Worldradio

Year 21, Issue 4 October 1991 • $1.25

FEATURES

COLUMNS

If you received this issue and you are not yet a paid subscriber, this is your free sample copy, and you are invited to subscribe. Subscription blanks can be found on page 9 and on the back inside of this protective wrapper.

Sample copies can be identified by the label. If only your call and name appear on the label, or if it says "sample copy, please subscribe" it is a sample copy.

Sample copy, please subscribe
W5QSO
R. Dent Amateur
PO Box 720
Plano, TX 75025

W5QSO
R. Dent Amateur
PO Box 720
Plano, TX 75025

Labels similar to the one below are from our regular mailing list. The number in the upper right hand corner designates the last issue of your subscription term.

WR 00-0000000 03/92
R. Dent Amateur, W1QSO
PO Box 720
Plano, TX 75025

Worldradio

Year 21, Issue 4 October 1991 • $1.25

Soon to be an XZ

The North Alabama DX Club (NADXC) hosted Romeo Stepanenko, his wife, Alyona, and Yuri Brejenko at a DX banquet on Wednesday, July 3, in Huntsville, Alabama. Over 100 people, most from Huntsville but some all the way from Bowling Green, Kentucky, Nashville, Tennessee and Birmingham, Alabama, attended the banquet.

Just the week before, Romeo had been given approval of his documentation to operate from Burma (Myanmar-XZ) by the ARRL, and had just recently completed his YA0RR operation. To operate from two of the three "most needed" countries within one year is a feat rarely seen in DX history.

Romeo (UB5JRR, 3W3RR, 1S0XV, YA0RR, and now soon to be an XZ) gave a slide presentation of his Afghanistan operation and presented YA0RR QSLs to those fortunate enough to have worked him.

Tim Pearson, KU4J, NADXC president, presents the NADXC Honorary Member plaque to Romeo Stepanenko, UB5JRR.

The NADXC presented gifts to Alyona and Yuri, and gave Romeo one of the nationally known "SmartKeyers," invented by Joe Lunspord, N4Y6, and built in Huntsville.

The following day, July 4, several of the NADXC club members accompanied Romeo and his group on a tour of the Space and Rocket Center. Their tour guide was Dr. Valery Aksamentov from Moscow, who had been at the Space and Rocket Center with the Red Star in Orbit Russian spaceware exhibit. The Fourth of July evening ended with Romeo and the others sitting in the VIP viewing stand and being treated to a gigantic laser and fireworks display. □

Yuri Brejenko (traveling and business companion of Romeo), Romeo Stepanenko, soon to add XZ to his calls, Joe Lunsford, N4YG, and Dan Whitsett, W4BRE, banquet chairman.

Trapped on a glacier with a neurosurgeon and an HT

The following is reprinted courtesy of the Seattle Post-Inteligencer *(July 2, 1991).*

ARTHUR C. GORLICK, P-I reporter

Elated, veteran mountaineer Steve Studley stood above the clouds at the 10,568 ft. summit of Glacier Peak in the North Cascade Mountains.

Then, as he and a climbing partner, Tim Lewis, 33, of Seattle, began their descent Sunday on the steep slope of the rugged peak, Studley slipped on the glistening ice of Sitkum Glacier.

"I was tumbling, trying desperately to sink my ice ax into the glacier so I could control my fall, but the ice was too hard," he said. "I couldn't stop the fall. I thought I was going to die."

Studley's right leg snagged in a fissure as he plummeted out of control.

(please turn to page 6)

HENRY RADIO...

64 years of providing the amateurs of 50 states and 100 countries with the honest, reliable service they deserve.

Through good times and bad the Henry family never wavered from this commitment.

There are a lot of good reasons. We know that we have provided the kind of equipment and service that thousands of amateurs have come to expect. They keep coming back. We'll do our best to see to it that they, and you have every reason for coming back.

☆ A large inventory of fine equipment from the world's leading manufacturers ☆ A knowledgeable staff dedicated to amateur radio ☆ A complete line of accessories ☆ A well stocked repair shop staffed by experienced technicians ☆ We take trade-ins and sell used equipment ☆ Generous discounts on cash purchases ☆ We carry our own financing & accept most credit cards

Some of the names we stock include:

HENRY • TEMPO • KENWOOD • ICOM • YAESU • ACE • ADVANCED RECEIVER RESEARCH • AEA • AIM • ALEXANDER • ALPHA DELTA • AMECO • ANTRONIC • ARRL • ASTRON • B&K • B&W • BECKMAN • BENCHER • BIRD • BUDWIG • BUTTERNUT • CAL CHASSIS • CALRAD • CALTRONICS • CES • CENTURION • COMET • COMMUNICATIONS SPECIALISTS • CONNECT SYSTEMS • CREATE • CUSHCRAFT • DAIWA • DIAMOND • DIGIMAX • DIGITAR • DOW KEY • DURACELL • EASCO • EAVESDROPPER • EIMAC • • ELENCO • FANON • GC • GORDON WEST • GRUNDIG • HAL • HEIL • HOXAN • HUSTLER • HY GAIN • ICOM • JABRO • JAPAN RADIO • KANTRONICS • LANDWEHR • LARSEN • LITTELFUSE • LMB • MAG INSTRUMENTS • MARK • MAXON • MFJ • MIDIAN • MILLEN • MIRAGE/KLM • MOTOROLA RADIUS • MULTICORE • MULTIPLIER • WM. M. NYE • OUTBACKER • PALOMAR • PANAVISE • PHILMORE • PIPO • PORTASOL • RADIO AMAT CALLBOOKS • RAWN • RF CONCEPTS • ROHN • SANGEAN • • SELECTONE • SGC • SHURE • SIMPSON • SONY • STANDARD • SWITCHCRAFT • TEN TEC • TRI-EX • TRIPPLITE • TUBES • UNADILLA • UNIDEN • VAN GORDEN • VIBROPLEX • WACOM • X-10

Henry Radio

2050 S. BUNDY DR. LOS ANGELES, CA 90025 (213) 820-1234

Toll free order number: (800) 877-7979 TELEX: 67-3625(Henradio) FAX(213) 826-7790

Finally a ham

MAGGIE WALTERS, KB6UXS

"This is KB6UXT—I have pencil in hand and ready to call 911 for you." This was just one of the many return calls from Joe Walters, known as "the High Desert Messenger Service" to many ham operators on the WB6RSD Keller Peak repeater in southern California.

Joe has been an ARRL associate life member for over 25 years, always with the hope of someday becoming a ham. After settling in Victorville, California, with his wife, Maggie, KB6UXS, and 13-year-old son, Randy, and son Gary, his life-long dream became a reality in 1987.

In 1986 Joe became very ill. After being admitted to Loma Linda Hospital, a triple bypass and repair of two carotid arteries was necessary. Two years later gangrene of the legs developed and both legs were amputated above the knees. His last bout in the hospital was with cancer of the prostate. Through all of this in four years, one must know just how much being an Amateur Radio operator meant to KB6UXT. He says, "Everyone is just too wonderful for words, and I love them all."

When he's not talking on his 2M or 220 radio, Joe is talking and watching his ATV, listening on the low bands, or working with his two computers from his bed.

Joe Walters, KB6UXT, monitors an array of equipment from his "rubber room" station.

Joe retired from the US Navy and Civil Service, then spent five years with the Mt. Loral, New Jersey Police Department. He has been commander of three different VFW posts (one of which he started), president of a Fleet Reserve association branch, commander of "Coodies" in New Jersey, president of Lions Club and last but not least the mayor of Bellflower, Missouri.

But, of all he has done in his life, he says that being an Amateur Radio operator has been his most enjoyable accomplishment. The word "can't" is not in his vocabulary.

"Nothing is impossible," he says. "Some things just take a little longer.

Together 50 years in Amateur Radio

The lady whose picture appears on the back cover of the August issue of *Worldradio* is Anne Griffith, W5NHI (ex-WØLO, ex-W1MTB). She has held her Amateur Radio license for 51 years.

She has also been my wife for 50 years. We originally met via Amateur Radio. *—B. Whitfield Griffith, Jr., N5SU, Dallas, TX* □

CONTENTS

FEATURES

COLUMNS

Worldradio

TM

October 1991
Vol. 21, No. 4

Worldradio is published monthly by Worldradio, Inc.
2120 28th Street
Sacramento, CA 95818
(916) 457-3655

Subscription Dept.
Worldradio
201 Lathrop Wy., Ste. D
Sacramento, CA 95815
1-800-365-SUBS

Second class postage paid at Sacramento, CA & additional offices.
POSTMASTER: Send address changes to **Worldradio Inc.**, P.O. Box 189490, Sacramento, CA 95818.

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

Our goal is to be a valuable resource of ideas and experiences beneficial to the Amateur Radio Community. We publicize and support the efforts of those who bring the flame of vitality to this avocation.

You readers are participants — an alliance of active radio amateurs concerned with reality, using radio as a communications tool to develop the skill, quality and full potential of Amateur Radio.

We emphasize the positive aspects of this great activity, and desire your contributions dealing with dramatic, personal and humanitarian uses of Amateur Radio.

Worldradio is an independent newspaper not affiliated with any other firm, group or organization. Its pages are open to all. Permission is hereby automatically granted to reprint from this publication with appropriate source credit. If there is something useful, we wish to share it.

Subscription rates: $14* per year, $27* for two years, $39* for three years and $140* for life; *for CA delivery add 7¾% tax; $10 extra per year for surface mail delivery outside the U.S. Please remit international postal money order. IRCs will be accepted.

STAFF

Editor and Publisher.....Armond Noble, N6WR
Managing Editor.....Robin Wortley, KC6RUD
Associate Editor.....Norm Brooks, K6FO
Ass't Editors.....Kaye Schwartz/Brenda Leehe
Consulting Editor.....Lou Ann Keogh, KB6HP
Advertising Director.....Helen Noble
Advertising Mgr.....Rosalie Hernandez
Graphics Director.....*Dianne Dunning*
Circulation Mgr.....Dorothy Campini

PUBLISHER'S MICROPHONE

First, a correction to an article in last month's issue. On Field Day the ***Worldradio*** Staff ARC made well over 200 SSB contacts, not the 21 reported. The gremlins caused that typo.

•

To the fine amateurs who deservedly have their names enshrined for posterity: ***Worldradio*** Super-Boosters (lifetime subscribers):

Kenneth Chaffee, WA1QXR, Ashway, RI
Francis Whittier, WB1CXX, Madison, ME
Dr. Wayne Brencki, KM4JX, Durham, NC
Dr. John Ryan, WX4Q, West Jefferson, NC
Herbert Morgan, WD9GBH, Marion, IN
Michael Ryan, WD9DOS, Lombard, IL
Tom Barnum, AA6TP, Laguna Niguel, CA
Don Pagala, N6TTR, French Camp, CA
R.G. Brockman, WD6DMX, Rio Linda, CA
Michael Cross, WB7AYU, Seattle, WA

•

I hope everyone read very closely the article in last month's issue: Is Amateur Radio Really in Decline? David "Spike" Boyd, K9MX, really did a magnificent job of research.

We give blanket permission for the article to be reprinted by anyone, especially a magazine published in New Hampshire.

•

In many cities there are stores which specialize in used hi-fi gear. Such are good places to check out for reasonably priced small speakers. There's a big difference in listening to the output of your transceiver from a speaker larger than three inches that's not in a metal box.

•

Dave Popkin, *W2CC,* sent in a copy of a proclamation issued by the mayor of Englewood, NJ, acknowledging the importance of Field Day and establishing Englewood Amateur Radio Association Week.

We really don't have to be the "stealth" hobby at all. The motivated do indeed bring us publicity. When we think about what Amateur Radio means to us, and what it has brought to us, it is almost criminal not to want to bring its joys and rewards to others.

Bravo to the many clubs who invite the press to their Field Day locations. A curl of the lip to those who are too lazy to make the effort.

•

For many years ***Worldradio*** has had a program (see Visit Your Local Radio Club in this issue) in which we send clubs mailing labels of newly licensed amateurs in their area. The club in turn would use the labels to invite the new amateurs to their club meetings. Unfortunately, due to the sale of the Radio Amateur *Callbook,* we can no longer continue that program.

It's nice being associated with forward thinking clubs and organizations. We think it's tragic that more don't do the same. Some just can't be bothered.

•

There are areas in this country where hams gather, away from monthly meetings, in informal get-togethers at local coffee shops, possibly once a week or once a month. Seems that Saturday morning is a popular time.

How many of us, in trying to get some exercise, go for a long walk and spot an antenna at the home of someone we don't know? There seems to be more reluctance these days to do what hams in the past did whenever they spotted an antenna . . . go right up and knock on the door and introduce yourself.

We're thinking about making available printouts of the hams living in each zip code. There are about 36,000 zips, (a bite-size of the ham population) with an average of 13 hams in each one. The idea is that some motivated soul would take it upon himself (or herself) to send out 13 postcards and say, "Let's get together this Saturday at 10 a.m. at . . ."

Yes, some would be going to people who are no longer active (and haven't been so for many years). But, maybe that would be a good thing. It might revitalize some of them. It might be just what these once and future hams need. There's no one who doesn't appreciate having a little interest shown in him.

Some of the zips with fewer hams might team up with an adjoining area. Each individual zip is so identified by the last two numbers of the zip. And each of the individual zips has a little branch post office attached to it.

Let me know what you think of the idea and if you'd be willing to be the motivator in your area. It could well be that there are amateurs (past, present and future) who live but a few blocks away from you but whom you've never met. And that's a little sad. For you, and them.

—Armond, N6WR

The Tradition Continues...

FT-990 HF All-Mode Transceiver

The benchmark from which all other HF all-mode transceivers are judged was set with the introduction of the FT-1000. Now, the tradition continues.

Features and Options:

- **High Dynamic Range:** Unsurpassed RF circuit design with quad FET first mixer similar to the FT-1000.
- **Dual Digital Switched Capacitance Filter:** The FT-990 is the **only** HF transceiver to feature a SCF with independent hi/lo-cut controls for skirt selectivity providing unmatched audio reception as never before attained.
- **Built-in Convenience:** Unlike the competition's extras the FT-990 was designed as a true self-contained base station. A switching AC power supply is built-in.
- **CPU Controlled RF FSP (RF Frequency-Shifted Speech Processor):** The RF FSP shifts the SSB carrier point by programming a CPU to change audio frequency response and provide optimum speech processing effect.
- **Dual-VFO's with Direct Digital Synthesis (DDS)**
- **Full and Semi Break-in CW Operation**
- **6 Function Multimeter**
- **Adjustable RF Power**
- **Adjustable Level Noise Blanker**
- **90 Memories**
- **Multimode Selection on Packet/ RTTY**
- **Front Panel RX Antenna Selection**
- **Digital Voice Storage DVS-2 Option**
- **Band Stacking VFO System**
- **Accessories/Options:** TCXO-2 (Temperature Compensated Crystal Oscillator), XF-10.9M-202-01 (2nd IF SSB Narrow 2.0kHz), XF-445C-251-01 (3rd IF CW Narrow 250Hz), SP-6 (External Speaker), MD1C8 (Desk Microphone), YH-77ST (Headphones), LL-5 (Phone Patch Module).

YAESU

Performance without compromise.℠

Trapped

(continued from page 1)

The bone snapped between the knee and hip.

"I don't know if I did it unconsciously or if I still had enough presence of mind, but I finally sank my ice ax into the snow," said Studley, 27, of Snohomish. "It jerked me to a stop. Below me was ice from an earlier avalanche with some very sharp edges. If I had hit it, it would have slit me open."

As Studley lay terrified and in agonizing pain on the 45 degree snowy slope, a series of events began that Sgt. John Taylor, head of the Snohomish County Sheriff's Department's Search and Rescue Division, called "miraculous."

"This guy was fortunate, because if it didn't all mesh, he would be up there until Tuesday or Wednesday, and he might not have made it," Taylor said.

Dr. Sean Grady, a neurosurgeon at Seattle's Harborview Medical Unit, and his climbing partner, Ben Norton, a King County firefighter and emergency medical technician, were nearing the summit on their ascent and saw Studley's 500 ft. plunge.

They rushed to his side.

"They stabilized my leg by cutting a climbing rope into pieces and tying my right leg to my left leg, sort of using it as a splint," Studley said.

Then Studley reached into his backpack and pulled out his HT. "I'll never go without it again," he said.

As soon as he flicked it on, he heard two Canadian operators talking, one of them in Victoria, B.C.

"I said, 'Break, break! I have an emergency, and I need a connection to Snohomish Search and Rescue,'" Studley said. "That's when all these Amateur Radio operators went into action."

In Everett, amateur Doug Fister telephoned Snohomish County's dispatch center, which alerted Taylor.

In Seattle's Matthews Beach area, amateur John Pollock began serving as a central-base control, linking all involved in the rescue, who were operating on a myriad of radio frequencies.

"At one point, I had seven radios operating at the same time," Pollock said.

Taylor contacted helicopter pilot Tom Barr, who got ready to go at Harvey Field in Snohomish.

Then Taylor started an emergency alert system that sent "more than 80 search and rescue volunteers to start for the trail head to help carry Studley out in case the helicopter couldn't land."

By the time Taylor climbed into the helicopter's co-pilot seat, three others already were aboard—crew chief Jim Duffy, emergency medical technician Kathy Willhelm and her husband, Howard, a first-aid specialist.

As they flew toward the mountain, Studley handed his radio to Norton, who gave the amateur in Victoria information about weather conditions and the elevation level of the small group surrounding the barely conscious mountaineer.

The amateur in Victoria relayed the information to Pollock, who passed it along to Bell and Taylor in the helicopter.

Meanwhile, Pollock and other amateurs contacted Studley's wife, Heidi, 30, who raced to the Everett hospital with their two children, Allison, five, and Jordon, three.

Pollock also located Studley's brother, John, another amateur. John Studley and other family members headed for the hospital.

The rescue was risky.

"We circled above the mountain to burn off some fuel and then we threw down a smoke grenade to help us determine the wind and other conditions," Taylor said.

"We landed at the 8,200 ft. level on a snow ridge. We packed snow on the landing skids to keep the helicopter from toppling and shut down the rotor."

As Studley was loaded aboard the helicopter on a stretcher, Howard Willhelm volunteered to climb down the mountain so the helicopter wouldn't be overloaded.

Despite surgery to set the leg, Studley said the accident wouldn't keep him from challenging mountains.

"I love climbing," he said. "I made a stupid, bonehead mistake. We didn't follow the basics, and we weren't lashed (roped) together.

"I won't do that again—and I will never climb again without bringing my radio along. It was the most important tool in my rescue." □

Desirable traits in a volunteer

"What are the desirable traits for a Level 1 volunteer?"

A management workshop, based on Harvard Business School techniques, divided 110 people into 11 groups of 10 people each. The groups were asked to list all of the attributes that came to mind. After a period of time they were told to stop writing lists and vote on their top eight. Then all 11 groups combined their results into the following top eight attributes:

1. Reliability
2. Participation
3. Being a team player
4. Dedication and commitment
5. Ability to cooperate
6. Acceptance of responsibility
7. Support; speaks well of his/her organization before others
8. A success in his/her vocation

What others might you add? This can be a good discussion at any organizational meeting. — RACES Bulletin, *California OES* □

Amateur Radio ambassadors open new relations with Soviet Union

DAVID LARSEN, KK4WW

David Larsen, KK4WW, John Douglas, NØISL, and Bob Fribertshauser, W6YMR, members of the Foundation for Amateur International Radio Service (FAIRS), met with many Soviet officials during May, 1991. The FAIRS members, known as the 59 Group, were on a three-week goodwill mission delivering equipment to Soviet amateurs for emergency digital radio communications. Nine computers were delivered (donated by Control Data Computer Products and others), as well as nine TNCs (donated by PacComm), two HF transceivers, four HTs and three VHF transceivers. The computer donations were much easier to obtain than to transport to the Soviet Union. David wrote to President Mikhail Gorbachev, whose secretariat paved the way for the Radio Sport Federation (RSF) of the USSR to help. The RSF lined up transportation on Aeroflot Airlines with the Ministry of Transportation, and they helped with the customs officials to get the computers to the proper Soviet hams.

The FAIRS group donated and installed a computer and TNC at the Krenkel Central Radio Club (RSF) station UK3F and also at the club station of Radio Magazine UK3R. The other computers and TNCs were installed at Soviet amateur stations of FAIRS members Victor Goncharsky, UB5WE; Helen Goncharsky, RB5WA; Vladimir Klebanovsky, UB5WCV; Victor Golutvin, UB5WPR; Yuri Katyutin, UA4LCQ; and Valentin Kudryavtev, UA4LM.

In addition to working with the hams, the American delegation taught a four-day microcomputer interfacing workshop at Lvov Polytechnic Institute, in Lvov, Ukraine. A half-day roundtable discussion on computers in science and economics was also given at Lvov Polytechnic and at Ulyanovsk Polytechnic Institute in Ulyanovsk, Russia.

All three US hams had full operating privileges to use their American calls portable, and made about 4,000 contacts from Lvov, Ukraine and Ulyanovsk, Russia. Dave, KK4WW, and John, NØISL, both worked DXCC with well over 100 countries each.

Victor Goncharsky was the 59 Group's Soviet host and helped make the trip a tremendous success. More donated equipment is already waiting for the next FAIRS trip to the Soviet Union in 1992. □

FAIRS member David Larsen, KK4WW, presents a computer donated by Control Data Computer Corporation to Vasilij Bondarenko, UV3BW, chief of the Krenkel Central Radio Club UK3F (RSF), Moscow.

The FCC is recommending to the State Department that the US support a reallocation of 1325 kHz from fixed and mobile HF services to the broadcast service due to severe congestion in existing HF broadcast bands. (*W5YI Report*, 7/15/91)

At the July 19 and 20 ARRL board meeting, an interim 222-225 MHz band plan, as proposed by the VHF/UHF advisory committee, was adopted. The board also endorsed the efforts of local frequency coordinators to reaccommodate repeaters with input frequencies in the lower part of the 222 MHz band to other recognized repeater pairs, to reduce the possibility of interference between repeater users and operators using other modes, for whom frequencies below 222 MHz will no longer be available after August 27.

The board also directed the filing of a petition for rulemaking with the FCC, seeking a shift in frequencies permitted for repeater and auxiliary operation to 222.000 MHz.

The FCC on July 24 denied two petitions seeking reconsideration of the Commission's Order of Oct. 31, 1990, which denied petitions requesting that the allowable power for amateurs using amplitude modulation not be lowered.

Those who petitioned for reconsideration, Dale Gagnon, KW1I, and the Society for the Preservation of AM (SPAM), again argued that the FCC had not taken their original arguments into adequate consideration, and that the old limit of 1,000W DC input should be retained as they and the ARRL had earlier requested.

In replying to one of the petitioners' claims, regarding a resurgence among amateurs in AM operations, the Commission said, "We disagree with the petitioner's contention that popularity of a particular emission type within the amateur service community has any bearing on the maximum power that an amateur station should be authorized."

At the same time, the Commission made an editorial change to Section 97.313(b) so that it now reads in its entirety: "No station may transmit with a transmitter power exceeding 1.5 kW PEP." The language which provided for grandfathering of AM transmitters until June 2, 1990, has been deleted. (*The ARRL Letter*, 7/25/91)

Mexico and the US forge reciprocal operating agreement

According to an FCC news release dated July 9, the United States and Mexico have concluded a reciprocal operating arrangement. The agreement will permit amateurs from each country to operate their amateur stations in the other. In the release, the FCC noted that this agreement would enhance the public service efforts of amateurs. The FCC is expected to release a public notice shortly describing the necessary procedures for obtaining a reciprocal permit in Mexico.

Until such time as both nations announce an implementation date for the new reciprocal agreement, operation by US hams in Mexico will have to follow established methods.

How to get a temporary Mexican amateur license

by Rafael Zamudio Gastelum, XE2DG

United States hams who want to obtain a ham license to operate in Mexico must:

1) Present a written request for a temporary Amateur Radio operator's license to: Subdelegacion Regional Tijuana, Direccion General de Politicas y Normas de Comunicaciones, Calle Mar de Cortez No. 48, Col. Lomas del Porvenir, Tijuana, Baja California, 22110 Mexico.

2) Enclose an original and four copies of Form HD-1 for proof-of-payment of 163,000 pesos (Mexican currency). Form HD-1 is available at no cost in the office of the Secretaria de Hacienda y Credito Publico in Tijuana or in most of the stationery stores in town. Payment may be made in the Secretaria de Hacienda y Credito Publico or in any bank in Tijuana, B.C.

3) Enclose two copies of your tourist visa.

4) Enclose two copies of your US Amateur license.

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 August 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	AA0FN	KF0TD	N0OVO	KB0JKO
1	WU1Q	KD1CQ	N1JVE	KA1ZEZ
2	AA2FU	KF2DI	N2NKZ	KB2NMB
3	WQ3L	KD3YB	N3KCW	KA3ZIH
4	AC4HS	KO4FW		KD4DIH
5	AA5ZV	KI5SE	N5VDK	KB5QES
6	AB6EB	KM6FT		KC6ZCM
7	AA7JI	KG7SE	N7TDQ	KB7NZW
8	AA8EK	KF8OU	N8PPO	KB8MXT
9	AA9BJ	KF9EV	N9MDS	KB9HDO
North Mariana Is.	AH0K	AH0AH	KH0AN	WH0AAQ
Guam	KH2S	AH2CM	KH2FJ	WH2AMU
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii		AH6LH	WH6AZ	WH6CNV
Kure Is.			KH7AA	
American Samoa	AH8D	AH8AE	KH8AI	WH8ABA
Wake Wilkes Peale	AH9A	AH9AD	KH9AE	WH9AAH
Alaska		AL7NI	NL7YL	WL7CCQ
Virgin Is.	NP2Q	KP2BZ	NP2EK	WP2AHK
Puerto Rico		KP4SF		WP4KJF

Subscription form

If you received this copy of Worldradio and you aren't yet a subscriber . . . this was your sample copy.

