			
Sept. 7	Germantown	John, W3QF, (301) 564-0178	p/r pref; w/i OK	Sept. 21	Renton	WA7UVJ (206) 854-4031	w/i only
Sept. 21	Laurel	WB3GXW (301) 572-5124	p/r pref	Wisconsin			
Sept. 14	Salisbury	KB3MT (302) 436-8360	w/i	Sept. 7	Racine	NW9P (414) 658-8390	w/i
Massachusetts							
Sept. 2	Boston	WN1U (617) 436-2413	w/i				
Sept. 18	Cambridge	KA1MQX (617) 253-3776	w/i				
Sept. 21	Melrose	WB1F (617) 322-7654	w/i OK				

When will AMSAT-OSCAR-13 be in range?

ROSS FORBES, WB6GFJ

Those just starting out in the world of OSCAR communications would like to know when they can hear a satellite. The following charts are produced to give you a rough idea as to when OSCAR-13 will be within range of your location: The three charts as printed are centered on the following geographic locations: East = New York City; Mid = St. Louis, MO; West = Reno, NV.

As you read the chart nearest your location,

keep in mind the following details — all dates and times are given in UTC. The date is printed on the left hand column and the UTC hour along the top.

A dash mark indicates the satellite is out of range and therefore not able to be heard. The letter "B" indicates OSCAR-13 is audible at that location and signals should be heard between 145.810 and 145.880 MHz (SSB and CW). A letter "O" indicates the satellite is audible, but the only signal you will hear is the

telemetry beacon on 145.810 MHz. The letter "L" indicates the satellite is audible but you will hear signals between 435.650 and 436.000 MHz (SSB and CW).

Remember, if a letter is printed on the chart, you should be able to hear OSCAR-13.

For more information about OSCAR, please send a SASE to either of the following: Project OSCAR, P.O. Box 1136, Los Altos, CA 94023-1136; AMSAT-NA, P.O. Box 27, Washington, D.C. 20044. □

Station East

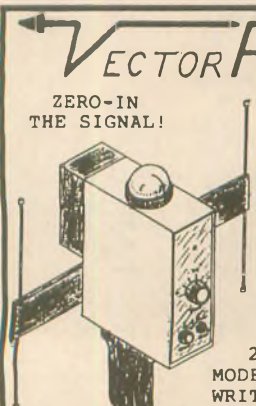
	HOUR - UTC																								
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9/01	---	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/02	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/03	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/04	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/05	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/06	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/07	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/08	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/09	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/10	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/11	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/12	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/13	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/14	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/15	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/16	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/17	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/18	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/19	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/20	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/21	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/22	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/23	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/24	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/25	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/26	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/27	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/28	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/29	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/30	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Station Mid

	HOUR - UTC																								
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9/01	---	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/02	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/03	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/04	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/05	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/06	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/07	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/08	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/09	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/10	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/11	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/12	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/13	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/14	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/15	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Station West

	HOUR - LOCAL																								
	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
9/16	---	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/17	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/18	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/19	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/20	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/21	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/22	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/23	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/24	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/25	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/26	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/27	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/28	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/29	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9/30	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L



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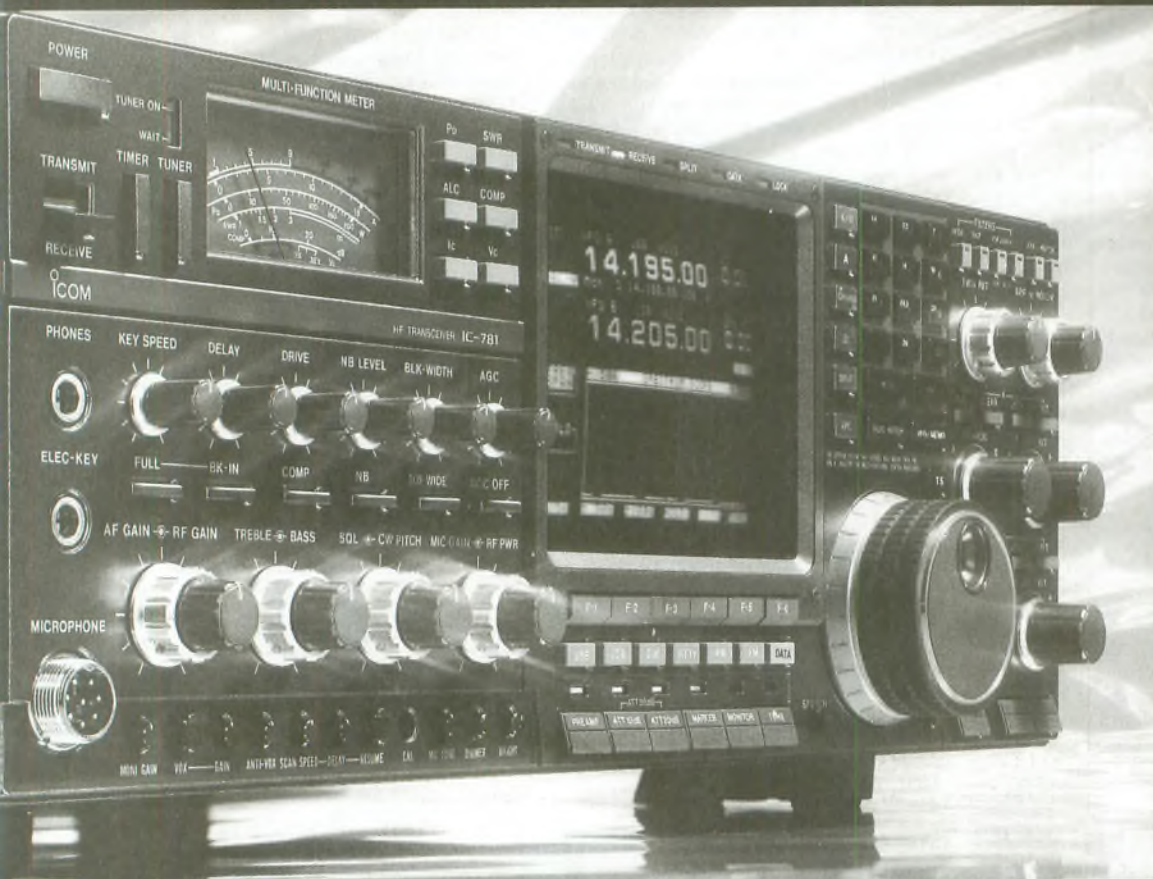
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