We sent it to you to acquaint you with our reporting on this great activity. Amateur Radio is exciting, challenging, stimulating, satisfying and very rewarding.
You are cordially invited to subscribe to, and be a part of Worldradio.

Yes...I want to know even more about the wonderful world of Amateur Radio.

TO FACILITATE FASTER HANDLING OF YOUR SUBSCRIPTION, PLEASE USE THIS BLANK

(SOURCE)

(59-60)

Name _____

Call _____

Address _____

City _____

State _____ **Zip** _____

☐ **NEW** ☐ **Renewal** ☐ **Gift**

	49 "free" states	CA sales tax	Price delivered in CA	Non-US ZIP
One Year	$14.00	$1.09	$15.09	$24.00
Two years	$27.00	$2.09	$29.09	$47.00
Three Years	$39.00	$3.02	$42.02	$69.00
Lifetime	$140.00	$10.85	$150.85	$240.00

Subscriptions may be paid in U.S. funds drawn on U.S. banks, by International Money Order. VISA or MasterCard. Canadian Postal Money Orders (in U.S. funds) are also acceptable.

☐ **Check enclosed** ☐ **MasterCard** ☐ **AmEx** ☐ **VISA**

Card # _____ **Exp. date** _____

Signature _____

Please clip and mail to . . .

Worldradio™
201 Lathrop Way, Suite D
Sacramento, CA 95815

For Subscriptions
(charge cards only)
TOLL FREE 1-800-365-SUBS 8 a.m. to 5 p.m. Pacific Time

Thank you!

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

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

You will be issued a license with the prefix XE2/ followed by your American call sign.

For more direct information, you can reach the Subdelegacion Office in Tijuana: Call Martha Villarreal (secretary—she speaks English), telephone: 803191 in Tijuana.

Although we have listed the Tijuana address of the Direccion General de Politicas y Normas de Comunicaciones, a temporary license may similarly be obtained at any DGPNC regional office in any major Mexican city. (*Westlink Report*, 7/30/91)

The House of Representatives voted on July 9 to turn over more of the radio spectrum to commercial users. The bill, passed by voice vote and sent to the Senate, is said to encourage development of new communications technology. It would authorize the Commerce Department to free up 200 MHz of bands of radio frequencies that now are assigned to government use.

Sponsors of the measure said a scarcity of commercially usable radio spectrum is restricting the development of consumer technologies such as wireless telephone systems and digital radio, and they warned that this may result in other nations gaining a significant competitive advantage over the US.

Some of the most important amateur bands are shared with the government and its wide array of radio services, with Amateur Radio as a secondary, non-interfering user. If it is that spectra that the government decides to rid itself of, then pressure for the removal of the Amateur Service as a major tenant in the radio warehouse could be significant. Only when a list of frequency bands to be reallocated is made public by the government will the Amateur Radio community and other recreational spectrum users know exactly where they stand. The House version of the legislation would require the Commerce Department to identify within a year at least 200 MHz of frequencies now assigned to the government but not required for its future needs. At least 30 MHz of this pool would be made available for commercial reallocation immediately, with the remainder turned over a ten year timeframe.

Even if both houses of Congress finally agree on a reallocation plan, the concept could be killed off at the executive level. This is because the Bush administration, while favoring the transfer of more spectrum to commercial use, wants those frequencies auctioned off to the highest bidder, believing that sale of spectra of such high value could be used to reduce government deficits. Until now, the pool of frequencies would be turned over to the FCC for allocation using either lotteries or by comparative hearings. While this is still the allocation system favored by the majority in Congress, administration officials say that they will urge the President to veto the bill if it does not include a provision authorizing the spectrum auction. (*Westlink Report*, 7/30/91) □

Shortest T-hunt

Joe Heumphreus, K6DXW, was driving up State Street with his scanner going when he heard the CHP dispatcher advise the city police department to send a unit to upper State Street to look for a lost child. Being a good T-hunter, Joe listened for the clues, the description of the child.

Paying attention paid off! Joe saw a boy on the corner of State and La Cumbre, so he pulled over, punched up the autopatch and asked, "Are you looking for a boy, nine years old, 4'4", gray slacks?

"YES, that's him!"

"Well, he's standing at the Union station at State and La Cumbre."

The dispatcher thanked Joe. Joe parked the car, started walking back, met the boy, and asked him, "Are your folks lost?"

"Yeah, I lost them at the Cattleman's Restaurant."

"Not to worry," said Joe, "Just stay put and someone will be coming for you. In 20 seconds, the CHP arrived with mama, very happy to find her boy!

What happened? Who knows. Probably the parents started talking and walked one way out of the restaurant, while the boy casually sauntered off in the other direction, and it wasn't until they were a quarter mile apart that they missed each other! Fortunately, mama spotted a CHP unit nearby and that started the rapid rescue. Well done, Joe! — *Santa Barbara ARC* □

SPECIAL EVENTS

Urbanna Oyster Festival

The Rappahannock ARA will operate special event station K3RZR on November 2 to celebrate the 34th Annual Urbanna Oyster Festival.

Operation will be in the following bands: 20M: 14.140 to 14.280 MHz; 40M: 7.240 to 7.280 MHz; and 80M: 3.860 to 3.880 MHz. Operating hours are from 1330Z to 2130Z.

For a certificate, send QSL and 8½×11 SASE to Phyllis Haxton, N4VZC, P.O. Box 396, Burgess, VA 22432. □

Alcatraz Prison

The Sacramento ARC will operate special event station W6AK on October 19 from Alcatraz Prison on Alcatraz Island, from the prison officer's dining hall.

Operations will begin when the antennas get up, about 1700Z and will end before the last boat back, about 2300Z.

Three transmitters will divide their time on SSB on 7.240, 14.280, 21.350 and 28.350 MHz following the best propagation.

QSL with SASE to SARC, P.O. Box 161903, Sacramento, CA 95816-1903. □

Salt Festival

The Northern Kentucky ARC will operate special event station K4CO October 18-20 from Big Bone Lick State Park in Union, Kentucky, in conjunction with the annual Salt Festival.

Operation will be on 40, 20 and 10M, and the 147.375(+) MHz repeater, from 1400Z to 2100Z.

For certificate, send a 4×9 SASE and contact number to NKARC, P.O. Box 1062, Covington, KY 41091. □

USS Lexington Decommissioning

The Serious Hams ARC will be operating a special event station during the week of November 4 through 10, celebrating the decommissioning of the Navy's training aircraft carrier, the *USS Lexington AVT-16.*.

Operations will be in the lower portion of the General 80 to 15M subbands and on 28.350 MHz.

For an 8×10 certificate, send a 9×12 SASE to Mike Brown, N4MAD, 519 S. Edgewood Circle, Pensacola, FL 32506. □

"22 Crew"

The "22 Crew" will operate WB2JKJ from the headquarters of the Radio Club of JHS 22 in New York City to celebrate the 11th anniversary of the club and their educational program—EDUCOM.

Join them October 23 through 25, on 7.238 MHz from 1200Z to 1330Z, then on 21.395 MHz until 2000Z.

For an awesome QSL and surprise package, write to RC of JHS 22, P.O. Box 1052, New York, NY 10002; or FAX 516/674-9600. □

Brunswick Railroad Days

The Brunswick Radio Amateur Groups (BRAGS) will operate a special event station September 30 through October 6 on phone and "/BSWK" on CW to celebrate the Brunswick Railroad Days.

Frequencies planned are 28.300 to 28.325 MHz (SSB) in the daytime; 14.250 to 14.265 MHz (SSB), 7.100 to 7.115 MHz (CW) and 3.675 to 3.700 MHz (CW) evenings and overnight, plus local VHF and UHF.

A commemorative photo QSL of the Brunswick Museum's Centennial Quilt, which was crafted by area residents and depicts the town's history as a rail center and port on the Chesapeak and Ohio canal, will be sent to contacts who QSL. QSL to BRAGS, P.O. Box 143, Brunswick, MD 21716. □

Aviation Museum

The Middle Georgia RA will operate special event station KN4IE from the Museum of Aviation at Robins AFB in Georgia on October 12 and 13 to remember and preserve aviation history on the "44th anniversary" of the breaking of the sound barrier.

Airpower or aviation notables may be present on the air.

Frequencies planned are 3.944, 7.244, 14.244, 21.344 and 28.344 MHz (SSB); and 3.644, 7.144, 14.144, 21.144 and 28.244 MHz (CW), QRM/QRN permitting. Operation times are from 1200Z to 2000Z.

For a unique QSL card and/or certificate signed by WWII Ace and *God is My Co-Pilot* author BGen Robert L. Scott, Jr., Ret., QSL with SASE to Dave Shiplett, WL7ACY, P.O. Box 1076, Warner Robins, GA 31099. □

Claybank Jamboree

*The Dale C*ounty ARES will operate special event station WD4NXN October 5 to commemorate the annual Claybank Jamboree Arts and Craft Show.

Operation will be in the 40, 20, and 15M General HF subbands and the Novice 10M phone band, from 1400Z to 2300Z.

For QSL, send contact number and SASE to Special Event WD4NXN, 208 Cherry Lane, Ozark, AL 36360-2811. □

The Tree That Owns Itself

The Athens RC will operate special event station WA4BKF October 19 and 20 to celebrate Athens' most unusual property owner, the "Tree That Owns Itself."

Operation will be in the General portions of the 80 to 15M bands and Novice 10M.

For a special QSL, send QSL and #10 envelope to Bill Strickland, WA4FVT, 355 Segrest Cir., Athens, GA 30605. □

Purdue Homecoming

The Purdue ARC will operate special event station W9YB October 19 from the campus of Purdue University to celebrate the Homecoming weekend.

W9YB will be active on 7.280, 14.280, 21.380 and 28.480 (+/− .20) MHz during the day as propagation and QRM allows. Operation time is from 1400Z to 2200Z.

For visitors to the campus, W9YB will be open for visits by past members, alumni, or any other interested individuals. W9YB is located in the West Tower of the Purdue Memorial Union. □

Slug and Oyster Festival

The West Seattle ARC will operate special event station W7AW October 12 and 13 during the Quilcene Slug and Oyster DX Festival to celebrate our friends the mollusks on the land and in the sea.

Operation will be from 1600Z to 0400Z on October 12 and from 1600Z to 1900Z on October 13. Frequencies planned are 7.225, 14.225 and 21.125 MHz.

Send QSL and a large SASE for a commemorative QSL certificate showing a friendsly slug and oyster at play to B. Todd, N7MFB, 3719 59th Ave. SW, Seattle, WA 98116. □

Potlatch Festival

The Carthage ARS, Inc., and Panola County, Texas, the home of country/western stars Tex Ritter, Jim Reeves and Linda Davis, celebrate the 12th annual Potlatch Festival on October 19 with special event station WD5FDO.

Operation will be on the lower 25 kHz of the General Class bands and the Novice portion of 10M from 1400Z to 2230Z.

For your certificate, send your QSL card, contact number and a #10 SASE to WD5FDO, 1408 Crescent St., Carthage, TX 75633-2152. □

Carnegie Science Center

The Breezeshooters ARC will operate special event station W3XX October 5 and 6 from the *USS Requin SS481*, a Trench Class WWII submarine, to celebrate the opening of the Carnegie Science Center.

Operation will be on 14.245, 21.365 and 28.495 MHz from 1400Z to 2200Z each day.

For a QSL card, send an SASE to WB3LHD, 326 Sunset Dr., Bethel Park, PA 15102. □

Columbus USA Festival

The Columbus ARA will conduct its 1991 Columbus Day special event October 12 and 13 in conjunction with the Columbus USA Festival. Club station W8TO will operate SSB from the festival.

Suggested operating frequencies are 7.240, 14.340, 21.375 MHz and the 10M Novice band. Operation will occur from 0000Z October 12 to 0000Z October 13.

A commemorative QSL is offered to those stations who confirm contact. In addition, other special awards also will be offered. For more information and QSL, contact Roger Dzwonczyk, WB2EIG, 283 E. Longview Ave., Columbus, OH 43202. □

Marconi Wireless

WB1U will be operating a special event station October 5 and 6 from the Marconi Wireless Station site at South Wellfleet, Cape Cod, Massachusetts, to commemorate its 90th anniversary.

Operating frequencies will be the General portions of 40, 20 and 15M (lower 25 kHz), and the Novice portions of 10 and 80M. Operation will begin at 1400Z on October 5.

For certificate send QSL and 9×12 SASE to Ray Hilson, 6 Sherman Place, Norwalk, CT 06851. □

Be alert

Amateur Radio operators in Humboldt recently assisted the county sheriff's department in getting an alleged drunk driver off the road.

One amateur spotted the man driving erratically and called another amateur, who called the sheriff's dept.

Although they'd already been notified once, officials hadn't been able to locate the vehicle. They worked with the two amateurs to pinpoint the drunk driver's location and make an arrest. —*Information,* Humboldt Independent, *7/25/91, submitted by Ivan Schultz, KØGP.* □

BEST OF MFJ

MFJ, Bencher and Curtis team up to bring you America's most popular keyer in a compact package for smooth easy CW

MFJ-422B **$134.95**

The best of all CW world's -- a deluxe MFJ Keyer using a Curtis 8044ABM chip in a compact package that fits right on the Bencher iambic paddle!

This MFJ Keyer is small in size but big in features. you get iambic keying, adjustable weight and tone and front panel volume and speed controls (8-50 WPM), dot-dash memories, speaker, sidetone and push button selection of automatic or semi-automatic/ tune modes. It's also totally RF proof and has ultra-reliable solid state outputs that key both tube and solid state rigs. Use 9 volt battery or 110 VAC with MFJ-1305, $12.95.

The keyer mounts on a Bencher paddle to form a small (4-1/8 x 2-5/8 x 5½ inches) attractive combination that is a pleasure to look at and use.

The Bencher paddle has adjustable gold plated silver contacts, lucite paddles, chrome plated brass and a heavy steel base with non-skid feet.

You can buy just the keyer assembly, MFJ-422BX, for only $79.95 to mount on **your** Bencher paddle.

Deluxe 300 W Tuner

MFJ-949D **$149.95**

MFJ-949D is the world's most popular 300 watt PEP tuner. It covers 1.8-30 MHz, gives you a new peak and average reading Cross-Needle SWR/Wattmeter, built-in dummy load, 6 position antenna switch and 4:1 balun -- in a compact 10 x 3 x 7 inch cabinet. Meter lamp uses 12 VDC or 110 VAC with MFJ-1312, $12.95.

Antenna Bridge

MFJ-204B **$79.95**

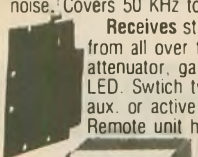
Now you can quickly optimize your antenna for peak performance with this portable, totally self-contained antenna bridge.

No other equipment needed -- take it to your antenna site. Determine if your antenna is too long or too short, measure its resonate frequency and antenna resistance to 500 ohms. It's the easiest, most convenient way to determine antenna performance. Built in resistance bridge, null meter, tunable oscillator-driver (1.8-30 MHz). Use 9 V battery or 110 VAC with AC adapter, $12.95.

SuperActive Antenna

"World Radio TV Handbook" says MFJ-1024 is a "first rate easy-to-operate active antenna ... quiet ... excellent dynamic range ... good gain ... very low noise ... broad frequency coverage ... excellent choice."

Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz to 30 MHz.

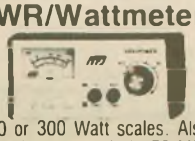


Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED. Swtich two receivers and aux. or active antenna.6x3x5 in. Remote unit has 54 inch whip, 50 ft. coax and connector. 3x2x4 in. Use 12 VDC or 110 VAC with MFJ-1312, $12.95.

MFJ-1024 **$129.95**

VHF SWR/Wattmeter

MFJ-812B **$29.95**



Covers 2 Meters and 220 MHz. 30 or 300 Watt scales. Also reads relative field strength 1-170 MHz and SWR above 14 MHz. 4½x2¼x3 in.

MFJ Coax Antenna Switches

$34.95 MFJ-1701 **$21.95** MFJ-1702B **$59.95** MFJ-1704

Select any of several antennas from your operating desk with these MFJ Coax Switches. They feature mounting holes and automatic grounding of unused terminals. They come with MFJ's one year **unconditional** guarantee.

MFJ-1701, $34.95. Six position antenna switch. SO-239 connectors. 50-75 ohm loads. 2 KW PEP. 1 KW CW. Covers 1.8-30 MHz. 10x3x1½ inches.

MFJ-1702B, $21.95. 2 positions plus new Center Ground. 2.5 KW PEP. 1 KW CW. Insertion loss below .2 dB. 50 dB isolation at 450 MHz. 50 ohm. 3x2x2 in.

MFJ-1704, $59.95. 4 position cavity switch with lightening/surge protection device. Center ground. 2.5 KW PEP. 1 KW CW. Low SWR. Isolation better than 50 dB at 500 MHz. Negligible loss. 50 ohm. 6¼x4¼x1¼ in.

"Dry" Dummy Loads for HF/VHF/UHF

MFJ-260B **$28.95** MFJ-262 **$69.95** MFJ-264 **$64.95**

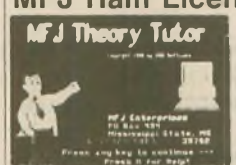
MFJ has a full line of dummy loads to suit your needs. Use a dummy load for tuning to reduce needless (and illegal) QRM and save your finals.

MFJ-260B, $28.95. VHF/HF. Air cooled, non-inductive 50 ohm resistor. SO-239 connector. Handles 300 Watts. Run full load for 30 seconds, derating curve to 5 minutes. SWR less than 1.3:1 to 30 MHz, 1.5:1 to 150 MHz. 2½x2½x7 in.

MFJ-262, $69.95. HF.1 KW. SWR less than 1.5:1 to 30 MHz. 3x3x13 in.

MFJ-264, $64.95. Versatile UHF/VHF/HF 1.5 KW load. Low SWR to 650 MHz. Run 100 watts for 10 minutes, 1500 watts for 10 seconds. SWR is 1.1:1 to 30 MHz, below 1.3:1 to 650 MHz. 3x3x7 inches

MFJ Ham License Upgrade Theory Tutor



MFJ Theory Tutor practically guarantees you'll pass the theory part of any FCC ham license exam. Versatile MFJ software is the best computer tutor ever tailor-made for ham radio. You can study the entire FCC question pool, selected areas and take (or print) sample tests. Auto. saves each study session (ex. sample tests), gives you all FCC test graphics (ex. mono.), explanations of hard questions, pop-up calculator, weighted scoring analysis, color change option and more. **Order** MFJ-1610-**Novice**; MFJ-1611-**Tech.**; MFJ-1612-**Gen.**; MFJ-1613-**Adv.** MFJ-1614-**Ex.** for **IBM compatible.** For **Macintosh:** MFJ-1630-N; MFJ-1631-T; MFJ-1632-G; MFJ-1633-A; MFJ-1634-E. **$29.95** per license class.

MFJ Speaker Mics

MFJ-284 or MFJ-286 **$24.95**

MFJ's compact Speaker/Mics let you carry your HT on your belt and never have to remove it to monitor calls or talk.

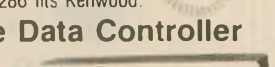
You get a wide range speaker and first-rate electret mic element for superb audio on both transmit and receive.

Earphone jack, handy lapel/pocket clip, PTT, lightweight retractable cord. Gray. One year **unconditional** guarantee.

MFJ-284 fits ICOM, Yaesu, Santec. MFJ-286 fits Kenwood.

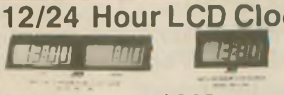
MFJ-1278 Multi-Mode Data Controller

MFJ-1278 **$279.95**



Use computer to transmit/ receive in **all 9** digital modes: Packet, AMTOR, ASCII, CW, RTTY, FAX, SSTV, Contest Memory Keyer and Navtex receive. Automatic Signal Analysis™ (ASA™), Easy-Mail™ Personal Mailbox. Built-in printer port, 20 LED tuning indicator. AC power supply. Host/KISS, 32K RAM. Multi-gray level FAX/SSTV modem. CW key paddle jack and tons more. Options include 2400 baud modem (MFJ-2400. $69.95) and software with computer cables, for IBM compatible. Commodore 64/128. Macintosh and VIC-20.

12/24 Hour LCD Clocks



$19.95 MFJ-108B **$9.95** MFJ-107B

Huge 5/8 inch bold LCD digits let you see the time from anywhere in your shack. Choose from the dual clock that has separate UTC/local time display or the single 24 hour ham clock.

Mounted in a brushed aluminum frame. Easy to set. The world's most popular ham clocks for accurate logs. MFJ-108B 4½x1x2;MFJ-107B 2¼x1x2 in.

Cross-Needle SWR Meter

MFJ-815B **$69.95**

MFJ Cross-Needle SWR/ Wattmeter has a new **peak** reading function! It shows you SWR, forward and reflected power in 2000/500 and 200/50 watt ranges. Covers 1.8-30 MHz.

Mechanical zero adjusts for movement. SO-239 connectors. Lamp uses 12 VDC or 110 VAC with MFJ-1312, $12.95.

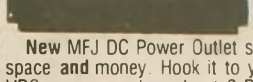
Deluxe Code Practice Oscillator

MFJ-557 **$24.95**

MFJ-557 Deluxe Code Practice Oscillator has a Morse key and oscillator unit mounted together on a heavy steel base so it stays put on your table. Portable because it runs on a 9-volt battery (not included) or an AC adapter ($12.95) that plugs into a jack on the side.

Earphone jack for private practice. Tone and Volume controls for a wide range of sound. Speaker. Key has adjustable contacts and can be hooked to your transmitter. Sturdy. 8½x2¼x3¾ in.

MFJ Multiple DC Outlet



MFJ-1112 **$29.95**

New MFJ DC Power Outlet saves you space **and** money. Hook it to your 12 VDC power supply and get 6 DC outlets for connecting your accessories. RF bypassing keeps RF out of power supply from DC line outlet. 13½x2¾x2½ in.

Nearest Dealer/Orders: 800-647-1800

MFJ ENTERPRISES, INC.
Box 494, Miss. State, MS 39762
(601) 323-5869. **FAX:** (601) 323-6551
TELEX: 53 4590 MFJ STKV

• One year **unconditional** guarantee • 30 day **money back** guarantee (less s/h) on orders from MFJ • Add $5.00 each s/h • **FREE** catalog

MFJ . . . making quality affordable

Prices and specifications subject to change without notice or obligation.

New microwave records from California to Hawaii

GORDON WEST, WB6NOA

After five years of equipment building and tropospheric duct planning, two new microwave records have been made by Chip Angle, N6CA, and Paul Lieb, KH6HME.

Pioneering efforts were made by now Silent Keys Bob Cook, W6PJA, and Bill Tice, W6NGN, who devoted their life to see new records being made between Hawaii and the mainland on VHF and UHF frequencies. Early this spring I spent several days with Paul Lieb, KH6HME, on the slopes of Mauna Loa, fine-tuning everything for maximum reception at the mainland end of the circuit for this tropo summer season.

The KH6HME beacon characteristics:

Location—19 degrees, 35'19" north; 155 degrees, 27'10" west.

Elevation—8,200 feet on the side of Mauna Loa volcano.

6M beacon—50.061 MHz, 20W, dipole (remote location).

2M beacon—144.170 MHz, 60W, pair 7-element (NBS) horizontal Yagis. CW ID at 20 wpm with long rise in tone on steady end key.

70cm beacon—432.075 MHz, 35W output, into pair 22-element beams horizontally polarized. CW ID at 13 wpm.

ATV beacon—434.000 MHz on command (on command, alternates with CW beacon), 80W peak video output, into pair 22-element K1FO beams. Video ID 3 changing graphics from Elktronics VDG-1 board.

23cm beacon—1296.0 MHz, 17W into four vertically-stacked, 25-element, loop Yagis. CW ID at 18 wpm.

Liaison frequency—28.885 MHz, USB, 100W into fullwave loop.

In addition to the above are capabilities of working on 220 MHz, 900 MHz, plus three additional microwave bands to contact N6CA for some additional world records. Paul's fantastic location is a straight shot over the water to all of the West Coast, from Mexico to Alaska. Hawaii and mainland VHF/UHF operators appreciate the courtesy of Hawaii television Channel 9 for allowing Paul to operate the beacon equipment from their Channel 9 link site high atop the volcano.

The beacons run 24 hours a day and are constantly monitored by Lieb from his downtown office in Hilo. Paul runs his own company, and is available at almost any time to drop what he is doing and make the windy, hour long drive from Hilo to the Mauna Loa volcano to set up his transceivers for two-way contacts to the mainland. "But, until I get a phone call, I have no way of knowing whether or not the beacon is being heard on the West Coast," says Lieb (808/959-9553).

"Sometimes we hear mainland FM stations and TV audio, and sometimes we don't—so that's no guarantee that the band is open," agrees Al, KH6IAA, Russ, KH6FOO, and Jack, KH6CC. These well-known call signs come on the air when word gets out that the band is open and the beacon is being heard on the mainland. Russ and Paul both agree that there may be some tell-tale signs of a band opening as seen in Hawaii—high altitude wispy clouds, a high pressure system between Hawaii and California, and a gradual rise in background noise on the VHF and UHF bands.

"I can usually see a good band opening when I'm up at the repeater site—the clouds should be just below me, and the temperature a little bit warmer than on the way up the slopes," adds Lieb.

Without question, the stationary "Pacific high" is a good sign for a tropospheric band opening. Hurricanes down south may also contribute to the band opening, and recent studies in Europe indicate the potential for a band opening two days after

The Hawaii VHF/UHF beacon antenna system 8,200 feet up the slope of the active Mauna Loa volcano.

a steady pressure system begins to recede and the barometer begins to go down.

The 2,471 mile record breaking band opening over the water path between the West Coast and Hawaii was first bridged on 3.456.1 MHz CW, and an hour later on 5.760.1 MHz CW.

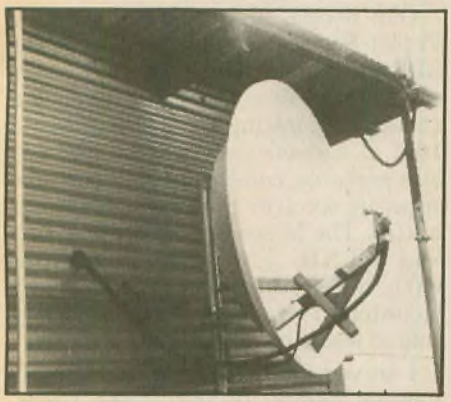
"My homebrew equipment at both ends of the circuit is running 5W into a 4 ft. dish at both locations," comments Chip Angle, N6CA. "This was an all-band tropospheric opening between California and Hawaii for our two-way terrestrial distance records," adds Angle.

The previous microwave record on 3 GHz was held by Chip and Jack Henry, N6XQ. This previous record of 614 miles was conducted between Southern California and Mexico.

"There was plenty of QSB between here and the mainland on 3 GHz and 5 GHz, but every so often, signals would peak for about 30 seconds, and this gave us enough time to exchange information for an official contact," comments Paul. "The 4 ft. dish antenna at both ends of the circuit were absolutely on target, and we didn't need to move them an inch," smiles Lieb, displaying an assortment of levels, field strength meters, and a compass rose to insure proper alignment of his antenna system aimed at the mainland. "Just one degree off, and we wouldn't have made it!" adds Lieb.

"At one point, signals were so strong we could have probably worked SSB too," adds Angle. But they opted not to, so that they could immediately switch bands and go for a higher frequency record. Next is 10 GHz. Right now, the Italians hold the X-band record—but not for long. Paul and Chip also intend on breaking the 2304 MHz record, presently held by the Australians. □

Paul Lieb, KH6HME, inside the beacon shack, stands ready to go on the air with voice on 5 GHz.



Chip Angle's, N6CA, homebrew Hawaii dishes enabled record breaking contacts on the 3 and 5 GHz bands.

IT SAYS HERE THAT "MOONBOUNCE" RETURN SIGNALS HAVE BEEN GETTING MUCH STRONGER

OLD-TIME RADIO

Well, dah-dah-didi-dah-dah!

(The pre-1939 exclamation point)

A.K. TRAMMELL, W6QZE

Having been a crystal set constructor as a child, I was catapulted into the cruel adult world of survival via the US Civilian Conservation Corps (US-CCC).

The Government in its wisdom sent me to the Arizona District CCC. Arriving at Camp DG-46A in Kingman, Arizona, I was promptly assigned to the Technical Office as a typist/clerk (people who could type were at a premium).

My camp buddy, Chuck (Guinea) Willard and I entertained ourselves by building two QRP(?) arc transmitters using a couple of buzzer/key sets and the entertainment radios in the rec room and the dispensary. Unfortunately, we were also picked up by every radio within a quarter-mile radius, generating an overwhelming RFI complaint.

The good camp commandant, Lt. Yount, saved us from the lynch mob by expelling me to the District Radio School being conducted at Camp BR-19A in Tempe, Arizona.

The instructors, Bob (RF) Hilbun and Jack "Horse-face" Nolan, taught the art of radio operation and maintenance. (I understand these two were later used as instructors at either Jefferson Barracks, Missouri or at the Great Lakes Naval School in Illinois.)

The school, like all good prep schools, had its own cheer call: "Radio radio hash hash—three dots, four dots, two dots, dash." (I'm sure no one can misinterpret that.)

This school trained operators to man the District Radio Net. The telephone system of that era did not provide service to the camps in outlying areas of the state, making this net essential to the administration and logistic support of the camps.

The original equipment consisted of military equipment powered by the ever popular hand-cranked generators and batteries for the receivers. These were later replaced with the Collins 30FX, 100W CW transmitters and the Hammerlund Comet receivers.

Traffic handling with the hand powered rigs was limited to about 10 wpm, otherwise your generator man was quickly exhausted. (Character speed was at about 20 wpm with spaces longer than average which accounted for the 10 wpm rate overall.)

The newer equipment and the use of speed-keys (bugs), and power line or gasoline generators and mills (typewriters), permitted the net to achieve a relatively high degree of professionalism and efficiency. Radio shacks varied from the Security Building in Phoenix to tents in some of the temporary camps.

Power for this new equipment was a challenge. The normal camp generators were 120V DC and our equipment needed 120V AC. Even the commercial power available at some camps varied in nature. We experienced everything from DC to 25, 60 and 85 CPS (Hertz to you late bloomers).

Our people also operated various Forest Service sets such as the S, the SPF and M sets. The S set was a hand-carried portable about the size of a shoebox, operating somewhere around 10M, if memory serves. The SPF was also portable, consisting of a four-tube superhet receiver and a two-tube transmitter. The M set was basically a Collins 30FXB, AM voice transmitter with a Hammerlund receiver all mounted in a rack as one unit. This of course was a base station type of set.

I served for two years, operating in various camps (F-34A, Cave Creek, Holbrook and my memory fails beyond that). After being released from the CCC in March of 1939, I went on active duty with the Army, serving as a radio instructor for the Artillery, Infantry and Signal Corps, before being sent to Advanced Infantry School and then overseas as an infantry officer in the Pacific, and finally retiring from the military and going to work in the atomic weapons and later the aerospace industry.

Unfortunately, I have lost track of most of our operators from the CCC. We had a colorful lot. Howard "Moonlight" Bay, Moon Mullins and Willard Kemper.

I hope that this article brings back a memory or two and, hopefully, some of the gang will contact me after reading it. □

ALINCO...ON A MOMENT'S NOTICE.

New

Model DJ-F1T

The Miniature VHF/FM Handheld Transceiver

A super-compact handheld about half the size of a regular HT, the tiny DJ-F1T is a powerful communications station which fits literally in the palm of your hand.

The Ni-Cd battery is an innovative design, made to charge with the AC desk top, drop-in charging stand.

Standard on the unit are 40 memory channels, 3-stage power settings, pager and code squelch functions, several scan options, and full size illuminated keypad for easy operation and programming.

Ask to see ALINCO products at your dealer and become familiar with our quality line and accessories. We've always been here, and now we're ready to go wherever you do.

ALINCO ELECTRONICS INC.

ALINCO ELECTRONICS INC.
438 Amapola Avenue, Unit 130
Torrance, CA 90501
Tel. (213) 618-8616 Fax (213) 618-8758

Two Year Limited Warranty.

Specifications and features are subject to change without notice or obligation.

Radio club ideas

PAGE PYNE, WA3EOP

Is your radio club's watch winding down? Does it need a new battery? Or, to put it another way, does your club find itself in a rut with the same thing *all* the time?

Most successful radio clubs rely on a few simple rules. A few of the more popular ones are: 1) Have interesting meetings. 2) Have activities for members. 3) Have at least one different activity that makes your club special. 4) Encourage new people into the hobby.

Some groups rely on Field Day or special event stations as member activities. Another thought is to sponsor one or more operating contests for members. Or, you could sponsor a contest and make it national or international.

To follow through on this idea, you'll need adequate sponsorship (start with your club!)—enough to furnish awards, including the cost of printing and mailing results. You'll need to compile a mailing list for publicity purposes. Then you'll have to determine what classes of entries will be allowed, and decide when to schedule the contest. You'll have to find people willing to handle the paperwork. Scoring should be simple. Official log forms shouldn't be required (but make them available upon request with an SASE). Finally, the contest area of expertise should vary from established national contests.

Some types of contests currently available are: DX contests (where US operates only DX); sweepstakes (everyone works everyone—different types are available); QSO parties (everyone works stations in one state or geographic area); specialty mode contests (straight key nights, RTTY contests, etc.); Field Day (multi-operator events); and contests devoted to a particular band (10M, VHF, etc.).

Choosing what type of contest to sponsor

QSO parties are cheap to sponsor, except for certain big ones (Pennsylvania, for example); the participation is usually limited nationally to under 75 contestants. Not all states have one and a QSO party is a good way to put a rare state on the map.

Contests devoted to bands of operation are often successful if sponsored by well known national magazines or organizations. Participation in some of these events seems to be dropping each year.

This leaves sweepstakes as the category best available to encourage reasonable participation. When your field of possible contestants is from a large number of eligibles, even a small percentage of participation may result in a reasonable amount of entries.

The number of entrants will be related to the amount of pre-event publicity. An announcement in one magazine may generate some participation but an announcement released to all the major journals of Amateur Radio is likely to draw more entries into the contest.

What awards should be given?

Most contests award a certificate to the top scoring station in each state or DX country from which a valid entry was received. Some contests give certificates in more than one category, such as single operator, multi-op, Novice, SWL, YL, etc., to encourage wide participation.

The cost of sponsoring an event is largely dependent on how many awards are given out, i.e. the generosity of the sponsor and the sponsor's desire to have the contest grow if intentions are to make the contest a national event.

A club starting out *might* decide to issue awards to the top scoring station in each state or country, and possibly an award to the high scoring YL or Novice on a national level or even statewide if logs justify such an award (with additional awards at the discretion of the awards committee at the close of the event).

If the contest was proposed as an annual event, I would suggest that a ream of certificates be printed and then see how many years they last. Certificate blanks are purchased by the ream by printers and the cost for 100 or 500 after purchase of the blanks would only be about $5 per hundred after the expensive first 100 were actually printed. Total printing costs for a modest run of 500, including cost of pre-printed blanks, would probably be between $75 and $100 depending on who did the printing.

If someone had free access to a copy machine the cost would be the cost of blanks only, as most clubs have computer amateurs who could design the "inside the blank" copy for an acceptable award. This would reduce certificate costs to the $35 dollar range (or less!).

Another economy plan for testing the contest waters is to buy general award blanks from school supply or office supply firms. A good form is Hayes Award H-VA208, which sells for about $4 for 25 nice fill-in-the-blank awards!

The other major cost factor is postage in mailing out awards. You can expect to mail out far less than 100 awards, as most contests by local clubs will have fewer than 200 entries even with good publicity. Many of these entries are not winners and thus no mailing is necessary unless the entrant has mailed an SASE for a copy of the results. Some people going to this trouble are probably winners as well, further reducing postage costs.

It's only a guess but I would speculate that the mailing cost of 50 entries or less could be funded by the sponsor. If a ream of certificates were purchased and printed the first year, limited awards would significantly reduce costs in subsequent years until the initial certificate supply is exhausted. The cost of the contest in these subsequent years might be under $20 per annum.

What advantages are there to a club-sponsored contest?

The biggest advantage has to be the publicity afforded to the sponsoring organization. Making the organization more recognizable might at the local level secure a couple new members who associate publicity with an active club that is doing things. It might make going to a hamfest more fun with your sponsoring oranization's hat or club member call sign badge. It might even bring a few more people to a VE exam if your club sponsors one.

And you just never know when an amateur passing through might make the decision to attend a local club meeting, thus making club meetings more interesting. Also, if an amateur moves into an area, he is more likely to align with the club he has heard about.

Is it worth a try? That is something for a club's board of officers to decide, considering whether the funding is available for such an activity. Also it requires willing (and capable) people to carry the project through to completion.

Once the decision is made that a contest sponsorship is a realistic activity for your organization, it is time to 1) establish the purpose of the contest and 2) make rules that are reasonable.

Establishing the rules

The rules will become the basis for the event's publicity. First establish the contest chairperson or, if possible, the contest committee. The committee will develop the rules and will be judge at the conclusion of the event.

It would be great if you had two or three amateurs involved in the log checking effort. The contest committee members should *not* have entries in the contest.

The rules, at a minimum, should state the following:

1. Sponsor
2. Object or purpose
3. Contest period (starting and ending times)
4. Entry categories
5. Bands and modes (including any restrictions)
6. Exchange
7. Scoring
8. Reporting (include information on what should be mailed to the committee, such as logs, dupe sheets, summary sheets, or combination thereof, mailing deadline, where logs are to be mailed, and how to obtain a result sheet).
9. Awards to be won. Possibilities include certificates, plaques, trophies and items subject to the imagination and pocketbook of the sponsors. Basically the award must name the individual winner (with call, the event and the place of finish—1st Place North America or whatever. Some contests give two levels of prizes, perhaps a plaque to the high score overall and certificates to the regional winners.

It is an acceptable practice to ask for a minimum level of participation by entrants in order to qualify for award eligibility. (Example—"Logs with less than ____ QSOs will be used for checking purposes only.")

Now that you have some idea of what to do, get together with your club and decide if this plan will work for you! □

PUBLIC SERVICE

The good Samaritan

BOB CROCKETT, W1LF

Recognition of outstanding Amateur Radio service by Ralph Myra, N1FJL, was recently made by Captain J.I. Dow, commanding officer of the *USS Nassau* (LHA-4), in a colorful ceremony attended by officers and crew.

A letter of commendation reads, in part, "Your efforts as a volunteer 'stateside' MARS operator and your superior operating skills made it possible for deployed service members to 'phone home' and talk with their families and friends. Your contribution to the overall effort was significant."

Ralph had been invited to sail aboard the ship from Morehead City, North Carolina to Norfolk, Virginia, so that he could enjoy the welcoming festivities that were given upon arrival. He was made an honorary member of the crew and was presented with a handsome wrist watch, an admiral's cap and a commemorative plaque. Returning servicemen have also beseiged him with telephone calls to his home in Maine, thanking him for the many messages that he relayed during the Persian Gulf crisis.

I first learned about this good samaritan from an article that appeared in the February, 1991, issue of *Worldradio*, where the story of his Maritime Mobile Net was recounted. It all started last summer before Desert Shield became Desert Storm. Ralph, who holds a Technicians Class license, is an avid message handler and possesses the inate desire to help out his fellow amateurs. He is a former Army paratrooper who relates well with other service personnel. Last summer he became friends with many who were stationed in the mideast through 10M SSB QSOs. All of the servicemen were anxious to catch up on the news from back home, and Ralph felt that he could be of even greater help by establishing a daily net that could be relied upon for regular stateside contacts. The Maritime Mobile Net is a by-product of these friendships, and was activated around Thanksgiving Day on 28.380 MHz. It has continued on a daily basis ever since. Messages are entirely in the health and welfare category, and are relayed through phone patches or by radio amateurs and telephone.

Ralph confesses that it has not been easy to maintain a schedule every day of the week continuously, and he is grateful that a few other hams have taken over some of the responsibility. He is looking forward to the time when he can serve as Maritime Mobile Net Coordinator and operate backup for other control stations.

The Maritime Mobile Net extends around the world. Tune in any morning, when the band is open, between 1200 and 1700 UTC, and you may hear Navy personnel in the Red Sea (exact position not disclosed for security reasons), a sailboat off Panama, a carrier in the Mediterranean, or perhaps the friendly voice of Fran at GØDEK. Ralph encourages participation by everyone, and many stateside operators will log in and stand by to relay the messages that flow through net control. His modus operandi starts off with the preamble to explain the purpose of the net, and follows with a systematic check-in for the maritime stations. After every five calls, Ralph will stand by for other stations who may wish to join the net, or who may have traffic. The number of active maritime stations varies from day to day, but during the peak of the Desert Storm operation, over fifty calls were logged. Each station is welcomed in a friendly and personal manner, using first names throughout.

Ralph is very careful to observe international third party regulations which allow phone patches only between an approved list of countries. His third party list is posted conspicuously in his shack for ready reference.

I visited N1FJL in late April, on a crystal clear day with a touch of Spring in the air. Maine is generally cool and

Ralph Myra, N1FJL, proudly shows the commemorative plaque presented to him by the crew of the *USS Nassau*.

KENWOOD

TS-950SD
Digital, 150W, Dual RX. Also Available w/out Digital. A Top Performer ..... **Call!**

TS-850SAT
General Coverage HF XCVR, 110W. Available Without The Autotuner. Available All Mode DSP ..... **Call!**

TS-440SAT
General Coverage HF XCVR, 100W, Available W/out Autotuner. A Good Performer ..... **Call!**

AT-250	Autotuner	Call	R-2000	HF Receiver	Call	TH-225	2m 5W HT	Call
AT-440	TS-440 Autotuner	Call	R-5000	HF Receiver	Call	TM-941	Triband Mobile	Call
AT-850	TS-850 Autotuner	Call	RZ-1	Scanner Receiver	Call	TM-631	2m/220 Mobile	Call

FREE SHIPPING ON KENWOOD RADIOS!

HS-5	Headphones	Call	SP-31	External Spkr	Call	TM-731	2m/440 Mobile	Call
HS-6	Headphones	Call	SP-430	External Spkr	Call	TM-241	2m 45W Mobile	Call
DSP-100	Digital Signal Unit	Call	SP-940	External Spkr	Call	TR-751	2m All Mode	Call
PC-1A	Phone Patch	Call	TH-26	2m Small HT	Call	TS-140S	HF Mobile	Call
PS-50	Power Supply	Call	TH-27	2m Tiny HT	Call	TS-680S	HF & 6m Mobile	Call
PS-430	Power Supply	Call	TH-77	2m/440 Tiny HT	Call	TS-790	Dual Band Base	Call

Please Call For Kenwood Prices! **Please Call For Kenwood Prices!** **Please Call For Kenwood Prices!**

YAESU

FT-1000D
Digital, 200W, Dual RX, Deluxe and Standard Models Are Available. A Top Performer. ..... **Call!**

FT-990	HF XCVR	Call	IC-735	HF Xcvr	Call!
FT-767	HF XCVR	Call	IC-726	HF Xcvr (w/ 6m)	Call!
FT-757	FX Mobile Rig	Call	IC-725	HF Xcvr	Call!
FT-747	HF Mobile Rig	Call	IC-970	All Mode Base	Call!
FT-736	V/UHF Xcvr	Call!	IC-2400	2m/440 Mobile	Call!
FT-5400	2m Mobl Xcvr	Call!	IC-229A	2m 25W Mobile	Call!
FT-290	2m All Mode	Call!	IC-229H	2m 45W Mobile	Call!
FT-470	V/UHF HT	Call!	IC-32AT	2m/440 5W HT	Call!
FT-411	2m HT	Call!	IC-24AT	2m/440 Tiny HT	Call!

Please Call For Special Prices IC-2GAT 2m 7W HT ..... **Call!**
IC-2SAT 2m Tiny HT ..... **Call!**
Please Call For Icom Pricing

AEA

ET-1	300W Tuner	129.95
MM-3	Memory Keyer	179.95
Isoloop	New 10-30 Model	TBA
PK-232	All Mode TNC	319.95
PK-88	Vhf Packet TNC	119.95
Packratt II	Software	69.95

Call For AEA Items Not Listed

ALINCO

DR-590T	2m/440 Mobile	Call!
DR-570T	2m/440 Mobile	Call!
DR-112T	2m 45W Mobile	Call!
DJ-120T	2m Tiny HT	Call!
DJ-160T	2m Small HT	Call!
DJ-560T	2m/440 HT	Call!

Please Call For Special Prices

AMERITRON

AL-1500	1500W HF Linear Amp
AL-1200	1500W HF Linear Amp
AL-82	1500W HF Linear Amp
AL-80	1000W HF Linear Amp
AL-811	600W HF Linear Amp
RCS-4	Remote Coax Switch
RCS-8	Remote Coax Switch

Please Call For Special Prices

ASTRON

FREE SHIPPING			
MODEL	AMPS	ICS	PRICE
RS4A	3	4	49.00
RS7A	5	7	59.00
RS12A	9	12	79.00
RS20A	16	20	99.00
RS20M	16	20	119.00
RS35A	27	35	159.00
RS35M	27	35	179.00
VS-35M	27	35	179.00

M Models w/ Amp & Volt Meter, V Models Have Variable Output.

ICOM

IC-781	HF Xcvr	Call!
IC-765	HF Xcvr	Call!
IC-751A	HF Xcvr	Call!

MFJ

989C/986C	Tuners	299/259
949D/948	Tuners	139/119
941E/945C	Tuners	99/89
901B/910	Tuners	59/19
1278/1270	TNC's	249/129
1284/1289	PC Software	19/59
202/204	Noise Bridges	59/79
207/208	Analizers	99/89
486/422B	CW Keyers	169/119
407/401B	CW Keyers	69/49
1704/1702	4/2 Coax Sw	59/22
815/817	SWR Meters	69/79
108B/107	24 Hour Clocks	19/10

HEIL

BM-10	Boom Headset	79.95
HM10	Desk Mic	79.95
HM10/2	Dual Element	119.95

Please Call For Other Heil Items.

KANTRONICS

KAM	All Mode TNC	289.95

PC Combo Software 49.95

TEN-TEC

Paragon	HF Xcvr	1899.95
Omni-V	HF Xcvr	1899.95
Titan	HF Linear	2749.95
Hercules	HF Linear	1099.95

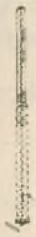
Other Ten-Tec Items In Stock!

WIRE ANTENNAS

DX-A	160/80/40m Sloper	49.95
DX-CC	All Band Dipole	99.95
DX-SWL	Shortwave dipole	69.95
G5RV	All Band Dipole	49.95

LIGHTNING PROTECTION		
CLP	Rotor Protector	49.95
HV	2KW PL-259	35.95
LAC4	200W PL-259	34.95
LAC4H	2KW PL-259	38.95
LT	2KW PL-259	22.95
RT	2KW PL-259	32.95

TELEX / HYGAIN



All Models Shipped Prepaid. And Feature All Steel, Galvanized Construction. Totally Self Supporting Design. Complete With Rotor Plate And Winch. **Call For Price!**

MODEL	HT.	LOAD
HG37SS	37'	9 Sq.
HG52SS	52'	9 Sq.
HG54HD	54'	16 Sq.
HG70HD	70'	16 Sq.

DX-88	8 Band Vertical	Call!
EX-14	Triband Beam	Call!
TH7DX	7 El. Triband	Call!
18HT	80-10 Vertical	Call!
64BS	4 El 6m Beam	Call!
105BAS	5 El 10m Beam	Call!
155BAS	5 El 15m Beam	Call!
204BAS	4 El 20m Beam	Call!
205BAS	5 El 20m Beam	Call!

Call For Prices On All Hygain!

CUSHCRAFT

AP8	8 Band Vertical	
ARX2B	2m Vertical	
AR270	2m/440 Vertical	
A3S	3 Element Triband Beam	
A3WS	WARC Triband Beam	
A449-6	6 El 450 ATV Beam	
A4S	4 Element Triband Beam	
R5	5 Band No Radial Vertical	
215WB	15 El 2m Beam	
230WB	30 El. 2m Beam	
40-2CD	2 El. 40m Beam	

Call For Your Low Sale Prices

BUTTERNUT

FREE SHIPPING ON BUTTERNUT

HF-2V	80/40 Vertical	149.95
HF-5B	Triband Beam	259.95
HF-6V	80-10 Vertical	159.95
A1712	17/12m Add On	39.95
RMKII	Roof Mount Kit	59.95
STRII	Radial Kit	39.95
TBR160	160m Kit	59.95
30MRK	30m Add On Kit	39.95

ROTATORS

Alliance HD-73	$ 139.95
Alliance U-110	$ 59.95
Telex CD45II	(8.5 Sq. Ft.)
Telex HAMIV	(15 Sq. Ft.)
Telex Tailtwister	(20 Sq. Ft.)
Telex HDR300	(25 Sq. Ft.)
Yaesu G400RC	(Azimuth)
Yaesu G500A	(Elevation)
Yaesu G1000SDX	(Azimuth)
Yaesu G5400	(Az/El)
Cable: Reg.= .25/ Heavy= .45/Ft.	

Please Call For Rotator Prices

U.S. TOWER CORPORATION

All U.S. Tower Crankups Are Constructed of Hot Dipped Galvanized Steel To Resist Rust And Are Of The Highest Quality Available. All Tower Models Are Totally Self-Supporting - No Guys Needed! Coax Arms, Bearings, Masts, Motor Drives, And Other Accessories Are Ready For Quick Shipment. Towers Are Shipped Freight Collect From Visalia, CA. California Residents Please Add 6% Sales Tax. These Towers Are Our Best Selling Crankups! Please Order Soon To Avoid The Long Summer Backlogs. **Larger Models Are Also Available, Please Call For Prices!**

MODEL	MIN. HT.	MAX. HT.	WINDLOAD	PRICE
MA-40	22'6"	40 FT	10 SQ. FT	629
MA-550	22'1"	55 FT	10 SQ. FT	999
MA-770	23'10"	71 FT	10 SQ. FT	2249
MA-850	24'6"	85 FT	10 SQ. FT	3489
TX-438	22'6"	38 FT	18 SQ. FT	919
TX-455	21'0"	55 FT	18 SQ. FT	1385
TX-472	23'8"	72 FT	18 SQ. FT	2279
TX-489	24'4"	89 FT	18 SQ. FT	3959
HDX-538	22'6"	38 FT	30 SQ. FT	1179
HDX-555	22'0"	55 FT	30 SQ. FT	2079
HDX-572	23'8"	72 FT	30 SQ. FT	3559
HDX-589M	24'8"	89 FT	30 SQ. FT	7119

ROHN TOWER

GUYED TOWER PACKAGES

HEIGHT	25G	45G	55G
50	849	1229	1549
60	939	1389	1939
70	999	1719	2159
80	1199	1869	2369
90	1289	2039	2579
100	1369	2199	2989
110	1449	2459	3209
120	1669	2619	3429

These Towers Are All Shipped Complete With Rotor Plate. Shipped Freght Collect From Plano, Texas. IN STOCK NOW!

FOLDOVER TOWERS

MODEL	HEIGHT	LOAD
FK2548	48 FT	15 Sq.
FK2558	58 FT.	13 Sq.
FK2568	68 FT.	11 Sq.
FK4544	44 FT.	34 Sq.
FK4554	54 FT.	29 Sq.
FK4564	64 FT.	28 Sq.

25G Double Guy Kit	$ 299.00
45G Double Guy Kit	319.00

SELF SUPPORTING TOWERS

MODEL	HEIGHT	PRICE
HBX40	40 FT	449.00
HBX48	48 FT	589.00
HBX56	56 FT	699.00
HDBX40	40 FT	569.00
HDBX48	48 FT	689.00

HBX Towers Are Rated At 10 Sq. Ft.; HDBX Towers Are Rated At 18 Sq. Ft. (At 70MPH). All Are Shipped Prepaid To You And Include Top Plate, Rotor Plate, And Base Stubs. These Towers Are Ready For Quick Delivery!

STACKED SECTIONS

20G	Light Duty 12"	54.50
25G	Med. Duty 12"	65.50
45G	Heavy Duty 18"	153.50
55G	Extra Heavy 18"	197.50
EF245	Ginpole 25/45/55	299.00
EFBX	Ginpole HBX	350.00
M200H	2" O.D. Steel Mast	39.00
TB-3	2" Thrust Bering	75.00

Call For Prices On Rohn Accessories. Most Items Are In Stock.

COAX

RG-213/U - Mil. Spec. RG-8/U type. 95% Shield. Non-contaminating, Poly. Dielectric ..... $ .39/Ft.

RG-8X - 95% Shield. Mini RG-8. Foam Dielectric ..... $ .25/Ft.

9086 - International Wire's Equivelent to 9913. 100% Double

PHILLYSTRAN

HPTG2100 (2100#)	$ .39/Ft.
HPTG4000 (4000#)	.64/Ft.
HPTG6700 (6700#)	.84/Ft.
2100 END KIT	4.00
4000 END KIT	5.00
6700 END KIT	6.00

New Phillystran Guy Cable Is Non-conducting, No More Insulators! End Kits Terminate The Cable With Common Hand Tools. No Potting Ends Are Needed.

STEEL MASTS

WALL	5'	8'	10'	12'	20'
12	29	39	49	59	89
18	49	75	89	109	149
.25	n/a	n/a	129	n/a	249

These Mast Measure 2" O.D. Up To 8 Feet Shipped UPS, Others Are Shipped By Collect Freight.

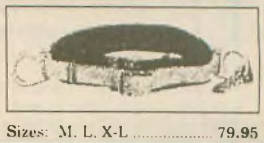
GUY HARDWARE

3/16 EHS Guywire (3990#)	15
1/4 EHS Guywire (6650#)	18
3/16CCM Cable Clamp	45
1/4CCM Cable Clamp	55
1/4TH Thimble	45
3/8EE Turnbuckle	6.95
3/8EJ Turnbuckle	7.95
1/2X9EE Turnbuckle	9.95
1/2X9EJ Turnbuckle	10.95
1/2X12EE Turnbuckle	12.95
1/2X12EJ Turnbuckle	13.95
3/16 Preformed Guy Grips	2.49
1/4 Preformed Guy Grips	2.99
GAS604 Screw Anchor	19.95
500D Guy Insulator	2.79
502 Guy Insulator	5.49
5/8X8' Copper Gnd. Rod	12.95

ANDREW

LDF4-50 - 1/2 Copper	$ 2.29/Ft.
LDF5-50 - 7/8 Copper	5.69/Ft.
Connectors: 1/2" $ 29	7/8" $ 74

SAFETY BELTS



Sizes: M, L, X-L 79.95

ORDER TOLL FREE: 1 - (800) 272 - 3467
LOCAL AND TECHNICAL HELP : 1 - (214) 422 - 7306
FAX: 1 - (214) 881 - 0776

HOURS: 9AM - 5PM
SAT. 9AM - 1PM

C.O.D.
MC / VISA

TEXAS TOWERS

A Division of Texas RF Distributors, Inc., 1108 Summit Ave. Suite #4, Plano, TX 75074

brisk at that time of year, but this particular day was an exception. Ralph's home overlooks China Lake and is nestled at the edge of a rolling meadow that gives one the impression of a country estate. His shack is located a few steps behind his home in a small building that is dwarfed by a 70 ft. tower with the traditional 10, 15 and 20M 3-element beam. Also in use is a U-shaped long wire antenna for the 4 MHz MARS net, and a VHF antenna. Ralph's second interest is antenna design, and there are other antennas in the planning stage.

When I arrived, Ralph was lending a helpful hand to a couple of tree men who were working in the area. Their chipper had been bogged down with a flat tire which Ralph was able to inflate by means of a small portable pump. The men returned the favor later in the day by climbing a 50 ft. tree and installing a future antenna line.

The walls and ceiling of his shack are lined with QSL cards from all over the world. His operating schedules and procedure charts are neatly organized on clip boards hung on the wall. Technical books and other publications are all easily accessible for reference. The station gives an air of efficiency and readiness.

Ralph is in training for Navy MARS net operation and has assiduously studied the operating manuals so that he can participate in daily drills. On this particular day he was informed over the net that he would shortly have the opportunity to run the net for one drill, as a part of the training program. When he finally qualifies, he will make an excellent controller because he has a crisp and efficient technique for handling traffic.

Judging from my personal contacts with members of the Maritime Mobile Net, I know that Ralph is well respected for his friendly and personable manner of operation. When he was recently hospitalized, there was great concern for him by members of the net.

There is nothing easy about net control, especially when stations all over the globe are actively involved. At times there is willful interference, and frequently foreign stations break in for the express purpose of obtaining a QSL card. Ralph handles all of the interruptions with ease. As he puts it, "I try to get everyone to participate because this makes for a happier net, and people like to be involved." His advice to potential net control operators is to "Give it your best and *relax! No one is going to judge you.*"

That's good advice from one who has devoted hundreds of hours to the cause! □

Red Flag Patrol

ART SMITH, W6INI

How did the Amateur Radio Emergency Service (ARES) become involved with the California Department of Forestry's Red Flag Patrol?

At a SANDRA Meeting in June, 1976, a program was presented by the San Diego Ranger Unit Fire Prevention Chief, Doug Allen. This was CDF's introduction to Amateur Radio and vice versa. Chief Allen pointed out the need for volunteers with reliable radio communications to patrol critical areas during Red Flag alerts.

The Red Flag Patrol is a fire prevention program which is implemented when weather conditions present an extreme fire hazard in the wildland areas—usually occurring during Santa Anas when hot weather, low humidity, high northeasterly winds and low fuel moisture exist. Patrol objectives are to: 1) identify and report situations that may cause fires; 2) serve as a deterrent to arsonists; 3) report fires in their incipient stages; and 4) after reporting, extinguish very small fires. The occurrence of fires, whether major or minor, do not necessarily signify the need for Red Flag Patrols. It is determined by severe weather conditions. Patrol routes are in the Ramona, Lakeside, Harbison Cyn, Alpine, Fallbrook, Escondido and Valley Center areas.

A week after the June meeting, the first call came to assist CDF with special Red Flag Patrols in the Santee/Lakeside area after a series of arson fires had plagued the area for several days. For four days, with temperatures over 100 degrees, operators covered the area by ground and air. Fires continued intermittently throughout the period, but on the fourth day, Bob Frye, W6JWU, spotted the arsonist. CDF fire prevention officers immediately surrounded the area and arrested the culprit. Since then eight to ten patrol routes have been covered regularly during each fire season.

If you like action, this program is for you. Volunteers must be over 18 years of age and will be registered in the Volunteers in Prevention (VIP) program. When assigned by a CDF official to Red Flag Patrol, they become volunteer employees of the State of California with workers' compensation protection. Patrol vehicles must have two persons: driver and observer. Only one needs to be a licensed Amateur Radio operator (Tech or higher) with 2M or 220 MHz 25W mobile in vehicle (*no HTs!*). The second person may be unlicensed or hold a Novice Class license. Here's a chance to get your spouse or a friend involved with you. Classroom and/or on-the-job training is provided.

In the past, the headquarters station (at Monte Vista) required the assigned operators to bring their own equipment. Recently the Amateur Radio Club of El Cajon provided a 2M radio and SANDRA, a 220 radio which could remain at the headquarters facilitating operation.

The coming fire season is expected to be severe and it takes a good many operators to sustain operations over several days. There's room for you! Contact me, Art Smith, W6INI, at 619/273-1120 or on 146.265(-) at 1900 Sunday to sign up. □

++++++++++

Pay attention to what a man is, not what he has been.

Short range HF antennas

DALE HUNT, WB6BYU

The most important communications we can provide in an emergency is local, within a couple hundred miles, to support damage assessment, rescue or relief operations, or to keep emergency officials informed of the extent of the situation.

VHF repeaters currently handle the bulk of local communication chores. In a major emergency, though, local repeaters may be inoperative, overburdened with traffic, or unable to cover important areas. What about HF? Let's review the propagation characteristics of 80 and 40M.

Groundwave propagation can cover 40 to 60 miles under good conditions with vertical polarization on 80M, decreasing to about 10 miles at 30 MHz. Practical distances with hills and the mobile antennas will be much shorter.

Most local work on the low bands is via skywave. For local work we need a high angle of radiation (for example, an angle of 45 degrees will cover a distance of over 500 miles.) So aim your antenna straight up.

Fortunately this is easy to do, for a dipole strung up a quarter wave or less above ground will provide the desired coverage. A reflector wire underneath it (forming a beam pointing up) may make a substantial improvement. I've seen several installations that use the 5 percent longer reflector wire under a dipole; this is common for CAP and other groups that work up and down the state. 160M is especially good for local work: in the field or in an emergency. There usually is no problem finding space for a temporary dipole.

If you already have high dipoles at your base station, you can string up a reflector wire an eighth to a quarter wavelength below them to obtain the same effect. The reflector can be left in place and remotely switched from the shack, giving convenient control over the angle of radiation.

For portable work, a folded dipole of "double bazooka" or other broadband design will be less sensitive to detuning when installed in the haywire manner associated with emergency operation.

I've written about horizontal loops before. They provide high angle radiation at the fundamental and second harmonic. A reflector can be used here also, but it tends to get in the way of people on the ground. Where space is limited, a small loop erected in a vertical plane will give a high angle of radiation. The Army uses a loop only 12 feet across that gives "near dipole performance" from 2 to 5 MHz, and several hams have used similar designs. Special care must be taken to keep the losses low.

What about the mobile vertical antenna? The null in the pattern is off the end, or in this case, upwards, where we want maximum radiation. This can't be helped if one is operating while in motion, but when parked for any length of time one should consider using an auxiliary antenna. The simplest is a quarterwave wire (60 or 30 feet, depending on the band) attached to the base of your mobile antenna with a hose clamp, big alligator clip, or with one end of the wire tucked between the turns of the base spring. Even with a support only 15 feet high, it makes a great improvement in signal strength. Fifty feet of nylon rope with a throwing weight (rock or wrench) on the end will get it up quite nicely.

It is often easier to feed a portable antenna at the end (which can be close to the round) rather than in the middle (which should be up in the air and requires extra feedline). Something around a half wave is convenient; the exact length doesn't matter because you'll need a tuner anyway.

And for those who want to try something more exotic, broadside and colinear arrays offer possibilities. For example, a "Lazy-H" array (two full-wave dipoles spaced half a wavelength and fed in phase) provides nearly 6 dB of gain. Another possibility is circular polarization to reduce fading. This can be accomplished using two dipoles with a common feed point oriented 90 degrees apart by making one 5 percent longer and the other 5 percent shorter than resonance.

Whenever you may be operating from one position for a period of time, consider improving your antenna. Even if the mobile antenna does the job, a better antenna will allow you to cut back on the transmitter power. This will reduce the battery drain and keep you on the air longer.

Oh yes—don't wait for an emergency to use these ideas. The investment is low and you can keep the material with your mobile rig at all times. — *Santa Barbara ARC*, Key Klix, *March 1991* □

Vectors via Amateur Radio

LARRY SHILKOFF, KJ6NV

Often noted among amateurs is the value of Amateur Radio's ability to provide emergency service to those in need. I have always tried to remain prepared so that, if such circumstances should arise, I would be able to help someone else. On the afternoon of August 10, 1990, my preparedness did indeed pay off.

Three of us had planned a whitewater rafting trip for the weekend in the gold country of the northern Sierras. Making this trip a half dozen times, one of the highlights is taking advantage of my pilot's license and flying to Placer-

ville the evening before, avoiding the eight-hour drive in favor of a two-and-a-half-hour flight. Of course, the VHF aeronautical mobile contacts make the trips that much more fun, so the HT is always packed in my flight case.

Meeting at Van Nuys airport, we loaded our baggage, boarded the trusty Cessna 172 and were on our way. The hot August afternoon made it a slow climb to altitude. We tuned in the Gorman VOR (an aviation radio navigation beacon) on the aircraft radio and set a heading for this position about 40 miles north of the airport. Leveling off at 8,500 feet, we knew Gorman was just below and the next beacon, Shafter, was another 42 miles ahead. In the next few minutes the indications on my navigational equipment became somewhat flaky, resembling the reception of an out-of-range navigation beacon. Further investigation revealed that the communication transceiver was inoperative. It became apparent the aircraft electrical system had failed and the battery was dead. We decided to turn around and head back to Van Nuys.

Although an electrical system failure in a Cessna does not affect the engine's ability to keep the plane aloft (the engine has an independent dual ignition system), it does make things rather inconvenient, since there is no radio communication with Air Traffic Control. Even this is not a problem, though, unless you are landing at a tower controlled airport, such as Van Nuys.

What were the options? We could have landed at a non-tower airport and telephoned Van Nuys tower to coordinate a non-radio entry, but without a battery the engine cannot be restarted once shut down. The only other option was to implement the standard procedures for landing at a tower airport in the event of a radio failure. This involves flying just outside the landing pattern while rocking the wings, and waiting for the tower to observe this and provide light signals (a light gun with intense red, green and white light beams used for tower-to-aircraft communication in lieu of radio).

But perhaps there was one other option: the HT I packed in my flight case. Sure, I couldn't use the HT to talk to ATC but could I, I wondered, use it to relay information?

Immediately making contact on the Saddle Peak 147.435 repeater, I recruited the help of Wayne, KC6AMZ, who happens to be a pilot as well. Wayne phoned the Van Nuys tower, explained the situation, and coordination between myself and ATC via Amateur Radio had begun.

Relaying my position at 10 nautical miles southeast of Gorman VOR, I was told to report when I was north of the San Fernando Valley. Wayne relayed pattern entry and runway information, and told me to expect light signals upon entering the pattern. Sweeping over the valley, I entered the pattern on the west side of the airport. A couple minutes later I spotted the steady green "clear-to-land" light signal and the coordination between ATC and Amateur Radio had come to a successful and uneventful conclusion. Needless to say, everyone on the frequency stood by until I was on the ground.

I've been flying light aircraft for ten years. For as long as I've been an amateur, I've carried an HT in the plane; at first I just thought it was a fun thing to have in the air, but now it's a matter of safety and convenience. Since the recent situation in which Amateur Radio turned what could have been a dangerous situation into a minor nuisance, I know that an HT will always be a part of my flight case checklist. □

ARES and the convert

ALAN K. UNANGST, WC7R
Emergency Coordinator, Yavapai County, AZ

What do you do when you walk into the office of the new County Emergency Services director and she makes you feel as if she would just as soon see you leave? Or you walk into the office of the City Emergency Services director and you get the feeling that if you don't leave immediately he is going to have you arrested?

When it happened to us Walt Loesche, WF7J, and I put our heads together and set out to try and find out the reasons behind the poor receptions we had received. What followed is a story that has more than just a happy ending.

A great deal of credit must first be given to both Kim McIntyre, Yavapai County Emergency Services director, and Harvey Emery, City of Prescott Emergency Services director, because had they not risen above past grievances like the true professionals they are, we would never have been allowed back into their offices.

What Walt and I found was that in the past both agencies had been faced with ARES people who seemed to feel that it was their "job" to TELL the ESDs exactly how to handle any given emergency, and in fact lead one of the directors to believe that if it wasn't done the EC's way, the EC would pull all his support. We also learned that some city communications equipment had intentionally been rendered inoperable by the EC. With this knowledge, we felt that we were indeed lucky not to have been arrested on the spot.

However, like the Phoenix rising out of the ashes, we turned the happenings of the past into our ally, and started to go forward. We called for appointments and asked for a specific amount of time and we prepared our presentation in a professional manner. We dressed like the professionals that we wanted to be considered, and it worked. After our meeting with both Kim and Harvey, we noticed that there seemed to be a small chink in the armor that had surrounded their offices in the past. So we sent a thank you letter to each of them in which we capsulized our understanding of the meeting and asked for further clarification or instructions.

The point we kept driving home was that ARES was here to *assist them* with whatever communications they needed in an emergency and that we

INTRODUCING

HAM-PRO ANTENNAS

HAM-PRO – The only amateur antenna manufacturer with confidence enough to claim EIA RS-409 compliance!

What does this mean for you? The best amateur antenna money can buy of course! Electronic Industries Association (EIA) recognized standards have been our design criteria for over 30 years making TV and FM transmitting antennas. Now, Ham-Pro applies tough EIA amateur requirements, producing an antenna that is electrically and mechanically superior to any other brand now on the market. Now available are monobanders for 20, 15, 10, and 6 meters, plus long 144, 220, and 432 MHz Yagis.

We're setting the new pace for amateur antenna technology with monobanders that meet industry standards. We're so confident you'll benefit from the superiority of these new beams, we offer a thirty day money back guarantee.

For detailed information and a copy of EIA-409, call and talk with one of our techs or engineers. Order from our factory and save dealer markup. We accept personal checks, VISA or Master Card.

Check These Features!

NEW

MEASURED GAIN, F/B, F/S RATIOS. NO SALES HYPE!

BEAM PERFORMANCE INSURED WITH FACTORY TUNED DRIVEN ELEMENT.

NEW BALANCED DOUBLE GAMMA FEED SYSTEM REDUCES TVI.

RUGGED EIA 112 MPH GUSTY WIND RATING.

LOWER IN BAND VSWR FOR HIGHER POWER EFFICIENCY.

30 DAY MONEY BACK GUARANTEE.

Introductory PRICES

HAM-PRO MONOBANDERS

Model & Elements	Band	MEASURED Gain dB/d	Min VSWR band center	Max VSWR band edge	Price
H20-4	20 m	9.23	1.00	1.61	$530
H15-4	15 m	8.80	1.04	1.65	$340
H10-3	10 m	6.46	1.03	1.79	$190
H6-6	6 m	9.41	1.02	1.91	$200
H144-15H	2 m	13.73	1.04	1.68	$145
H144-15V	2 m	13.73	1.02	1.93	$145
H220-17	1.25 m	13.53	1.07	1.29	$150
H432-24	70 cm	16.14	1.08	1.76	$145

Call

1-800-879-7569

HAM-PRO ANTENNAS

A Division of Kopps Corporation

6199-D Warehouse Way
Sacramento, California 95826
Phone: (916) 381-7710
Fax: (916) 381-4332

were *not* there to either tell them what to do or how to do it. Further, if *they* needed us we would be there, but *not until asked.*

Then came our big break—a statewide NOAA Drill. We called both directors and asked them if they were planning on participating, and that if they were, would they like us to join the drill under *their direction*?

To my surprise they both said yes, and opened up their respective offices to us for the drill. It was a very well planned and executed drill, with almost every county in Arizona participating. Two of the largest participants were the County of Yavapai and the City of Prescott. Both directors really immersed themselves in the drill and saw firsthand exactly what ARES could do for them in an emergency. Everyone not only learned from the exercise, but we all had a good time.

We have continued to work hard to make the relationship grow and become stronger. Today we have what I believe to be one of the finest working relationships I have ever seen between professional government agencies and volunteers. Not only have we developed a good rapport, but the communications between the city and the county have improved and the two agencies are working together today better than ever before.

I feel that all of us who are actively engaged in public service and emergency communications need to be careful not to become too impressed with our own abilities. We are very good at getting a signal through when all other means of communications are out, and that is our strength and the gift we have to offer to our various communities. If we forget that our mission is to drain the swamp, and become caught up in our own self-importance, we stand a good chance of destroying what must be a strong bond of trust between ARES and the agencies that we want to support.

Because of the goodwill that we have been able to develop over the past year, we have been invited to participate in, and even initiate, a number of drills and exercises. We have also been "called up" on several occasions and have demonstrated the value of Amateur Radio. So much so that Kim McIntyre decided that to be even more effective in her job, she wanted to earn her amateur ticket. After several months of studying and tutoring, Kim came over to my house where Walt and I administered Elements 1A and 2 to her under the Novice program.

To our delight she aced the code and only missed one question on the written. Kim later gained her Tech license.

The lesson we learned was that as communicators we need to do more listening and less talking. We needed to work together with the ESDs and develop a strong bond with these agencies based on performance and trust. Maybe everyone in ARES should make this the number one priority; we did here in Prescott, and it worked. □

Radio amateurs aim at Mars

JOE KASSER, G3ZCZ

Speaking at the Sixth AMSAT-UK Colloquium (July 25 through 28, 1991) at the University of Surrey, England, Dr. Karl Meinzer, DJ4ZC, proposed that radio amateurs send a spacecraft to Mars in 1995 using technology that they have already developed and demonstrated.

Dr. Meinzer has been building orbiting satellites carrying Amateur Radio (OSCAR) for the last 20 years. Amateurs have twice demonstrated that they have the capability to control spacecraft on-board motors to move their spacecraft from the launch insertion orbit to the desired operational orbit. Dr. Meinzer stated that the payload space available for the AMSAT-Phase 3D spacecraft, to be launched as a secondary payload by an Arianne rocket together with the ISTP-CLUSTER satellites is more than enough for a second amateur spacecraft, and as they have the capability to launch a mission towards Mars, why not do so? It would provide a unique educational opportunity.

It was also announced that *LAN-LINK,* a computer program which automates Amateur Radio digital communications had been delivered to the Soviet MIR space station. *LAN-LINK* had previously flown on the STS-35 space shuttle flight as part of the Shuttle Amateur Radio Experiment (SAREX). *LAN-LINK* is thus the first claimed software package to fly on the spacecraft of both the US and the USSR.

LAN-LINK is a PC program which provides radio amateurs in space or on the ground with both a menu driven user interface to radio modems and a lot of automatic features for terrestrial and space digital communications via Orbiting Satellites Carrying Amateur Radio (OSCAR). For example, last May, this writer was at the National Space Society's conference in San Antonio, Texas, while his copy of *LAN-LINK* linked his Amateur Radio station located in Silver Spring, Maryland, about 10 miles north of the White House, with the MIR space station.

The first OSCAR built by radio amateurs was launched in 1961. Since then about thirty have flown and many "firsts" have been achieved. For example, the first multiple access communications satellite was OSCAR 3; the first satellite communications link between the US and the USSR was made by two radio amateurs using OSCAR 4; and the Emergency Locator System (ELT) used to locate downed aircraft, currently credited with saving about 1,000 lives, was pioneered through AMSAT-OSCAR 6.

At the AMSAT-UK Colloquium, papers were presented by delegates from France, Germany, Israel, Italy and Korea describing Amateur Radio spacecraft in various stages of construction and their proposed missions. While these spacecraft are in the main multiple access communications satellites they also serve an educational purpose and their telemetry can be used to bring satellites into the classroom.

Capturing and decoding telemetry from OSCAR will be the 21st century's equivalent to building crystal sets which introduced thousands of youngsters to electronics and Amateur Radio in this century. □

AWARDS

WACO Award

The Lake County Amateur Radio Association presents the WACO Award. WACO (pronounced whacko) stands for Worked All Club Operators, and is intended to promote our club and to encourage our members to be active on the air.

The Lake County Amateur Radio Association consists of over 170 hams from the northeast Ohio area. We have been organized and active since 1978 and have been an ARRL Special Service Club for the last four years. We currently operate repeaters on 144, 220 and 440 MHz. We also run a regular VE testing program, Amateur Radio license classes, fox hunts and several local nets. We have been a top Field Day entrant for the last several years and have sponsored several special event stations. The WACO Award is one more asset to help promote our club and our hobby.

Awards are available for all bands and modes except repeater contacts, and a large SASE is required to receive the award by mail. To obtain a rule sheet or additional information, contact Len Sechrist, WS8O, at 8550 Nowlen St., Mentor, OH 44060; 216/255-0112.

MRSF awards

MRSF sponsors three nice awards that are available to licensed amateurs and SWLs. These awards are issued for different modes, bands and combinations. Send GCR list and $5 (or 15 IRCs) to cover postage. Valid contacts (SWLs) after 1959.1.1.

Mongolia Award

This award has three classes: first, second and third classes according 10, six or three QSOs with different Mongolian prefixes (JT1KAA, JT9C, JU1DX etc.).

Ulaanbaatar Award

For Asian stations: five QSOs with JT stations including three QSOs with JT1 (Ulaanbaatar).

For DX stations: three QSOs with JT stations including one QSO with JT1.

Chinghis Khan Award

Applicants must submit proof of confirmations of contact (SWLs) with 12 stations whose suffix letters spell CHINGHIS KHAN (example: SM6DEC for letter C; JE8EHO for letter H; W8IQ for letter I, etc.). The 12 stations should be in 12 different countries (DXCC) and one should be a Mongolian station.

Applications must be sent to: MRSF Award Manager, P.O. Box 639, Ulaanbaatar-13, Mongolia, ASIA. □

Dayton Amateur Radio Association Scholarship Awards

The young amateurs selected to receive the 1991 Dayton Amateur Radio Association scholarships were: Jerry Hensley, N8HUT, of New Paris, Ohio received the Robert F. Zimmerman Memorial Scholarship; James Harper, KB5CTQ, of Amarillo, Texas received the Charles G. Frye Memorial Scholarship. Others selected were Eric Stewart, KA5YYW, of White Oak, Texas; John Scott, KA9OAG, of Osgood, Indiana and Robert Macedo, N2JXQ, of Saratoga Springs, New York.

Second year scholarships went to Mary Beardslee, N8HEY, of Kingwood, West Virginia; Jennifer Doerrie, KA5WMJ, of Booker, Texas and Martin Gruen, KA2VLD, of Barrington, New Jersey. This is the first time second year scholarships have been available.

Each student received $1,500 toward tuition at the school of their choice. Applications for the 1992 program will be available after January 1, 1992, by writing to DARA Scholarship, 317 Ernst Ave., Dayton, OH 45405. □

For the first time, second year scholarships were available. Recipients were Mary, N8HEY; Jennifer, KA5WMJ; and Martin, KA2VLD.

SAREX from the Children's Discovery Museum

TRAVIS A. WISE, KB8FOU

The STS-37 shuttle flight carried a very special group of people into space. Not only were they astronauts, but all of them were Amateur Radio operators. Amateur Radio got a lot of publicity from that shuttle mission, and it definitely won't be the last time we see shuttle flights with so many amateurs on board. I couldn't help but be overjoyed as I watched NASA Select, which our local cable system rebroadcasts, as they showed live TV pictures of the amateurs in space talking to amateurs on the ground. I was especially thrilled when I saw the kids on NASA Select. Apparently, they set up cameras at some of the museums and schools from which the people linked to the control system.

That same afternoon, as I was listening to the news on the radio, they mentioned how amateurs linked up to the shuttle to let kids talk to the astronauts. On the network news they mentioned and showed footage of the communications. Many newspapers and countless radio stations spread word of the event.

I had the opportunity to participate in the SAREX mission involving the space shuttle Columbia last December. The San Jose Children's Discovery Museum Amateur Radio Committee had set up an HF and VHF station at the museum in downtown San Jose. We applied to SAREX to participate, and we were selected. The end result was a room full of TV cameras, representing almost every news gathering TV station in the San Jose and San Francisco area, many radio stations and newspaper reporters, and a group of amateurs whose job it was to provide the first part of an extensive link to the space shuttle. All of the months of preparation were to provide a few minutes of conversation from the astronauts to youngsters, many of whom knew very little about Amateur Radio.

As I sat in front of the TV and watched kid after kid, school after school and museum after museum talk to the astronauts in April, I wondered how many of those kids were licensed amateurs and, of those who weren't, how many of them walked away with an interest in becoming an Amateur Radio operator.

Not much can compare to the feeling one gets after just completing a QSO with an astronaut, but watching the astronauts with the backdrop of all the electronic components and even the MIT and Purdue pennants hanging in the background, comes close. I know that the future of Amateur Radio is secure as long as folks keep hearing about our activities, either through SAREX missions or everyday public service events.

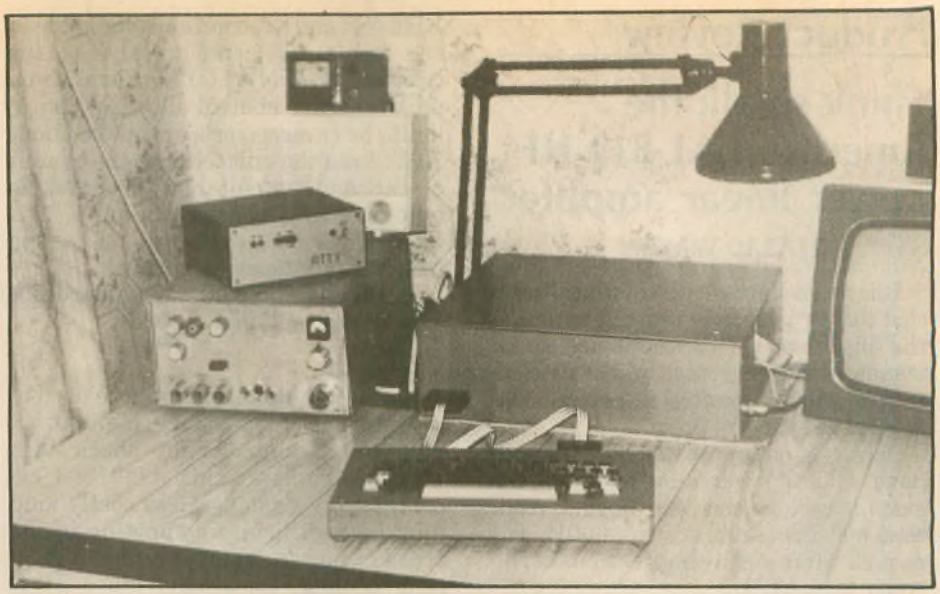
What I find even more amazing than the technology which went into providing the linkup between the astronauts and the ground based amateur stations is the fact that the FCC has and is threatening to take this excitement away from our future, our young people. Without the vital VHF linkups, repeaters, and masses of other equipment, and especially frequencies used, the conversations which make every ham proud, and which allow school children to go to school the next day and say, "Guess who I talked to yesterday?" would be nonexistent. It would be a shame if the FCC were to reallocate the amateur bands to the UPS and other commercial services, but I think that, as long as we continue to add to our list of accomplishments things such as the SAREX missions, public service and emergency commications—as well as activate and support congressional bills such as HR-73—we are safe. □

Milen Postadshieff, LZ2MP

STATION APPEARANCE

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.



At the time of this photo in March, 1990, LZ2MP was one of only three LZ stations on AMTOR and packet.

This month's winner is Milen Postadshieff, LZ2MP, of Russe, Bulgaria. He says his "shack" is typical of how most stations there look.

"In LZ (Bulgaria) we haven't access to any factory-built ham radio equipment," Milen says, "and it is far too costly to import from your part of the world—even some simple secondhand transceiver.

"That is why all at home is 'homebrew': very simple SSB/CW transceiver for 20 and 80M only; TV with active filters for RTTY/AMTOR; SWR meter; Apple II compatible computer; and HF PLL modem for packet inside. For AMTOR, packet and SSTV—software approach.

"Power output is approximately 25W to a 20M dipole or G5RV multiband. My favorite mode is AMTOR.

"Despite the problems I have with my transceiver, I'm very proud because there are only three LZ stations on AMTOR and packet for now (March, 1990)." □

Happy  Halloween !

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***!*

Jim Gundry, W4JM, of Lakeland, FL, relates a story which reminds us: never assume your friends don't want to accompany you to club meetings.

The time was late 1946. I was fresh out of six years in the Army and back with my civilian employer in Detroit, Michigan. I was to transfer to Cleveland, Ohio, where I would be on my own pending finding a place to rent so my wife could join me.

The office was pleasant to work in, and a nice guy at the next desk asked me to dinner one night. He explained that he had to go to some meeting but that I'd be welcome to visit with his wife and sister and that he'd return as soon as possible to visit for the rest of the evening. That was okay by me and the evening started with a super dinner and much friendly chatter.

Later on my friend said, "I hate to run off to this meeting but you probably wouldn't enjoy it." I asked what kind of a meeting it was and he answered, "A ham radio club meeting."

I said, "I'm a ham," and he said, "O my gosh!" or words to that effect.

Thus formed a long-term friendship among us, our wives, and our children, that has prospered all these years. He was W8MXO and is now W4PSG in Ft. Pierce, Florida. We are both going strong after 50 years in ham radio. □

Product Review

Think small: the Ameritron AL-811 HF power linear amplifer

STEVE HALL, WM6P

It is often the case in Amateur Radio that bigger is better—the big antenna, the big tower. But there are some trends in the high-tech world of electronics where *smaller* is better. The AL-811 is a case in point.

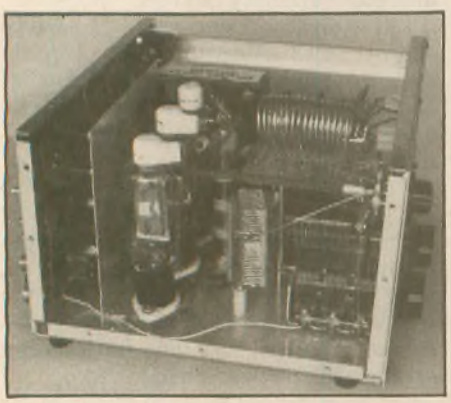
I always thought it was necessary to have a high-power amp to be in the same league as the "big boys." Well, that just isn't true. A mere 600W will do it all. Here are my impressions of the Ameritron AL-811.

As soon as I unwrapped the amp I realized this was going to be easy. Little room is needed for this package on the radio table. The 16×14×8 in. unit will fit as easily as your transceiver on the shelf. The size would, in fact, be ideal for portable or motorhome applications. Its weight is 30 pounds.

And with the lower primary power requirement, 115 VAC will do the trick. At about 1200W it takes no more power than a small hair dryer. Wiring options allow either 115 or 220 VAC operation. No special 220 VAC wiring is required for this rig.

Installation

1. Remove the cover and install the three tubes in their sockets. You old-



timers will remember the 811As, the same tubes used in the Collins 30L-1. When the time comes, replacement cost will be a pleasant surprise. Priced Eimac 8877 or 3CX1200s lately? (I think I saw some 811As at the swap meet for $4 each.)

2. Connect a 50 ohm antenna to the output.

3. Connect the transceiver output to the amp with 50 ohm coax.

4. Use a shielded cable from the transceiver's normally closed keying circuit to the amp's RCA jacket labeled RELAY, and a second shielded cable to the amp's jack, and an ALC to the transceiver. The ALC is optional if you have a power control allowing you to limit the transceiver's output to about 70W. I ran the unit without the benefit of the ALC circuit and observed no tendency to overdrive the unit. This was confirmed with my RF scope which showed a clean output.

5. Plug the amp into a standard 115 VAC outlet and you're ready.

Checkout

This is the smallest amp I've used at my station. I had some high-power, high priced amps in my shack with which to compare this AL-811. I expected that a smaller, less costly amp may have difficulty competing in the areas of power supply, voltage regulation, cooling, broadband input SWR and on-the-air reports, using 60 vs. 1000+ watts. Live and learn.

The power supply voltage, from standby to full power, did not drop any more, on the average, than a rather well known classic floor model in my shack, even though the AL-811 was wired for 115 VAC operation. The power supply capacity is well matched for the load.

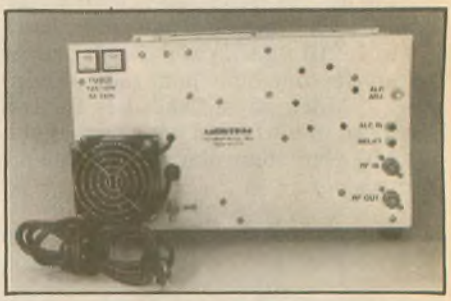
The unit generated far less heat than my other amp, which runs a pair of 3-500Z, either in standby or under load. (For comparison, an 811A's filament only dissipates 24.2W vs. a 3-500Z at 72.5W.) While this amplifier may not be ready for the brick-on-the-key test at full power, during normal use on both SSB and CW no overheating or arcing was noticed. Fan noise was not at all objectionable, far less than my other amps.

On all bands, including the WARC bands and MARS frequencies, the input SWR was quite low and my TS-930S transceiver did not fold back power output at all.

The tuning was not at all difficult. Ameritron added a six to one vernier drive to the plate tuning control. Even on 10M, tuning to resonance was smooth and easy. (A simple wire removal modification enables 10M operation. An extra bandswitch position is provided, labeled AUX.)

Features

The warranty on this product is one year. Even out-of-warranty repairs looked as if they would be inexpensive, as no exotic or custom parts are used.

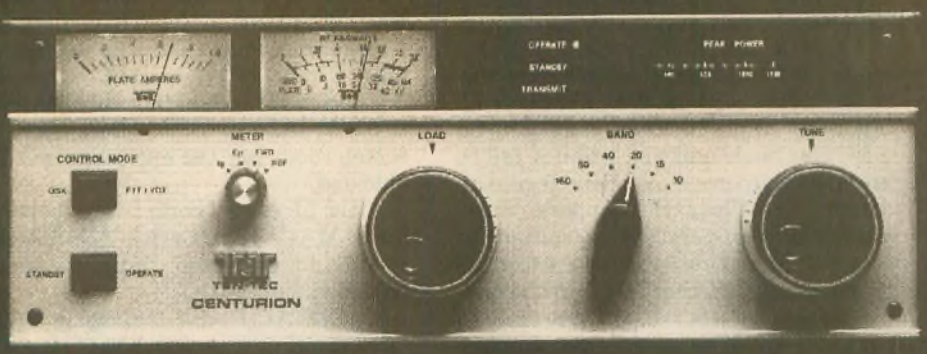


The unit should remain looking new for quite some time as the face is not painted but is a durable silver-gray laminate that looks similar to a Teflon coating. The meters are good sized and well lit.

On-the-air

No product review would be complete without an "on-the-air" test. I loaded the amplifier into a variety of antennas on all bands, with the exception of 160M for which I did not have an antenna. The on-the-air reports were very satisfying. Typically, putting the amplifier in line increased signal reports by two to three S-units, which is more than I expected based on calculations. Several stations indicated that it raised my 100W signal from a difficult copy to an easy copy. That is exactly what adding an amplifier to your station is all about. For further information about the AL-811, contact Ameritron at 921 Louisville Rd., Starkville, MS 39759. □

If you received this publication and are not a subscriber of WORLDRADIO, it was no accident. Please consider it an invitation to join.



Now, A Choice of Three Great Amplifiers– One is Ideal for Your Operating Interests!

NEW!

Centurion... The Classic Kilowatt!

The Model 422 Centurion uses the classic pair of Eimac® 3-500Z tubes. The RF deck and power supply are combined into a single, attractively styled, desk top cabinet. The power output is rated at 1300 watts on ssb, 1000 watts cw and 650 watts using "key-down" modes. Drive required for full power ssb operation is 100 watts. The duty cycle is 50%.

Semi-break-in cw is achieved using a fast acting, non-vacuum, relay and the excellent QSK electronics used in the Hercules II. This system is also suitable for the fast switching digital modes. (For the "heavy duty" QSK cw operator, an accessory board is available incorporating a Jennings vacuum relay.) VOX ssb operation is silky smooth and virtually noiseless. This versatile control system assures compatibility with all exciters with amplifier control provisions.

A tube-axial fan is used for forced air cooling. Air flow is routed through the power supply as well as the upper and lower sections of the RF compartment. Air inlets and outlets are in the sides and top of the cabinet to optimize low pressure, low noise, air movement.

A dedicated meter for plate current, a multi-meter for plate voltage, grid current and forward or reflected power. A full time 10 element LED bargraph instantly displays peak power output.

The Centurion operates on all bands from 1.8 to 21.5 MHz. 21.5 to 29.7 MHz is enabled with the installation of an expansion board, supplied no-charge upon proof of licensed authority.

A tough, easy to handle, amplifier that doesn't really mind a little abuse. The Centurion is a great value.

SPECIFICATIONS

Band Coverage: 1.8-2.0, 3.2-4.7, 6.5-10.3, 13.4-19.6, 17.6-21.5 MHz. 21.5-29.7 MHz after authorized modification.
Input Power: 2000 watts, maximum.
Power Output: 1300 watts ssb, 1000 watts cw. RTTY and SSTV 650 watts, 50% duty cycle.
Drive Power: 100 watts for full rated output.
Efficiency: 50-65%, depending on frequency and load impedance.
Input/Output Impedances: 50 Ohms, unbalanced. SWR <2:1.
Distortion: -35 dB from 1 kw rf output level.
Harmonics: -50 dB typical.
CW Break-In: QSK capable. Relay switching.
Tube Compliment: Two Eimac® 3-500Z.
Power Amplifier Circuit: Class AB2, grounded grid.
Plate Voltage: 3100 volts, no load. 2600 volts, full load.
Cooling: Forced air with full chassis air flow.
Metering: Dedicated plate current meter. Selectable multi-meter for plate voltage, grid current, forward or reflected power. Ten element LED bargraph display for peak power indication.
Front Panel Status Indicators: Standby, operate, transmit.
Primary Power: 220-250 Vac @ 15 A. 110-125 Vac @ 30 A, 50/60 Hz. For full power operation, 220-250 Vac is strongly recommended.
Circuit Protection: Primary line fuses. Plate transformer primary interlock and high voltage shorting bar.
Front Panel Controls: Power on/off, standby/operate, control mode select (QSK-PTT /VOX), plate TUNE and LOAD, band switch, meter switch.
Tune and Load Controls: 6:1 vernier drives with calibrated dial skirts.
Construction: Aluminum chassis, front and rear panels, interior partitions and top and bottom covers.
Size: HWS 8.25" x 15.25" x 18.5". (20.3 x 38.7 x 46.9 cm).
Weight: 47 lbs (21.3 kg).

Hercules II Solid State, No Tuning!

High tech simplicity, base or mobile. A compact, lightweight HF amplifier that offers a unique combination of virtues that can only be achieved using modern, solid state technology. Instant on, 12-14 Vdc operation, general coverage from 160 through 10 meters, no-tune operation and compact size. Add to that, lightning fast QSK cw, remote control, superb linearity and a low drive requirement. Outstanding!

The Hercules II is attractively styled to match our HF base station transceivers and will interface nicely with virtually all transceivers. The front panel includes an analog multi-meter for collector current, voltage, forward power and SWR. A ten element LED bargraph instantaneously displays peak power output. Band selection is either with the front panel switch or remotely via a rear panel connector. A front panel speaker is built in.

The internal heat sinks are air cooled by a temperature controlled tube axial fan. Whisper quiet in ssb operation, yet enough air capacity for cool operation in the key-down modes. The Hercules II is compact, good looking and generates a signal that is within one S-unit of the mighty Titan.

MODEL 9420 115/230 VAC POWER SUPPLY

Housed in a separate utility enclosure and remotely controlled through the 6 foot power cable. 100 amperes at 13.7 Vdc is provided. 80 amperes for the amplifier and 20 amps for the exciter. An alternate power supply can be a heavy duty, deep cycle, lead acid battery and an automatic 10 amp charger. This low cost alternative power source will support the Hercules II during sustained amateur service.

The Mighty Titan... Simply Unbeatable!

The Titan has it all! Maximum legal power with ease, all full power bands 160 through 15 meters (10 and 12 meters after authorized modification), lightning fast QSK for break-in cw and the digital modes and a two speed blower for quiet operation. This awesome performance from a desk top amplifier is made possible by the remote power supply and a pair of Eimac® 3CX800A7 ceramic triodes. The heart of the power supply is our own four core, tape wound Hypersil® transformer. This 41 lb behemoth is conservatively rated 2.5 kVa CCS (9.2 kVa IVS) and is nearly noiseless, even at 1500 watts output!

Other features include a front panel, peak reading wattmeter using an instantaneous ten element LED bargraph display. PTT/VOX or QSK control line select switch, built-in SWR meter and an "over-drive" warning LED. 3:1 vernier TUNE and LOAD controls in combination with an outstanding RF deck design, make the Titan a real "pussy cat" to load and operate.

The Titan is styled to match our transceivers but it interfaces beautifully, no matter what exciter you are using. If you are ready to choose your dream amplifier, the Titan has it all! Check it out.

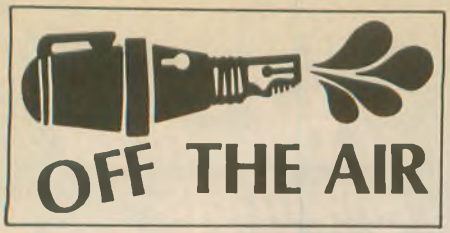
FOR FREE LITERATURE ON ALL TEN-TEC AMPLIFIERS CONTACT TOM SALVETTI TODAY!

...America's

TEN-TEC

GSA CONTRACT
GSOOK91AGS0712

1185 Dolly Parton Parkway
Sevierville, TN 37862, U.S.A.
(615) 453-7172
Fax: 615-428-4483
Customer Service: 615-428-0364



UK amateurs

I was intrigued to read an article in the July issue by Frank Pitman, WD4DSS, concerning the UK "codeless license" holders and their so called "lack of technical knowledge." The article can at best be classed as specious, presenting a very one sided and negative view of ham radio in the UK. I do not know what credentials WD4DSS has, but having both a UK Class A license (code) and a US Extra Class license, with lots of time in both countries, I feel qualified to redress the issue.

Certainly there are codeless license (Class B) holders in the UK who work 2M all the time, but there are also Class A license holders who do the same thing. I also find that it is the same in the US; just listen to your local repeater! However, WD4DSS forgets to mention that 2M CW, SSB, EME, satellite and meteor scatter modes, to mention but a few, are very popular modes in the UK, indeed in all of Europe. A great deal of work in these "exotic" modes is conducted and pioneered by codeless licensees. I have often tuned around the 2M band from my home in Virginia Beach and rarely hear any activity below the repeater subband; the reverse is true for the UK.

The main point that WD4DSS missed in his article is that the written test in the UK is exactly the same for both classes of license! The only difference between a Class A and Class B license is the 12 wpm code test. His statement referring to UK codeless licensees, and I quote, "Most of these persons will not have any technical expertise, and most will never acquire any" is completely fallacious. The written test is set by an independent, professional examining body—The City and Guilds of London Institute—and the standards are high. The average pass rate for the twice-yearly test is about 60 to 66 percent, and it costs! It takes a lot of commitment to go for a license in the UK, which incidentally is renewable every year for a $20 fee.

The UK has had codeless licenses since 1964 and it has proven to be a success in every respect. Why not try reading a UK Amateur Radio magazine on a regular basis and you will not fail to note the numerous excellent technical articles by Class B licensees. Sure, many Class B operators are content to stay on 2M and above; they are also active in many different facets of the hobby! Many, of course, do upgrade to Class A. In spite of the myopic view taken by WD4DSS, I can assure you there are no "second class" citizens in the UK amateur fraternity. There has been no dilution of quality of Amateur Radio; rather, the introduction of the codeless license has enriched and enhanced the hobby, giving it a depth and variety that would otherwise have been lost.

I do not have an axe to grind; I have never held a codeless license. I just happen to believe that every ham has something to offer and I do not make the distinction between codeless and code licenses when I am talking to a fellow amateur, whether it is on the local repeater or by CW on the HF bands.

BRIAN BURKE, G4HIY/KM4MV
Huntingdon, UK

My deadly hobby

I get angry every time I read one of these environmental expert's sage remarks about the hazards and the multitude of ailments caused by radio waves, power lines, etc.

I will be 80 years old in March, and since I was 12 years old I have been actively exposing myself to all of these killers. I have been an active ham since 1929, with the amplifier (unshielded in those days) a couple of feet away, and tuners that spit corona off the ends of coils.

From high school days, as a profession I worked and built police radio (WPDF, Flint) equipment, with daily use of my ham equipment (W8BWC) as a hobby. In 1941 I joined the Navy and was at NSS Annapolis for three and a half years, under a curtain of rhombics, dipoles and wires. The radiated power was from 500,000 down to a meager 5000W. Several 10,000V (unshielded) power supplies were a few feet away.

After WWII and a short stint at R&D with stuff in the 200 MHz range, I went with Penta Labs in Santa Barbara. I built RF equipment for test/aging various transmitting tube types, 1 to 5 kW, 15 to 50 MHz. These were in a screen room, but the units were not RF shielded.

After 11 years there, I went to work for EIMAC in San Carlos. All this time I was on the ham radio rig daily (W6ULS and K6DC).

At EIMAC I built test/aging equipment ranging from 2 to 500 MHz, with power levels up to 500,000W and power supplies up to 50,000V. This equipment was shielded for RFI. I was exposed to all these hazards until 1977, when I retired at the age of 65.

Now I sit in my deadly radio shack daily, operating the rig for about three or four hours at a time, with my 3 kV power supply about 18 inches away, wondering how much more time the good Lord will give me. I talk to my old friends, some of them past 80 years old, and we laugh at the publicity-seeking environmentalists who expertly tell the unsuspecting public what we are doing to ourselves. Rubbish. I'll bet I am as physically fit and mentally active as the young publicity-seeking know-it-alls.

MERLE B. PARTEN, K6DC
Santa Barbara, CA □

FCC user fees

The Administration's fiscal 1992 budget proposes an FCC user fee of $30 for each Amateur Radio operator.

Amateur Radio operators perform a wealth of community service and provide emergency communications during natural disasters each and every year. We also participate in civil defense through organizations such as RACES. Charging amateurs to provide these and other safety-related services to the public when we donate our services at absolutely no charge seems ludicrous.

In addition, many of our engineers, scientists and technicians started in electronics as a hobby in their youth through Amateur Radio; every day we face increasing competition with other countries for technical advancement, and we should be doing all we can to encourage our youngsters to get involved with Amateur Radio and become technically competent. Charging people to become hams will only serve to discourage them from going into these technical areas.

Since the FCC has relinquished all of its former duties in administering and grading the amateur license examination to the Amateur Radio community itself, the total cost to the FCC for issuing each license has dropped to less

than $1 per license. I feel that this $1 cost should be absorbed in my existing US Federal Income Taxes, not be increased to $30 and passed directly on to me. The FCC will never get any portion of these fees anyway, since they all go into the US Treasury general fund.

When this matter last came up, it was part of the Budget Reconciliation Act of 1989. Fortunately, the proposed FCC user fees for amateurs was dropped from that legislation in Conference Commitee. At that time, I talked with someone involved with the House Energy and Commerce Committee, and he confirmed my suspicion that the $30 fee is grossly excessive by providing me with an explanation of the thinking behind the House Budget Reconciliation Proposal: FCC figures give the cost of administering each license as only $5 but it would cost the government $10 to collect each $5 fee, so they just added everything all together and then doubled the total for good measure. I still believe that the FCC cost is closer to $1 and that the extra $29 will go toward offsetting the millions of dollars it costs the FCC to issue commercial broadcast licenses to the profit-making TV and radio stations. We (who are not allowed to make any money from our hobby by FCC rules) would be subsidizing the commercial broadcast TV and radio stations.

The user fees should only be used to offset the cost of regulation, but it just doesn't cost the FCC $30 for each Amateur Radio license renewal. The $29 excess will help pay the FCC's cost of regulating the large commercial broadcasting TV and radio stations, which create floods of expensive litigation every five years when their licenses come up for renewal by fighting with the FCC and other commercial broadcasters over who should be reassigned the license: the net result is really just taxing the little guys (hams) to pay for the big guys (commercial broadcasters).

Once this $30 fee gets started, it will continue going up. It is also going to keep a lot of amateurs, especially youngsters, off the air.

Presently, both the General Mobile Radio Service and Class D Citizens Radio (Citizens' Band Radio) are exempt from any of these fees, so we should ask our congressmen to exempt Amateur Radio from these unwarranted user fees by striking them out of the budget and keeping Amateur Radio licenses free. This will definitely come up for a vote in both houses of congress soon, so it is important for each amateur to write his congressman in the US House of Representatives as well as both of his US senators to let them know that these proposed FCC charges would just be new taxes masqueraded as user fees.

For further information or a sample letter, write to Steven L. Karty, N4UHO, 8709 Southern Pines Ct., Vienna, VA 22182.

STEVEN L. KARTY, N4UHO
Vienna, VA □

Go boldly

It is 18:15 UTC here in Michigan, and in the past hour I have completed two QSOs between 7.025 and 7.050 with minimal QRM. I must admit that I also frequent the segment below 7.025 with the "big boys," all running 150W or less. Most DXers drool at the prospects of operating there.

Go ahead! Spin the VFO knob and turn the switch to 10, 15, 20 or 80M CW segments and open your horizons (maybe even WARC bands!). Anyone who cannot find a place on the bands for a CW QSO at any time of the day or night simply isn't really trying.

I guess we will all have to wait for the outcome of the no-code license experiment, but in the meantime work the DX on 40M CW. The no-coders can't operate on the HF bands *yet*! Let's not let the Grinch steal ham radio. Limber up the thumb and index finger and go boldly where you have never gone before.

STEVE SORRELL, WB8SFF
West Bloomfield, Michigan □

Enough!

Enough is enough about CW. I have been around 40M for a long time and really, when was it any different? It's a busy place and has always been that way. In a couple of years the only thing left to operate on will be 30M (CW and RTTY only), 40, 80 and 160M. I can't wait—there will be all that great used, like new, equipment for sale from all the KG5TPs.

CW is an art form, a language, and there are many thousands of hams throughout the world who operate CW practically exclusively. It's disappointing to read so many people who have nothing better to do than complain about it. When will it ever stop?

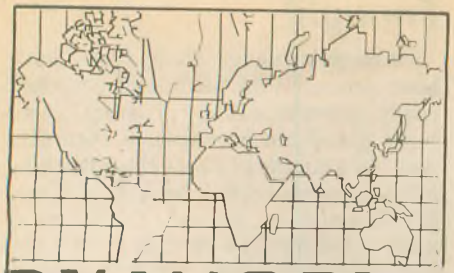
O.M. FASANO, NO4Z
Mulberry, Florida □

Motorcycle Net

Imagine! Hooking up with most of North America via 20M QRP Radiotelegraph. The Motorcycle Post Office Net provides a bridge to 80M NTS, meeting most days from 2130 to 2230 UTC summer/winter around 14.063 MHz.

QRD/QRO/QRP stations send inquiries to NK1L, 79 Hancock St., Lexington, MA 02173.

FRED BEIHOLD, NK1L
Lexington, MA □



DX WORLD

John F.W. Minke III, N6JM
6230 Rio Bonito Drive Carmichael, CA 95608

Activities Calendar

28-29 Sept.	*CQ* World Wide DX Contest (RTTY)
28-29 Sept.	Scandinavian Activities Contest (SSB)
19-20 Oct.	Worked All Germany Contest
26-27 Oct.	*CQ* World Wide DX Contest (SSB)

Refer to your favorite contest section in *QST* or *CQ* for details on the above contest activities.

W100N

The following DXers qualified for *Worldradio's* Worked 100 Nations Award on the date indicated:

407) Frank L. Striegl, 7J1AAL; Aug. 1, 1991.
408) Martin H. Walton, KDØAE; Aug. 1, 1991.
409) William R. King, Jr., KB6DSX; Aug. 1, 1991.
410) James A. Wingender, NY3Y; Aug. 1, 1991.
411) Thomas M. Cooper, N4VRR; June 20, 1991.

Mayotte (FH)

Presently active from Mayotte is FH5EJ. Try looking for this one between 14.007 and 14.015 MHz from 1200 UTC. He has also been on 80M near 3.501 MHz at 1945 UTC working Europeans. *Long Skip* reports him on 21.016 MHz at 2125 UTC working into Ontario, and on 28.017 MHz at 2245 UTC working into British Columbia.

Yorgos, SV1NA, is very active on the bands and gets on almost every day. Shown on the wall are several awards and plaques that include 5BDXCC and WAZ. ***(Photo courtesy of W6TUR)***

Reunion Island (FR)

We found a few calls active from Reunion Island during the month of July:

FR5BT	14.008 MHz	1130 UTC
FR5CP	14.190 MHz	1100 UTC
FR5DD	14.033 MHz	1145 UTC
FR5FA	14.030 MHz	1215 UTC
FR5EL	21.239 MHz	1315 UTC
FR5ZG	14.195 MHz	1345 UTC

Ecuador (HC)

Some might not consider this one rare DX, but rather "garden variety" DX. Only two calls were reported during this period; no doubt it wasn't considered worth reporting. However, it might be a new one for many a budding, deserving DXer.

The two calls were HC5AI near 21.007 MHz around 2230 UTC, and HC2AQ on 17M near 18.140 MHz at 0515 UTC. HC2AI was also reported on 30M at 0315 UTC on 10.101 MHz.

Galapagos Islands (HC8)

This one is a bit more rare than Ecuador on the mainland. Only one call has been reported: HC8GR, found on 14.195 MHz at 1000 UTC in mid-July. Also, check the WARC bands between 18.111 and 18.120 MHz about 0230 UTC.

Panama (HP)

Several calls were reported on the bands recently from Panama. *Long Skip* says that HP3FL is a regular on 75M near 3.793 MHz around 1130 UTC. However, we have seen no other reports on this one. Maybe he has gone QRT for the summer. Other calls reported from Panama include the following:

HP1XSO	18.130 MHz	2200 UTC
HP1XTP	14.009 MHz	0230 UTC
HP1XWV	14.260 MHz	0345 UTC
HP2CWB	21.210 MHz	0000 UTC
HP6AYV	14.222 MHz	0300 UTC
HP8ADU	7.155 MHz	0830 UTC

Papua New Guinea (P29)

DX News Sheet reports that Steve, P29DX, meets with his QSL manager, Roger, G3LQP, on Saturdays at 1530 UTC near 21.285 MHz. It is requested that those desiring a QSO with Steve please wait until they are finished with their business. P29DX has also been reported on 20M near 14.192 MHz around 0900 UTC.

WARC bands activity has been supported by P29BF, who has been found

Ameritron gives you . . .

a full kilowatt OUTPUT from a quiet desktop linear . . . for $1095

Ameritron gives you a ***full*** kilowatt ***output*** (nearly the ***input*** of some linears) of peak envelope power for only $1095 -- from a whisper quiet linear that's perfect for your operating desk because it measures just 8¼" H x 14" D x 14¼" W. You also get 850 watts output CW and 500 watts RTTY.

The AL-80A covers 160-15 meters (10 meters with license), including MARS and WARC. You could spend over *twice* the money for a legal limit amplifier *twice* the size -- and all you'll get is an additional 1/3 S-unit -- a difference you won't ever notice.

Tuned Input lets your rig deliver full output

The Ameritron AL-80A uses a direct switched, 100% shielded pi-network tuned input circuit so even the fussiest solid state transmitter works flawlessly with it.

Ameritron Al-80A **$1095** Suggested Retail

Pi-L Output Network

A carefully designed Pi-L output network using the optimum Q for each band gives you exceptionally smooth tuning, extremely wide range load impedance matching and full band coverage. Ball bearing vernier reduction drives on both the plate and load control make tuning precise and easy.

Eimac 3-500Z in shielded RF tank gives you nearly 70% efficiency

You get the Eimac® 3-500Z transmitting tube with an estimated life of 20,000 hours ICAS. The AL-80A is built on a rugged steel chassis. It has a separate RF compartment that's fully shielded to keep RF from leaking out. This keeps RFI and TVI to a minimum.

A superb RF design and layout, a Hi-Q tank circuit and commercially rated power components gives you nearly 70% plate efficiency over the entire operating range. This puts the power into your antenna instead of heating up your amplifier.

A whisper quiet internal fan draws in cool air over the power supply components and the Eimac® 3-500Z tube to remove heat for longer tube life.

Built-in adjustable ALC circuit makes sure your exciter never overdrives your AL-80A. The result is a clean signal without flat-topping.

Gutsy Heavy-Duty Power Supply

The guts of the AL-80A is its heavy ***heavy*** duty power supply. A 22 pound transformer using a high silicone steel core, computer grade capacitors, heavy duty bleeders and ten 3 amp, 1000 V power rectifiers give you a stiff 2700 volts fully loaded. Some amplifiers using **two** 3-500Zs use a light power supply so they can't give much more power output than the AL-80A.

Step-Start Inrush Protection™

The AL-80A special Step-Start Inrush Protection stops damaging inrush current with a start up sequence that's easy on your tube and power supply components.

Multi-Voltage Primary

Too high line voltage stresses components and causes them to wear out. Too low line voltage causes a "soft-tube" effect — low output and signal distortion.

The Multi-Voltage Primary in the AL-80A lets you compensate for too high or too low line voltage so you get the longest component life and peak operating efficiency — regardless of line voltage.

Dual Illuminated Meters

Grid current of the 3-500Z is monitored continuously by one meter. Grid current gives the best indication of overall performance.

Multi-meter measures plate voltage, plate current, peak RF output power and drive power/ALC detector voltage.

Call your dealer for your best price today!

Bust through QRM with a full kilowatt -- right out of the box. Call your dealer for your best price and order today. Two year limited warranty.

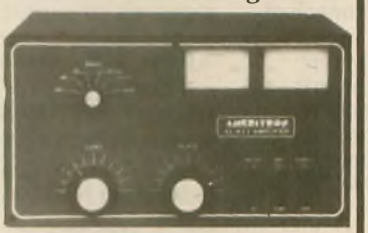
600 WATTS OUT . . . $649

A tough low cost linear with REAL transmitting tubes!

Ameritron's new AL-811 linear amplifier gives you plenty of power to bust thru QRM. You get a quiet desktop linear that's so compact it'll slide right into your operating position -- you'll hardly know it's there . . . until QRM sets in. And you can conveniently plug it into your nearest 120 VAC outlet.

NEW

AL-811 **$649** Suggested Retail



You get three tough 811A transmitting tubes. Plus you get extra heavy duty power supply, all HF band coverage, pressurized ventilation, tuned input, dual illuminated meters, adjustable ALC, operate/standby switch, transmit LED, UPS shippable and much more . . . for an incredible $649. Call your dealer for yours today!

AMERITRON offers the best selection of legal limit linears!

These 3 rugged linears all use a super heavy duty hipersil® power supply capable of 2500 watts!

Ameritron's most powerful amplifier

AL-1500 **$2625** Suggested Retail

Ameritron super power amplifier uses the herculean 8877 ceramic tube.

It's so powerful that 65 watts drive gives you full legal output —— and it's just loafing because the power supply is capable of 2500 watts PEP.

Ameritron's Dual 3-500Z linear

AL-82 **$1995** Suggested Retail

This linear gives you full legal output using a pair of Eimac® 3-500Zs. Some competing linears using dual 3-500Zs don't give you 1500 watts because their lightweight power supplies can't use the tubes to their full potential.

Ameritron 's 3CX1200A7 linear

AL-1200 **$2045** Suggested Retail

Get ham radio's toughest tube with the Ameritron AL-1200 -- the Eimac® 3CX1200A7. It has a 50 watt control grid dissipation -- 12 times tougher than the 4 watt rating of the 3CX800A7 -- yet you get the same full legal output as you get from a pair of 3CX800A7s.

AMERITRON brings you the finest high power accessories!

Legal limit antenna tuner

ATR-15 **$399** Suggested Retail

Ameritron — the high power specialist — brings you the ATR-15 antenna tuner that's designed for legal limit amplifiers. Heavy duty silver plated bandswitch virtually eliminates switch failure. High power transmitting capacitors. 1.8-30 MHz. Peak reading SWR/wattmeter. 6 position antenna switch. Selectable 1:1 or 4:1 balun. 5¼ x 13¼ x 13½ inches. Meter lamps uses 12 VDC.

The Eimac® 3-500Z Tube

***Ameritron** uses genuine Eimac® 3-500Z tubes -- not the cheaper 3-500Zs imported by some competitors. We're proud to say "Quality Made in USA!"*

Remote Coax Switches

RCS-8V **$149** Suggested Retail

RCS-8V, DC-UHF 5 KW Coax Switch. Replace 5 coax feedlines with one with this Ameritron Coax switch. Weatherproof box mounts outdoors on your tower or mast. Attractive control unit sits on your operating desk. Low SWR to 450 MHz. Low loss. Rated at 5 KW to 30 MHz, 1 KW at 150 MHz.

RCS-4, $134.50. 4 position HF switch. Similar to RCS-8V. Requires no control cable Handles 2500 watts PEP.

RCS-4 **$134.50** Suggested Retail

Legal Limit Dummy Load

Oil cooled so you can run the maximum legal limit of 1500 watts for 5 minutes. High quality industrial grade transformer oil included (no PCB). 50 ohms. SWR under 1.2:1 to 30 MHz. Low SWR to 400 MHz. 7½" H x 6-5/8" Diameter.

ADL-1500 Suggested Retail **$59.95**

AMERITRON®

. . . the high power specialist

921 Louisville Rd. • Starkville, MS 39759

Phone: (601) 323-8211 • **FAX:** (601) 323-6551

Call for a catalog or your nearest dealer!

Made in U.S.A.

on 10.106 MHz at 1300 UTC and 18.074 MHz at 1400 UTC, and P29NJ on 18.142 MHz at 1330 UTC. Other calls reported from Papua New Guinea include the following:

P29BT	14.263 MHz	1200 UTC
P29DK	14.011 MHz	1000 UTC
P29DK	14.167 MHz	1200 UTC
P29GN	14.199 MHz	1000 UTC
P29PA	14.195 MHz	1000 UTC
P29PL	14.222 MHz	0600 UTC
P29RB	14.087 MHz	1045 UTC

Note that the last call listed is RTTY activity.

Chagos (VQ)

VQ9IO has been very active recently and has been found on at least four bands. Try looking around 7.046 MHz at 2200 UTC, 14.226 to 14.232 MHz after 1300 UTC, 21.244 MHz at 1645 UTC and 28.490 MHz at 0745 UTC. That 40M frequency is SSB (for Europeans) and he was working Europeans at the time. Other calls for the month of July include:

VQ9AP	14.182 MHz	1145 UTC
VQ9JT	14.032 MHz	1330 UTC
VQ9KA	14.212 MHz	1300 UTC
VQ9RR	21.285 MHz	2230 UTC
VQ9RS	14.014 MHz	0045 UTC
VQ9RS	21.239 MHz	2230 UTC

Malawi (7Q7)

Very active from Malawi has been 7Q7JH. Look for this one on SSB between 14.187 and 14.199 MHz around 1300 UTC, or on CW near 14.008 MHz. He has also been reported on 15M near 21.260 MHz at 1630 UTC and on 10M near 28.527 MHz at 1400 UTC on weekends. Other calls reported from Malawi include the following:

7Q7JL	14.247 MHz	1430 UTC
7Q7LA	14.189 MHz	1315 UTC
7Q7MM	14.213 MHz	1145 UTC
7Q7RM	21.335 MHz	1830 UTC
7Q7TA	14.013 MHz	1530 UTC

Guyana (8R1)

Only three calls were found in the DX newsletters this past period. The most active was 8R1J who was worked several times between 14.015 and 14.022 MHz from 0030 UTC, and between 21.020 and 21.027 MHz after 2100 UTC. The two other calls were 8R1RBF on 14.160 MHz at 0145 UTC working the west coast of Canada, and 8R1UN on 21.334 MHz at 2130 UTC working into the mid-west.

Singapore (9V1)

Long Skip reports that Mike, 9V1XQ, is on most mornings around 14.175 MHz at 1000 UTC with a good signal into eastern Canada. He seems to prefer ragchews with one or two US stations for a prolonged period, then quits for the day. 9V1XQ has also been reported on 75M near 3.796 MHz at 1100 UTC in the 9th call area. We also found several other calls from Singapore:

9V1JY	14.025 MHz	1345 UTC
9V1NQ	14.242 MHz	1430 UTC
9V1RP	14.226 MHz	1730 UTC
9V1WW	14.015 MHz	1245 UTC
9V1WW	14.191 MHz	1430 UTC
9V1XR	14.004 MHz	0845 UTC
9V1YC	14.007 MHz	1045 UTC
9V1YC	28.517 MHz	0015 UTC
9V1YL	14.016 MHz	1400 UTC
9V1YQ	14.185 MHz	1145 UTC

Most of the above reports indicate that it will require burning a little midnight oil to work these.

Those HE7 calls

Those HE7 calls heard on the bands recently are HB9 calls used by Swiss amateurs during 1991, the year of the 700th Anniversary of the Swiss Confederation (1291-1991).

First UK Novice

DX News Sheet reports that the first UK Novice license was issued to 13-year-old Hugh McNeil, who received the call 2EØAAA. Wasting no time, the young man was found on the air at 1100 UTC, July 26 on 10M near 28.472 MHz. Welcome to Amateur Radio, Hugh.

Those new UK prefixes are as follows: 2E, England; 2M, Scotland; 2W, Wales, 2D, Wales; 2G, Jersey; 2U, Guernsey; and 2I, North Ireland. The prefixes will be followed by a 0, 2, 3 or 4, and three letters.

IOTA

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

AN-001	Rothera Base		VP8CBL
		18.122 MHz	1900 UTC
AS-079	Miyako Island		JI6KVR/6
		21.315 MHz	1515 UTC
EU-032	Oleron Island		F/IK3GES
		14.260 MHz	1945 UTC
EU-034	Muhu Island		ES1QD/Ø
		14.259 MHz	0645 UTC
EU-049	Aegean Islands		SV8/DK6AO
		21.260 MHz	0815 UTC
EU-066	Solovetskiye Island		RZ1OK/A
		14.260 MHz	1115 UTC
EU-070	Port-Cros Island		F5TV/P
		14.257 MHz	1230 UTC
EU-089	Flores Island		CU9/CU8AA
		14.270 MHz	1245 UTC
EU-099	Les Minquiers		GJ/ON5FP/P
		14.260 MHz	1130 UTC
EU-104	Sanguinaires Island		TKØKP/SAN
		14.260 MHz	0900 UTC
EU-121	Irish Islands		EJ3HB
		7.045 MHz	1100 UTC
EU-123	Scottish Islands		GM4KHE/P
		7.058 MHz	2045 UTC
EU-128	Fehmarn Island		DL8AAM/P
		14.262 MHz	1300 UTC
EU-139	Seskaron Island		SK3IK/2
		14.260 MHz	0645 UTC
EU-140	Kaunissauri Island		OH3MIG/P
		14.256 MHz	1345 UTC
EU-147	Kondostrov Island		EK3DCX
		14.260 MHz	2145 UTC
NA-050	Barter Island		K6NA/KL7
		14.025 MHz	0800 UTC
OC-137	Lamb Island		VK4CY
		14.026 MHz	0600 UTC
OC-138	Kangaroo Island		VK5VK
		14.259 MHz	1000 UTC
OC-146	Sulawesi Island		YB8BYS
		21.260 MHz	1445 UTC
SA-016	Sao Luis Island		PR8OL
		14.159 MHz	2200 UTC

VI4HBW was a special event station operating from Fraser Island (OC-142) during the month of August for the Festival of Whales.

Dr. Rick Dorsch, NE8Z, was off on another one of his Ecuador ventures during August. He had hoped to activate Esmeraldas Province group around the middle of the month and planned to sign HC1MD/HC4/IOTA. This all depended on whether or not the local cholera epidemic would affect him.

A few issues back we ran a QSL card of VE8NO in our Antique QSL Department. The station was located at Coral Harbour on Southampton Island. During the Pacific Northwest Convention in July, I mentioned the call to one VE7 DX type. His response was, "That was me!" That was Frank Vander Zande, VE7AV, who operated VE8NO 1965 to 1966. Frank still has cards and the logs for anyone who still needs a card from VE8NO.

DXCC matters

The DXCC desk has pretty well caught up to date on processing the backlog of DXCC applications and endorsements. I guess we are all happy

to see that, including Don Search. Remember, you are allowed one free submission per year to the desk, regardless of the number of cards and/or modes and bands. This, of course, applies to ARRL members.

The DXCC desk also reports that cards from 3X1SG and 3X1AU are now acceptable for DXCC, as proper documentation has been received from their QSL manager.

The ARRL awards committee has accepted the findings of the DXAC that North Korea be added to the DX-CC Countries List and will be added after the first accredited operation. The present Korea will remain on the list under the new name of South Korea. Our thanks go to Rusty Epps, W6OAT, and the Northern California DX Club for pushing this one through.

Inside DX

Inside DX, published by Art Hubert, N2AU, is back. We received a copy of issue No. 264, dated July 26. Art had ceased publication due to ill health. He is presently co-editing with David E. Miller. For subscription information contact Art at 436 North Geneva Street, Ithaca, NY 14850.

160M

Carl, W1ZE, says that he would like to see more DX coverage of 160M activity. Carl claims that a few ardent DXers have worked more than 260 countries on this most difficult band.

Yes, let's have more on The Gentleman's Band—send in your top band information.

New NCDXF officers

The Northern California DX Foundation has elected its directors and officers for the 1991-92 term. Re-elected as directors are Lou Beaudet, K6TMB; Howard Brainen, WZ6Z; Bruce Butler, W6OSP; Josephine Clarke, WB6ZUC; Eric Edberg, W6DU; Kip Edwards, W6SZN; Rusty Epps, W6OAT; Stan Kaisel, K6UD; Dave Leeson, W6QHS; Rich Stempien, WA9WYB; and Steve Thomas, N6ST.

The new NCDXF officers include W6DU as president, K6TMB as vice president, Jack Troster, W6ISQ, as corresponding secretary, and K6UD as recording secretary.

Membership in this fine organization can be initiated by writing to P.O. Box 2368, Stanford, CA 94309-2368. The NCDXF has supported almost all of the past DXpeditions and, if you have worked them, it might be proper to support this organization with an annual tax-deductible contribution.

Antique QSL department

This interesting QSL card was submitted by Ted Gillett, W6HX, of the Southern California DX Club. Ted worked OE3AH back in 1931. The QSO information has all but faded out.

There is a bit of history with this card. Notice that OE3AH was the call assigned to Anton Habsburg, the Archduke of Austria. According to Ted, it was the murder of the Archduke's father that started World War I. The Archduke became a Silent Key in 1989.

QSL information

Bill, N2FZ, responds to our query regarding the Russian QSL services. Bill states that he has used the UW6HS/UA6HSN QSL service for about a year and everything gets forwarded. Every now and then he receives cards from the service and he will include a couple of extra IRCs in the next batch of cards sent via the service.

It also seems that the Soviet DXers aren't happy with the slow operation

— 11 STORE BUYING POWER —

HAM RADIO OUTLET

WORLDWIDE DISTRIBUTION

Phone Hours:
9:30 AM to 5:30 PM

Store Walk-In Hours:
10:00 AM - 5:30 PM
Closed Sundays

NOW TOLL FREE IN CANADA!

CALL TOLL FREE:

West 1-800-854-6046
Mountain 1-800-444-9476
Southeast 1-800-444-7927
Mid-Atlantic ... 1-800-444-4799
New England .. 1-800-444-0047

Toll free; incl. Hawaii, Alaska, Canada; call routed to nearest store; all HRO 800-lines can assist you, if the first line you call is busy, you may call another.

-NEW ADDRESS-
ANAHEIM, CA 92801
933 N. Euclid St.
(714) 533-7373
(800) 854-6046
Jim Rafferty, N6RJ, V.P.
Near Disneyland

OAKLAND, CA 94606
2210 Livingston St.
(510) 534-5757
(800) 854-6046
Rich, WA9WYB, Mgr.
I-880 at 23rd Ave. ramp

SAN DIEGO, CA 92123
5375 Kearny Villa Rd.
(619) 560-4900
(800) 854-6046
Tom, KM6K, Mgr.
Hwy. 163 & Claremont Mesa

-NEW ADDRESS-
SUNNYVALE, CA 94086
510 Lawrence Expwy. #102
(408) 736-9496
(800) 854-6046
Tom, KB6LUC, Mgr.
Lawrence Expwy.
So. from Hwy. 101

VAN NUYS, CA 91411
6265 Sepulveda Blvd.
(818) 988-2212
(800) 854-6046
Jon, KB6ZBI, Mgr.
San Diego Fwy.
at Victory Blvd.

Bob Ferrero W6RJ
President/Owner

Jim Rafferty N6RJ
Vice President

-NEW STORE-
PORTLAND, OR 97223
11705 S.W. Pacific Hwy.
(503) 598-0555
(800) 854-6046
Earl, KE7OA, Mgr.
Tigard-99W exit
from Hwy. 5 & 217

DENVER, CO 80231
8400 E. Iliff Ave., #9
(303) 745-7373
(800) 444-9476
George, KDØRW, Mgr.

PHOENIX, AZ 85015
1702 W. Camelback Rd.
(602) 242-3515
(800) 444-9476
Gary, WB7SLY, Mgr.
East of Highway 17

ATLANTA, GA 30340
6071 Buford Highway
(404) 263-0700
(800) 444-7927
Mark, KJ4VO, Mgr.
Doraville, 1 mi.
no. of I-285

WOODBRIDGE, VA 22191
14803 Build America Dr.
(703) 643-1063
(800) 444-4799
Curtis, WB4KZL, Mgr.
Exit 54, I-95, South to US 1

SALEM, NH 03079
224 N. Broadway
(603) 898-3750
(800) 444-0047
Paul, NW1U, Mgr.
Exit 1, I-93;
28 mi. No. of Boston

AZ, CA, CO, GA, VA residents add sales tax.
Prices, specifications, descriptions, subject to change without notice.

ICOM
IC-765

100W HF Transceiver
General Coverage Receiver
Maximum Operation Flexibility
SALE! CALL FOR PRICE

ICOM
IC-735

100W 12 volt • 12 channel memory
General Coverage • IF Notch & QSK
CALL FOR LOW PRICE

ICOM
IC-725

100W General Coverage
Receiver, HF All Band
Compact Transceiver
GREAT PRICE

ICOM
IC-781

The Ultimate 150W,
All Band HF Receiver
SPECIAL PRICE!
$4999.95

ICOM
IC-229H
2 Meter Mobile

50 W • 20 Memories • Small Size
Extended RX Coverage, 118-174 MHz
GREAT PRICE

ICOM
IC-2410H/3220
Compact 2m/440 Duo-Bander

IC-2410H
Shown

NEW!

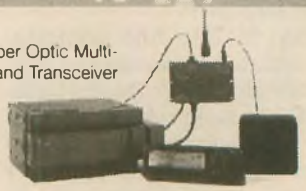
45W 2M/35W 440 • Backlit LCD
Microphone controllable (w/optional UT-55)
36 mems • Crossband repeat
Simultaneous receive on ***same*** band
SPECIAL PRICE

ICOM
HANDHELDS

IC-2GAT
2 Meter HT • 7 Watt
IC-4GAT
440 MHz • 5 Watt
IC-W2A
Deluxe Duo-Band
Wide RX Band HT
IC-2SAT, 2 Meter
IC-3SAT, 220 MHz
IC-4SAT, 440 MHz
IC-24AT, Duo Band

ICOM
IC-[illegible]

Fiber Optic Multi-
Band Transceiver



2 Meter and 440 MHz
Extra Large Multi-Color LCD
HM 14 Touch Tone Microphone
CALL FOR PRICE

— 11 STORE BUYING POWER —

HAM RADIO OUTLET

WORLDWIDE DISTRIBUTION

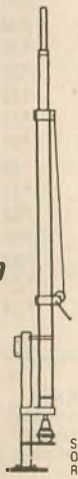
US TOWER CORPORATION

MA-40
40' Tubular Tower
REG. $809 ***SALE $629***

MA-550
55' Tubular Tower
Handles 10 sq. ft. at 50 mph
Pleases neighbors with tubular streamlined look
REG. $1369 ***SALE $999***

TX-455 ***Sale $1389***
55' Freestanding Crank-Up
Handles 18 sq. ft. at 50 mph
No guying required
Extra-strength construction
Can add raising and motor drive accessories

Towers Rated to EIA Specifications
Other Models at Great Prices!



SHOWN WITH OPTIONAL ROTOR BASE

KANTRONICS/KAM

True Dual Port Simultaneous HF/VHF Operation

Personal Bulletin board
RTTY/ASCII/AMTOR/CW/Weather Fax
Programmable MARK and SPACE tones
Terminal programs for PC compatibles and Commodore available
WEFAX programs for PC, Commodore, and Macintosh available

One Year Warranty
CALL FOR SPECIAL PRICE

MFJ

MFJ-949 D

300 Watt Tuner

Built-in dummy load
New peak and Average Lighted 2-color Cross-Needle SWR/Wattmeter
Built-in antenna switch, balun
Covers 1.8-30 MHz

All MFJ Packets Stocked!

MFJ

MFJ-1278 Multi Mode

All 9 digital modes
Easy Mail ™ Personal Mailbox
20 LED Precision Tuning Indicator
Includes free power supply
Includes free eprom upgrade

One Year Unconditional Guarantee

Call now for all MFJ products...
Wattmeters, dummy loads, coax switches, keyers, clocks, speaker and mics, software, books and more!

AEA

PK-232 Multi-mode Data Controller

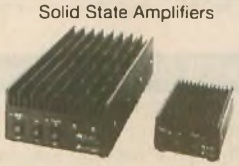
Now with PakMail function

NEW IBM Fax Screen Display Program Available
Transmit/Receive in Six Modes:
CW/RTTY/ASCII/AMTOR/Packet/FAX
IBM, Commodore, Macintosh terminal programs available. Radio Ports for HF and VHF

dconcepts

VHF/UHF

Solid State Amplifiers



Contemporary design, quality and a 5 year warranty on parts and labor. 6 months on the RF Final transistors.
All amplifiers have GaAsFET receive pre-amps and high SWR shutdown protection

GEOCHRON

Global Time Indicator

• Detailed illuminated map shows time, time zone, sun position and day of the week at a glance for any place in the world. Continuously moving - areas of day and night change as you watch. • Mounts easily on wall. • Size: 34 1/2" x 22 1/2".

Reg $1295. ***SALE $1159.95***

Phone Hours:
9:30 AM
to 5:30 PM

Store Walk-In Hours:
10:00 AM
to 5:30 PM
Closed Sundays

NOW TOLL FREE IN CANADA!

CALL TOLL FREE:

West
1-800-854-6046

Mountain
1-800-444-9476

Southeast
1-800-444-7927

Mid-Atlantic
1-800-444-4799

New England
1-800-444-0047

Toll free, incl. Hawaii, Alaska, Canada; call routed to nearest store; all HRO 800-lines can assist you, if the first line you call is busy, you may call another.

Call or write for our 88 page Communications Equipment Catalogue

DX Prediction — October 1991

***Maximum Useable 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 Useable 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.

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	*(19)*	***13**	***22**	*(12)*	***20**
10	*(18)*	***12**	***20**	*(12)*	20
12	37	***12**	***19**	24	***35**
14	43	***17**	***29**	27	***39**
16	45	*(16)*	25	25	***42**
18	***43**	*(15)*	*(22)*	20	***44**
20	***36**	26	33	15	***44**
22	30	28	39	*(14)*	***42**
24	***25**	25	41	***13**	***36**
2	***22**	17	32	***12**	***30**
4	***21**	*(15)*	27	***12**	***26**
6	19	*(14)*	24	***13**	***23**

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	*(15)*	***16**	***23**	*(12)*	21
12	*(14)*	***16**	***21**	*(12)*	19
14	*(29)*	***15**	***20**	24	36
16	33	***16**	***25**	24	***42**
18	35	15	*(21)*	20	***44**
20	35	26	32	15	***45**
22	30	***34**	39	*(14)*	***44**
24	26	***36**	43	*(13)*	***40**
2	***20**	***31**	42	***12**	***33**
4	***18**	21	36	***12**	***28**
6	*(16)*	19	30	***14**	***24**
8	*(15)*	***17**	26	*(13)*	***20**

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	19	*(13)*	*(21)*	***12**	***21**
9	18	***12**	***20**	12	***20**
11	37	***12**	***19**	***24**	***31**
13	***43**	***14**	***31**	***28**	***37**
15	***46**	*(13)*	27	***26**	***41**
17	***46**	*(12)*	23	***23**	***43**
19	***39**	*(12)*	*(28)*	16	***44**
21	***32**	24	37	14	***43**
23	***26**	24	40	***13**	***38**
1	***23**	16	31	***13**	***32**
3	***21**	*(15)*	27	***12**	***27**
5	***20**	*(14)*	23	***12**	***24**

of Box 88, Moscow. The UW6HS/ UA6HSN service appears to be what it claims. It might be worth a try.

Doc, W7MI, reports that SV0MW/ SV8 is the work of Slim. I believe we reported this several months ago, and it appears that this guy is still active.

QSL Routes

A35IL	—JA3OIN	EJ7FRL	—EI2BB
A35IM	—JA3OIN	EP2ASZ	—W3HCW
A35IN	—JA3OIN	EP2DL	—W3HCW
A35TX	—JA3OIN	EP2HSA	—W3HCW
C30EFA	—DL8OBC	EP2MA	—W3HCW
C30EHA	—DL2MEH	EP2MRD	—W3HCW
C30ENA	—DH1OAH	ES7R/0	—ES7FU
C31LJ	—VE3SUN	F5TV/P	—F6FHO
C9RTC	—IK4QIZ	FO0KAW	—JG1DUN
CE3MCC	—W3HCW	FP14DX	—FP5DX
CO2OM	—W3HCW	FR4FA	—F6DGT
CS5A	—CT1AUO	FW/AA7AF	—WA6ZEF
CY9CWI	—VE2CWI	G/FF1PGG	—FF8OU
DL1SCQ/TF	—DL6DK	G/FF8OU	—FF8OU
DL2SCQ/TF	—DL6DK	GH4WKS/P	—G0GNF
ED1IDC	—EA4KK	GU0ELF	—K7RDH
ED21ZO	—EA2LZ		*(see note 1)*
ED4KA	—EA4DAS	GU0JTG	—K7RDH
ED6CA	—EA4KK		*(see note 1)*
ED0BOD	—W3HCW	GW0ONY	—GW4WJO
EG5IPM	—EA4KK	GX4CRA/P	—G4CRA
EJ4VNX	—EI9GK	GX0IPX	—G3ZQS
EJ5ID	—EI3BA	HC1MD/**	—K8LJG
HC2FN	—W3HCW	S79KMB	—KN2N
HL9TK	—KK4TK	SI8MI	—SM0RBO
HS0AC	—KM1R *(see note 2)*	SN8PP	—SP8PKV
		SO9SBI	—DL2SDQ
IB1T	—I1RBJ	SU1HV	—IS0LYN
IE9/I1SNW	—I1SNW	SV0HV/SV9	—KA5EJX
IG9/IT9FTP	—IT9VQC	T6AS	—IT9AZS
J42MED	—SV2TSL	TA4A	—W3HCW
J8/VP9GG	—G3DLH	TJ1GG	—I2EOW
J8/VP9KF	—G4BKI	TK0KP/SAN	—TK5EP
KC6CW	—JA2NQG	TL8IM	—AC3D
KC6DX	—JA2NVY	TQ6JD	—DJ6QT
KC6MZ	—JI2UAY	TR8JH	—W3HCW
KH6LW/KH7	—KH6JEB	TT8SA	—F6FNU
OH0/SM3AJV	—SM3AJV	TX9SP	—F6IMS
OM5WSS	—OK1DXZ	UG6GAT	—DL1VJ
OX3KM	—F6FNU	UG7GWO	—DL1VJ
P29BF	—EI9BX	UH8EA	—W5BWA
R6P/UA6HPW	—UA6PZ	UR8G	—RB0GG
R9EF	—UA9FAR	V47RF	—WA2SPL
R100RW	—UA9OA	V51MA	—W3HCW
RA0AL	—W3HCW	VK6AJW	—W3HCW
RL0L/UL7PI	—UL7PI	VP2EI	—KD6WW
RM5P/		VP2EST	—KT8Y
UM8QDX	—UM8QDX	VP2EXX	—KC8JE
RU1K	—UB5KF	VP2MAO	—W5NOJ
RY1QH	—UB0QZ	VP2VDX	—KT6V
RY2QT	—UB0QZ	VP5R	—WB9HRO
RY3QB	—UB0QZ	VP5VPX	—W4NPX
RY4QM	—UB0QZ	VP8CEO	—KL7H/6
RY5QC	—UB0QZ	VP8CGK	—VK4MZ
RY6QO	—UB0QZ	VQ9RR	—N3GQK
RY7QK	—UB0QZ	VR6TC	—WD6GUD
RY8QN	—UB0QZ	VR6YL	—WD6GUD
RY0QQ	—UB0QZ	XQ6OS	—CE6OS
XU1NQ	—OK1NQ	4K4I	—UY5XE
YB23AR	—YB5NOF	4K4/UA9KW	—UA9KI
YI/LA5EDA	—LA5NM	4K5ZI	—K4RKI
YJ8RG	—VK4BRG	4L1NV	—UV6UV
ZD8ACJ	—G0ACJ	5B4ADA	—YU4YA
ZD8SE	—G3XKR	5N0ASW	—W3HCW
ZD8WD	—G4RWD	5W1CW	—ZL1AMO
ZF2QJ	—WA1IML	6T2MG	—W3HCW
ZF2QO	—JA7XBG	7Q7MM	—N4RFN
ZY2KXI	—PY2KXI	8Q7PJ	—PA0CRA
ZZ5SZ	—PP5SZ	9H3VJ	—DL1VJ
3C0CW	—EA3CUU	9L3BM	—VE3KKU
3D2CA	—I4ALU	9L3GB	—W3HCW
4K2PGO	—RA9LA	9M2NA	—VE3CHZ
4K3/UA3YCA	—RA3YG	9M6/JH0SPE	—JA0VBJ
4K4A/A	—UY5XE	9M6/JR0TUU	—JA0VBJ

BV7BB	—P.O. Box 65, Kangshan, TAIWAN
BV8MB	—Clark Yang, P.O. Box 7-33, Hualien, TAIWAN
EK3ACQ	—P.O. Box 1, Moscow, 127254 USSR
ES1QD/P	—P.O. Box 2259, Tallinn, 200035 Estonia, USSR
NJ1W/DU9	—Bob Williams, Box 87, 9500 General Santos City, PHILIPPINES
TI0RHU	—P.O. Box 290-3000, Heredia, COSTA RICA
TL8FD	—P.O. Box 265, F-67504 Haguenau, FRANCE
TU2CI	—P.O. Box 5291, Abidjan 01, IVORY COAST
TU2XB	—P.O. Box 81, Abidjan 01, IVORY COAST
TV6A	—P.O. Box 100, F-86170 Neuville, FRANCE
VI4HBW	—Hervey Bay ARC, P.O. Box 829, Hervey Bay, QLD 4655, AUSTRALIA
ZS9S	—John Smith, P.O. Box 2480, Walvis Bay 9190, RSA
4B2SOL	—Special Event Eclipse 91, P.O. Box 147, La Paz, BCS 23000, MEXICO
9Q5PA	—P.O. Box 23, Matadi, ZAIRE

Notes

1. The latest address for this manager is: Bob Hatter, 101 Moore Avenue SW, Vienna, VA 22180. Do not use the *Callbook* address.
2. This route applies for North American stations only after July 1, 1991.

Many thanks to the following contributors: HB9RS, UB5KDY, UB0QZ, KM1R, W1ZE, N2FZ, N2OO, W3HCW, WD6GUD, W6HX, W6TUR, W7MI, K7RDH, NE8Z, The American Radio Relay League, Salt Lake City DX Association (KB2G), Western New York DX Association (KD2YP), Western Washington DX Club (K7WA), Northern California DX Foundation, *Long Skip* (VE3IPR), *DX News Sheet* (G4DYO), *The Long Island DX Bulletin* (W2IYX), *Inside DX* (N2AU), *QRZ DX* (W5KNE), and *The DX Bulletin* (VP2ML).

Our long vacation up north to VE7, KL7, VY1 and VE6 was very enjoyable. While on the Queen Charlotte Islands (IOTA NA-051), we wished we had our radio with us. Otherwise, the islands were great. Can you imagine driving down a road and seeing a Bald Eagle in every tree—sometimes two to a tree?

Hope your DX chasing has been good this summer. Very 73 de John, N6JM. □

If your club is involved in any emergency situations, send the story and pictures to **Worldradio.**

See your group in print and help your fellow amateurs with shared experiences. Your story may help others be better prepared.

It takes six to eight weeks for a license class upgrade to get into the FCC's computer system.

Net control operators who handle mobile and maritime mobile nets carry a tremendous responsibility in the proper operation of their nets. The hard-working net controllers must carve out a couple of hours every day to volunteer their time and assistance in running the nets, making sure that they're run in accordance with the FCC rules and regulations as outlined in Part 97.

For a copy of the Part 97 rules and regulations, call the W5YI VEC at 817/461-6443. You can also order the *FCC Rule Book* from the American Radio Relay League (203/666-1541). This book not only gives you the exact rules and regulations, but has many valuable pages of interpretations of the rules. Most local and mail-order ham radio dealers also carry it.

The mobile net controller may routinely question any new operator on the class of license he or she is holding. Simply looking up a call sign in the *Callbook* is one way to see what class of license the operator may have held a year ago, but even the *Callbook* supplement, which is issued approximately six months after the main book comes out for the year, there is still no guarantee that the applicant might have recently upgraded and is holding a certificate of successful completion for a higher class of license than what is listed in the book.

May an applicant who has recently upgraded begin operating on higher privileges on a particular mobile net, even though that applicant might not have the official paperwork back from the FCC? Indeed so: FCC Part 97.9(b) states that an amateur "... who has properly filed with the FCC an application for a higher operating class, *which has not yet been acted upon*, and who holds a CSCE indicating that the person completed the necessary examinations within the previous 365 days, *is authorized to exercise the rights and privileges of the higher operating class.*"

Let's say a Technician Class operator recently upgraded to Advanced Class. The applicant would be given a CSCE from the accredited volunteer examination team (VET) indicating the test elements passed and the class of license this applicant now holds. The VET sends in the paperwork to their volunteer examination coordinator (VEC), and this paperwork from the VEC is then filed with the FCC. This whole process normally takes about six weeks, so there is a lag between when the applicant passes the test and when he actually receives the official FCC license. Then, it's anywhere from a couple of months to a year before the new, higher privileges appear in print in the *Callbook*.

If a squabble arises about whether or not an operator is properly licensed for the band he is operating on, the net controllers have alternate ways to verify the recent upgrade. They could request a copy of the applicant's CSCE and call one of the three examiners to authenticate the paperwork. Or, the net control operator could contact the Federal

Communications Commission (717/337-1212) and see whether or not the new, higher class license has indeed been issued to this applicant.

"If you give us a call sign, we are happy to tell you what class of license this applicant has on file with us," comments a representative from the Consumer Branch at the FCC in Gettysburg, Pennsylvania. We found this to be true, once you get through on the phone. If you get a busy signal, keep dialing!

If a net controller is trying to check an operator's license class within that six-week lag between when the applicant took the test and when the FCC completes the paperwork, he could ask which VEC was handling the paperwork and place a call to that VEC, and ask whether or not the applicant indeed made the upgrade exam. Few VECs were willing to recommend this procedure because it takes up their valuable time in hunting down in-process paperwork, but most indicated that in very special cases they could look into any particular exam session and tell the net controller whether or not a particular applicant indeed made the upgrade.

But wait—there's more to think about! What about an operator checking into a net on 28.303, the popular hang-out spot for new Novice and Technician-plus Class operators for maritime mobile intercommunications. How do we know that a Technician Class operator really has the Tech-plus license, rather than the no-code Tech license which does not allow for 10M operation?

The newly created database for Technician-plus (*with* code) operators

The Gettysburg FCC computer system shows only "Technician," with no indication of code or no-code.

now gets entered into a specialized VE computer system; "It's going to be a simple job telling who has the code and who doesn't on the 10M band," comments a volunteer examiner in the southern California area. By the time you read this article this fall, the VE computer system will be up and running 24 hours a day, specifically to keep a check on who has the code and who doesn't for Tech-plus and no-code Tech operation. Volunteer exam coordinators, working with the question pool committee, now have a program on line to assist the FCC in Gettysburg with this very unique database. Icom has also been a strong supporter in this project. Is there instant licensing for new Novice and new no-code Technician operators on the horizon? It is certainly under consideration and could prove valuable in getting newcomers up on the air rather than having to wait out their license coming in the mail from the FCC.

So, for net control operators handling mobile nets, there are indeed several ways to authenticate the proper class of license—that is, if you feel it's necessary. I think it's important that we know exactly who is taking part in the net and that they are properly licensed. But, simply looking up their name in the *Callbook* or working through the FCC data base from a leading company like Buckmaster (703/894-5777) does not necessarily mean they haven't recently upgraded within the past 40 days. And, per the rules, an applicant can go on the air immediately, as soon as they step out of the examination room with the properly executed paperwork in hand from their accredited three-member volunteer examination team.

Worth listening to on 14.303 every day: the 18-Wheeler Mobile Net with a guest appearance from WD4FSY, Don Arnold, "Mr. Outbacker," and one nice guy. Don, and truckers all over the US, use 14.303 as their intercom channel, and this frequency is worth listening to in order to appreciate the quality of net operation from an 18-wheeler which you probably only associated with a CB mike. These big-rig operators worked hard for their General and higher licenses, and I think you'll be interested to tune in on this daily big-rig mobile "intercom" on 14.303.

Do you have a mobile net you want mentioned? If so, send me the details at ***Worldradio.*** □

Exhilaration is that feeling you get just after a great idea hits you, and just before you realize what's wrong with it.
— Unknown

STARTEK INTERNATIONAL INC

FREQUENCY COUNTERS

GREAT NEW MODELS - SUPER LOW PRICES

10 HZ to 3.5 GHZ

- StarCab™ ALUMINUM CABINET
- 8 RED LED DIGITS
- 3 GATE TIMES
- DISPLAY HOLD
- MMIC AMPLIFIERS
- 3-5 HR BATTERY
- NI-CAD'S & ADP
- YEAR WARRANTY
- MADE IN USA

THE NEW MODEL 3500

FROM THE ORIGINATOR OF THE "HAND HELD" COUNTERS IN THE StarCab™ STYLE CABINETS, WITH EXPERIENCE PRODUCING OVER TWO DOZEN SUCCESSFUL FREQUENCY COUNTER MODELS SINCE 1975, FRED HUFFT- W4PLM HAS DESIGNED THE 3500 WITH UNPRECEDENTED FREQUENCY RANGE, FEATURES AND QUALITY IN A VERY AFFORDABLE "POCKET SIZED" COUNTER.

COMPUTER DESIGN AND STATE OF THE ART COMPONENTS PROVIDE UNCOMPROMISED RELIABILITY AND PERFORMANCE.

A VERY SPECIAL OFFER

MODEL **1500A**

$66*

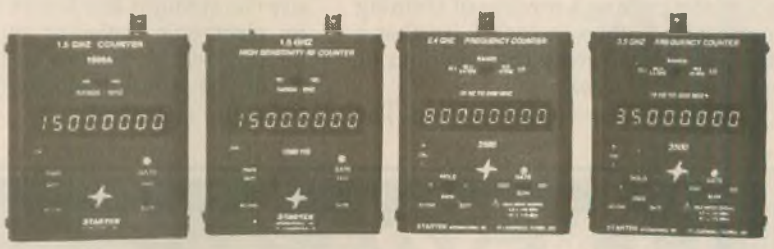
* Buy this quality 1500 MHZ Counter for only $66. when purchased with the following items:

■ 1500A FREQ COUNTER	~~$89.00~~	66.00
■ INSTALLED NI-CAD PACK	20.00	
■ 110VAC ADP/CHARGER	9.00	
■ 12VDC AUTO ADP/CHGR	9.00	
■ VINYL CARRY CASE	12.00	
■ TELESCOPING ANTENNA	12.00	
#SO-15	~~$151.00~~	128.00

ONLY $128. FOR ALL 6 ITEMS

TO SUBSTITUTE MODEL 1500HS ORDER #SO-HS $175.
2500 #SO-25 225.
3500 #SO-35 265.

FIND FREQUENCIES FAST with any of these great pocket sized counters, available for immediate delivery from STARTEK. Absolutely the best values in the industry, from the 1500A, now only $89., to the new 2500 & 3500. These new full range counters feature a 1 megohm input 10 Hz to 12 MHz, a 50 ohm RF input 10 MHz to 2.4 GHz / to 3.5 GHz for the 3500. The 2500 & 3500 both feature MMIC amplifiers for maximum sensitivity, three gate times for maximum display resolution of .1 Hz to 12 MHz and 10 Hz to 2400 & 3500 MHz, a DISPLAY HOLD switch and LED indicator to hold a reading and suspend gating until turned off. Our DISPLAY HOLD switch works properly, it does not change the GATE selection when turned off, like some competitive units. All of our counters use LSI circuitry, sub-miniaturized components and low power design for portable operation of 3-5 hours from internal 600 mA/Hr NiCad batteries. For ULTRA HIGH SENSITIVITY the 1500HS can't be beat with typical sensitivity of <.5 to <1 mV RMS from 10 MHz to 500 MHz. Our 1500A offers great quality and performance at minimal cost. All counters have a full year parts & labor limited warranty. Check out our VERY SPECIAL OFFER for any model packaged with several of our most popular accessories.



1500A ECONOMY MODEL	1500 HS ULTRA HIGH SENSITIVITY	2500 FULL RANGE +HI-Z INPUT	3500 EXT RANGE +HI-Z INPUT
1-1500 MHZ	1 MHZ-1500 MHZ	10 HZ-2400 MHZ	10 HZ-3500 MHZ
2 GATE TIMES	2 GATE TIMES	3 GATE TIMES	3 GATE TIMES
LESS NI-CADS & AC ADP	DISPLAY HOLD	DISPLAY HOLD	DISPLAY HOLD
$89.	**$159.**	**$210.**	**$250.**

■ OPTIONS for the 1500A

#BP-15	NiCads for 1500A (installed)	$ 20.00
#AC-15	110 VAC adp/chgr for 1500A	9.00

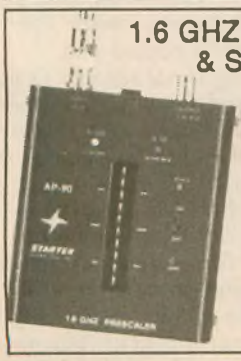
■ ACCESSORIES for all models

#TA-90	Telescoping BNC antenna	12.00
#RD-800	800 MHZ Rubber Duck-BNC	29.00
#CC-90	Black vinyl zipper carry case	12.00
#DC-690	12VDC Auto adaptor/charger	9.00

■ PROBES

#LP-22	Probe, Low Pass/Audio use with 2500 & 3500. Attenuates RF noise.	$22.00
#P-110	Probe, freq counter or scope use, 1X, 10X. 200 MHZ scope use.	39.00

1.6 GHZ PRESCALER - AMP & SIGNAL BAR GRAPH



Extend range of any counter capable of counting 16 MHZ or higher to 1600 MHZ with super sensitivity of 1-5 mV typ. 10 segment LED BAR GRAPH displays RF signal strength. StarCab™ aluminum cabinet. 110 VAC adaptor included.

MODEL AP-90
FACTORY ASSEMBLED
1 YEAR WARRANTY

$99

NEED MORE INFO - CALL HAL MANDERY- KK4UN SALES ENGINEER

ORDERS ONLY - TOLL FREE

800-638-8050

INFORMATION (305) 561-2211

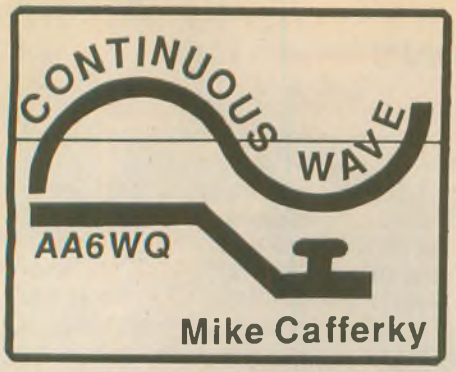
MasterCard VISA DISCOVER

TERMS: Shipping-handling charges for Florida add $4 + tax, US & Canada add 5% ($4 min, $8 max), *all* others add 10% of total. COD fee $3.75. Payment by VISA, MC, DISCOVER, COD for CASH or MO. Prices and specifications are subject to change without notice.

STARTEK INTERNATIONAL INC

398 NE 38th ST., FT. LAUDERDALE, FL 33334

FAX (305) 561-9133



Although they don't know it, there are several individuals who are, in effect, contributors to this month's Continuous Wave column. In presenting the following collection of CW instructors' pet peeves, I express my appreciation of the teachers and highly experienced operators who have been patient in helping me and hundreds of other Amateurs to master the art of CW.

I would like to recognize these individuals and give credit where it is properly due: Ralph, W6WET; Paul, N6DWR; Rick, N7HRK; Jim, K7YLM; Vince, NM3W; and Ken, WA6ZEF. They, like scores of others, are continuing to make a positive contribution to CW through teaching and encouraging new operators. I can vouch from experience that they practice the values they preach.

The pet peeves of CW instructors

1. *Inconsistent practice.* Think of mastering code as a process of training your brain. To be successful, it takes a little every day rather than an hour or so every other week.

2. *Poor word and letter spacing.* The key here is "pay attention to the spacing." Trying to copy CW with improper spacing where letters and words are run together is as frustrating as trying to copy a QRP station in heavy noise. Be easy on the other person's ears; watch your spacing.

3. *Long CQ calls.* Another peeve is waiting for an operator to get through an excessively long CQ call where he doesn't listen periodically for a response. Stick to the "three-by-three" system: CQ three times followed by your call three times, followed by listening for a response. You will get good results.

4. *Excuses.* If you don't pass your code test for upgrading, no problem. Just keep practicing. Excuses like "I know I copy at 13 wpm at home all the time" are out. Just keep practicing.

5. *Using a Morse code chart.* Code is learning by hearing it. So put away those code charts which help you find the letters and numbers. Just listen. If there are letters you don't know, go back and practice them until you have them mastered. Burn that chart or put it in a remote place in the garage.

6. *Fear of air time.* Most teachers and experienced operators will tell you to get on the air if you want to improve your CW. Practicing code with tapes is fine, but they don't take your mind far enough into the learning process. Air time does.

7. *Avoiding the straight key.* When you first learn to operate CW, learn to use the straight key before changing to an electronic keyer or bug. Straight keying helps train you in the mechanics of the building blocks of CW: dits, dahs and spaces.

8. *Herky-jerky rhythms.* The worst offenders are operators who use excessively long dahs and machine-gun dits. Adjust your key. Become a smooth operator.

9. *Misleading CQ calls.* Here the problem is when someone calls CQ at a speed much higher than he can copy. What he gets is an operator who responds at the same fast speed. It's all right to push yourself a little (perhaps one or two words per minute faster than you can copy comfortably), but doing anything more is misleading and shear folly.

10. *Operators who forget they were once Novices, too.* Nothing is more intimidating to a slower operator than to have a more experienced amateur refuse to slow down to accommodate his speed. Remember, it is your responsibility to make sure the other operator can copy you. It also builds friendships.

11. *Frantically making corrections.* When you make mistakes while copying (like missing a letter or writing the wrong letter), stopping to erase will get you into deep trouble. Just leave a blank space on your paper and go on copying. This helps to minimize frustration and helps keep you focused on the incoming data. On the other hand, when you make mistakes while sending code, by all means stop and make corrections. Don't assume the other operator knows what is going on in your mind.

12. *Tuning up on a CQ.* This is merely one variation of being a discourteous operator and is in the same class as sending a CQ in response to a CQ. Find another frequency to do your own work if you are not going to respond to the CQ you hear.

13. *Copy dishonesty.* When you tell another operator you copy "100 percent," be honest. If you don't copy 100 percent on each transmission, you will not be considered a second-class citizen. If you send "R R" in response to a transmission do so only when you are making a true statement. By the way, "R" does not mean "yes." It simply means "I copied you."

14. *Misusing the Q signals.* Q signals are short hand ways to improve efficiency. If you learn them incorrectly, you cause no end to frustration to the other operator. Throw away your Morse code chart but keep the Q signal chart handy until you master it.

15. *The "Motor Key."* Another pet peeve is trying to enjoy a QSO with someone who would rather use their key and transmitter than their receiver. In order for the social interaction to be pleasant for both operators, avoid dominating the conversation.

16. *Assuming you are on a clear fre-*

quency. In spite of the heroic efforts to teach CW courtesy, some operators still avoid checking their favorite frequencies before transmitting. Checking the frequency involves listening, asking if the frequency is in use, and listening again. Propagation conditions can change rapidly. What may seem like a clear frequency when you turn on your radio may turn out to be a QSO in progress in a minute or two when conditions change.

17. *Using your carrier to QSY.* True, the QSY exchange has potential risks: The other person may get lost in the move. It happens. On the other hand, trying to lead another person to a clear frequency by sending out a continuous line of dits while you move your VFO is in selfish disregard for other operators by creating unnecessary interference on the frequencies they use.

In pursuit of the excellent operator

If you come away from this list thinking the contributors shouldn't be so negative, blame me. I stated these points in this way so that you'd think of the flip side of each. Remembering these pet peeves will help you develop excellent Morse code operating practices, in the true spirit of Amateur Radio. □

Chance meeting

I was reading in the August 1991 *Worldradio* of a "one in a million" chance meeting on the air. I had a similar QSO a couple of weeks ago. On July 16, 1991, I was scanning the 10M band and heard W4ZAA, Wendell Rushton, calling CQ. Before I could get back to him he made contact with someone else. I looked him up on the computer and found that he was in Florida, a state I already have confirmed. I was just about to tune off his frequency when I heard him give his 10-10 number, something I am always chasing.

I finally got him and, being a transplanted Yankee myself, I made a comment about his obvious Yankee accent. He told me that he was originally from Braintree, Massachusetts, which is just a couple of towns away from where I was born and raised, Abington, Massachusetts (pop. 14,000). He asked when I was born and said that he had a close friend who used to live in Abington, Al Coe, whose call was W1RVQ. He continued and told me that since it was before my time I probably wouldn't know him but he had not talked to Al since he moved to Florida and Al had moved to New Hampshire in 1959.

Well, I informed Wendell that Al's call was now N4DBM, that Al had met and married a fine lady named Jean Murphy (N4VLN), that he is living seven miles down the road from me and that Al was my stepfather!

After the goose-bumps went away and we calmed down some, I called my dad on the landline and he came up on frequency. They talked for an hour reminiscing and catching up on 32 years of absence! And they set up a schedule so that another 32 years didn't get away from them again.

Having been a ham for only a year and a half and on the low bands for only seven months, it is unheard of that I would experience something like this. I have truly learned how much smaller this world becomes when you become an Amateur Radio operator—*Mark Taylor Murphy, KC4HIT, Claremont, NC* □

MILITARY AFFILIATE RADIO SYSTEM

MARS

US ARMY ★ NAVY-MARINE CORPS ★ AIR FORCE

Paul A. Scipione, AA2AV
MARS call AAA9PR

Former KSA Army MARS operators attend AAR4CSS reunion: from AEM3VV—John Finley, Brent Cadwallader and Rusty Hale; AEM3USN—Kevin Snyder; and AEM3XO—Jim Moffatt. ***(Photo by Carol Pieratt)***

The mother of all reunions

Most hams make random contacts with total strangers on the air and the QSO becomes a one-shot deal. But for MARS operators, often the operator that you work with on the other end of the net gets to be a weekly or even daily contact. His or her voice (or fist!) and personality become nearly as familiar as a member of the family, except that you never get to meet the other operator face-to-face. But what if you could?

In last month's MARS column, I introduced you to the amazing men and women of the Silver Springs Radio Club in Ocala, Florida, who, against all odds, got the idea of putting a MARS station on the air to run phone patches for our service men and women in Operation Desert Storm and then made it all happen within 60 days. I mentioned in the postscript to that column that the folks at AAR4CSS planned to hold a special reunion at their station to bring together the brave MARS operators from the AEM3 stations in the Persian Gulf with their own operators. Well, I am happy to report that the big bash was held on Sunday, July 28!

The ladies and men at AAR4CSS all threw money into a hat to pay for the reunion. It was something they felt strongly about—being hosts to the brave AEM3 operators from the stations in the Gulf so that they could get to know the other operators personally and proudly show them the super station that had made possible more than 13,000 phone patches for lonely servicepersons and their families. When club members came up short on cash for the reunion, they contacted local businesses and were deluged with offers of food, beverages and cash. Invitations went out and plans were all set. A local television station assigned a volunteer crew to come out and videotape the event. The station, housed in an old housetrailer, was spruced up. But what would happen when the two sets of operators actually got together, no longer separated by more than 7,000 miles?

They needn't have worried! Flying in from Memphis, where he was a manager with a local daily newspaper before being called up from the Army Reserve and sent to the war, was Jim Moffatt (who served at AEM3XO).

"Some folks thought I was a bit old at 51 to go to war, but I wouldn't have missed helping the troops call home!"

Driving in from their active duty station at Fort Bragg, North Carolina, were John Finley, Brent Cadwallader and Rusty Hale (who all served at AEM3VV), and Kevin Snyder (who served at AEM3USN). There were hugs and handshakes and even a few kisses and soon the two sets of MARS operators found out that theirs was a relationship forged in war that would continue to thrive back home.

Between all the hot dogs and hamburgers and beer, the guys from the AEM3 stations got to sit at the rigs at AAR4CSS and see how their thousands of phone patches from the war had actually been run. When Jim Moffatt found out that the rigs were turned on and tuned into a regular CONUS-Europe net, he actually got to run some phone patches from the home end, handling traffic for an Army MARS station in Germany.

There were lots of technical discussions at the reunion, including stories of how rigs and power supplies had gotten wiped out by the sandstorms in the desert (ingenious solution: sending home for pantyhose to protect all the rigs), trying to heat coffee over bits of C4 plastique explosive (it worked when I was in Vietnam in 69 to 70 too), and operating in rugged surroundings and dangerous conditions. But what really touched the hearts of the folks at AAR4CSS was hearing firsthand how much all of the phone patches had meant to the troops in the Gulf and their families back home.

"You guys are all guardian angels as

far as we're concerned," Brent Cadwallader was heard to say.

"No," answered Don Pieratt, N8CBR, "we're just some folks who give a damn." The two men bear-hugged each other to the cheers of all the other operators and there were more than a few tears choked back. This was the mother of all reunions!

Dr. Paul Scipione is National Coordinator of Public Relations for Army MARS. He encourages anyone with information for a future MARS column to write him at 5 Burr Drive, Metuchen, NJ 08840. □

On-line QSL searching

Do you have several dozen calls that you can't seem to find in the *Callbook?* No time to look up all those addresses for WAS? There is now help available.

Buckmaster Publishing now provides an on-line Hamcall service that gives subscribers access to the names and addresses of the current 494,115 listed amateurs. All you need is a computer terminal and modem to bring this information into your shack!

A subscription to the service costs only $29.95 per year, and provides you with unlimited use. The only additional expense will be your phone calls to Virginia to "look up" the call signs.

To take advantage of this service, write Buckmaster Publishing, Mineral, VA 23117, or call toll free 800/282-5628. □

Amateur Radio has been very good to me. Besides making friends around the world, I have enjoyed spin-offs from my meager knowledge of the art. First, when I joined the Naval Reserve while in high school I automatically became a Radioman third class. Then, during World War II, my ham ticket helped when I was in the Army.

I was a brand new college graduate and a brand new second lieutenant in the Army when I boarded the train in Boston for the short trip to Camp Edwards on Cape Code. Edwards was to be my first duty post after being ordered to extended active duty in 1942.

The train was loaded with soldiers reporting to the newly formed Engineer Amphibian Command in Edwards. The guy sitting across from me was a captain in the Corps of Engineers, so we struck up a conversation.

"Are you in the Engineer Amphibians?" I asked.

"Just reporting for duty," the captain said.

"Me too," I said, "but I don't know a thing about them. I'm infantry, but I've been detailed to the Engineers. Not a military soul I've talked to knows what the Engineer Amphibians are supposed to do."

"We're going to run water taxis," the officer said.

"Water taxis? What are they?"

"I'm not sure," the captain said, "I've been commissioned to be an instructor in boat operation. I'll tell you when I find out what water taxis do." He laughed at his own ignorance.

"It must be a new outfit in our army," I added.

"Brand new," said the officer. "We're going to teach army troops to navigate and pilot the small water taxis they use to put the infantry ashore on enemy-held land. We're going to have to invade Europe, you know."

This was my first inkling of what the Amphibians did for a living. I had my suspicions, but this was the first real information I had been able to gather.

Well, the newcomer captain was right, only I think he had been sold a bill of goods by the army recruiter. Many of his fellow power squadron members had been told that, if they signed with the army, they would be instructors in navigation for the duration of the war. The newcomers were given commissioned rank depending on their age and skill in handling small boats.

When I sat down to fill out the papers in the reception office, the first form began with the question, "How long a boat do you own?" I wrote "14 ft. rowboat" in the space provided. The next line asked: "Powered by?" to which I answered "two oars."

Another question further down the page asked for information about my hobbies. I scribbled "Amateur Radio" and handed the sheets to the sergeant.

The Amphibian Command sent infantry officers through a brief training to acquaint us with the ways of the Corps of Engineers. The newly recruited boatmen were sent through a longer training where they were taught the same stuff, plus how to march, make a bed, and fill a Lister bag with water. For them, it was three-week basic training.

After the school week, my class was shipped off to the 592nd Engineer Boat and Shore Regiment for duty. The 592nd was camped out on Washburn Island, even today a pristine inland island near Falmouth, Massachusetts. When the 592nd personnel officer looked at my qualification card, he said simply, "We've been waiting for you. We've got a bunch of radios that don't work. You're assigned as the boat battalion communications officer." Ham radio had spun its magic.

And so I had a job, plus a bunch of radios that were on the bum. Somewhere down in the war department the brass had decided that this brand new Amphibian Command needed radios to communicate between the galloping water taxis that were going to haul troops into battle.

The first radios were originally designed for use while riding a horse; they were cavalry radios. I called them "pogo stick" radios because they resembled the jumping-jack stick that kids used to bounce around on.

The pogo stick radio consisted of two units; one was a breast plate with a rubber microphone and speaker horn sticking out of it. The batteries were in the breast plate, which strapped around one's neck and back. A cable connected the battery pack to the pogo stick, which had a small box of tubes and stuff built slightly off center in a whip antenna. Picture this situation: a radio man rider, mounted on a horse, the battery and microphone strapped on his chest, holding the "pogo stick" antenna which was stuck in the guidon socket of his right saddle stirrup. He carried it like a flag. When he wished to transmit, he depressed the switch built into the top of the tube box. The rubber mike horn was apparently designed so that if the rider fell off the horse he wouldn't knock out his front teeth.

The guidon radio was designed for high frequency use. I don't remember the actual frequency range, but it was crystal controlled and extremely low power. I used to wonder if they could communicate between two horses in the same parade with the darned things.

Well, you can imagine the problems we had with the pogo sticks. Although

they were sealed up for use in rain, the salt water seemed to do nasty things to the poor little peanut whistle radios.

The "water taxis" turned out to be landing craft: LCVPs and LCMs. The 592nd had a pile of them, plus 3,000 green troops fresh from the reception center.

When a flat-nosed landing craft hits a wave while running into the wind, the ensuing water splash that comes over the bow ramp can nearly drown the coxswain in the after end of a 36 ft. boat. It didn't take too long before the cavalry radio strapped around the coxswain's body quit working.

The transmitter and receiver in the pogo stick had miniature filament type tubes that soaked up watts just idling, so battery life was short and the sea water seemed to do something to the radios to keep them from working at all.

Our complaints about the pogo sticks brought new SCR-536 radios. They were hand-held units, battery operated, with short whip antennas that telescoped into the case. They were used like a handset telephone, the microphone in one end and the earphone in the other. Designed for the infantry platoon and company level, the 536 was the second dud we had to try in our daily tactical training with the infantry units that would eventually invade the islands of the Pacific and the mainland of Europe.

Whatever I've said was wrong with the pogo stick job goes double for the 536. As a result, the regimental commander issued orders for every one of our 3,000 recruits to learn the semaphore flag system. I tried to tell him that blinker would be more appropriate, but rank has its privilege. I said to the colonel, "Flags are pretty tough to read at night, and who's going to stand in the back of a rocking landing craft and signal another boat in the dark?" Everyone learned the flags.

Another assigned radio set was the SCR-284. It was a CW/AM set which came in two chunks—the transmitter/receiver section and a hand crank generator that supplied the XMTR plate voltage. The RX ran on batteries and the TX only needed the hand cranking when it was operating. The generator was like an upside down bicycle with two cranks 180 degrees apart for tail twisting.

We used the 284 sets only in covered command boats, but we maintained radio silence until the actual landing on the simulated hostile shore, so the sets were of little use.

We kept learning the flag signals until the first unit arrived in New Guinea for combat. A platoon of landing craft made a night trip along the coast to get closer to the front lines. While underway, a blinker signal challenged the boat flotilla with a recognition query. When no one on the boat could read blinker, the shore base let a shell go across the bow of the lead boat. The landing craft turned and ran out to sea. The next day brigade headquarters sent out an urgent message to start teaching all boat crews to read blinker code.

The 592nd did a grand job in the Pacific; I believe they made 84 combat landings during the war.

Eavesdroppings

"I HAD A VISITOR IN THE SHACK AND WE TOOK THE RTTY OFF AND TRIED A LITTLE SIDEBAND, BUT NOW I CAN'T GET THE RTTY TO WORK AGAIN ... MY DAD HAD A HAM CALL BACK IN THE SPARKING DAYS ... COLLEGE WAS A LOT OF FUN, ESPECIALLY THE GIRLS ... I TOOK MY OLD BEAM APART AND STORED IT IN THE GARAGE UNTIL MY WIFE TOOK PART OF IT TO HOLD UP FLOWERS ... WE JUST GOT BACK FROM YELLOWSTONE WHERE WE LOOKED AT THE BURNED OUT TREES ... OUR PACKET BBS IS SO BUSY WITH JUNK MAIL THAT IT'S HARD TO FIND A REAL MESSAGE ON IT ... I LIKE THE 40 HOUR WEEK MUCH BETTER THAN THE HEXAEMERON I USED TO WORK ... MY ANTENNA MAST LOOKS LIKE A LEANING TOWER OF PEPPERONI ... I JUST LOWERED THE POWER OUTPUT DOWN TO A GREAT BIG KW ... I HOPE TO MAKE IT TO DAYTON FOUR TIMES IN THE NEXT THREE YEARS ... I THINK THE CLOCK I BOUGHT AT THE HAM CLUB FLEA MARKET ONLY WORKS ON DAYLIGHT TIME ... I BEAT THE SOLITAIRE GAME THAT COMES ON "WINDOWS" COMPUTER PROGRAM THREE TIMES IN A ROW ... WHEN HE SAYS 73 I THINK HE MEANS GOOD RIDDANCE ... MY LAWN IS SO BIG I THINK I SHOULD WORK LAWN MOWER MOBILE ... MY RIG IS A HOME BLEW SPECIAL ... IT TOOK SO LONG TO GET MY DXCC CARDS BACK FROM THE ARRL I FORGOT TO SEND THEM IN ... LIFE IN THE FAST LANE IS NOTHING BUT FAST FOODS AND TRAFFIC TICKETS ... I WONDER WHAT ADAM AND EVE DID FOR A HOBBY ... I THINK DIT DAH DAH DAH DAH DIT IS AN APOSTROPHE OR SOMETHING IN THE MORSE CODE ... GOOD NIGHT AND SWEDE DREAMS."

Thanks and good hunting from Bill Snyder, W0LHS, 1514 South 12th Street, Fargo, ND 58103. DIT DIT. □

Guest Editor - The Owl
Who gives a hoot

Election results

This year's election brought three new faces to the QCWA board of directors. Brand new to the board is Bill Stevens, W6ZM, who served as Pacific Division director of ARRL. Returning to the board after a number of years "hiatus" are Harry Gartsman, W6ATC, and Art Miligan, W8KW. W6ATC was president of QCWA in 1978 through 1981 and W8KW served as director for 12 years, during the period 1968 through 1980.

Running unopposed, Harry Dannals, W2HD, and Secretary John Swafford, W4HU, received strong votes of confidence. Lew McCoy, W1ICP, moved up from director to vice president and Treasurer Wes Randles W4COW won re-election. Directors Jack Kelleher, W4ZC; and Walt Brink, W3WPY, were also re-elected. (Five additional directors are serving terms which continue through next year.)

At the first meeting of the new board (at the September convention in Canton, Ohio), President Dannals designated several new committee members and outlined an ambitious program for the coming year.

1992 nominations solicited

As soon as one election is over, it is time for nominations for the coming year. Nominating Committee Chairman Clause Feigley, W3ATQ, and his committee presented a slate of candidates for five director positions for the 1992 election. It is still possible to make nominations by petition up to the end of December. If we have missed a good candidate, make sure the name gets listed. Petitions must carry the signatures of at least 25 members in good standing.

Scholarship program

Scholarship Chairman Leland Smith, W5KL, is promoting an aggressive campaign to push the QCWA Scholarship Program. Falling interest rates have decreased the income from the scholarship fund at the same time college costs have continued to increase. It is hoped that new donations will make it possible not only to continue the program but to increase the number and/or value of awards in 1992. Seven scholarships, each in the amount of $750, were offered this year. An announcement of the winners will be published next month.

The Scholarship Program is one of QCWA's most important and productive programs. It has been made possible largely through the numerous small donations made over the years to the general Silent Key Memorial Fund. Other large contributions have made it possible to maintain self-sustaining funds for specific scholarships. Every dollar contributed can enhance this most worthwhile cause. What better way to honor our departed friends and family members? And what better way to help young people to pursue careers in scientific and technical fields?

QCWA objectives.

Leland Smith, W5KL, gave an interesting talk at the Kansas City convention regarding the objectives and appeal of QCWA. Excerpts from that talk will bear repeating here:

Radio amateurs represent a broad cross section of life with respect to age, interests, motives, and values. Amateurs eligible for QCWA membership are little different—except that, for the most part, they are more mature and appreciative of the privilege of pursuing our hobby.

QCWA is not in direct competition with any other organization. It is indeed a unique nonprofit organization that has attracted into its membership many well known and highly respected radio amateurs. It is the objective of QCWA to use the vast reservoir of experience and knowledge found within its membership for the benefit of all amateurs and to promote the furtherance of public welfare through Amateur Radio communications. It also promotes friendship and cooperation among amateurs throughout the world, and maintains a substantial scholarship fund from which cash grants are awarded annually to worthy students who are licensed amateurs.

Membership in QCWA appeals most to those amateurs who genuinely appreciate the hobby. They want to support the goals of QCWA and work for the common good of Amateur Radio. Many want to affiliate with local QCWA chapters and be associated regularly with others who have similar interests and experience. Some find self satisfaction in belonging to such a highly regarded and active amateur organization.

Regardless of the primary interest, membership in QCWA is open to any amateur who held a license at least 25 years ago. Those 25 years do not have to have been consecutive. If you had a ticket 25 years ago and now hold a valid license, you are eligible. For more information and an application form, write to QCWA General Manager Ted Heithecker, W5EJ, at 1409 Cooper Drive, Irving, TX 75061; 214/438-8038 (or drop a note to The Owl).

The Owl is looking forward to receiving input for future issues of this column. It doesn't have to be in fancy form. We'll take scribbled notes as well as typed copy. Just write to us at 2012 Rockingham Street, McLean, VA 22101. □

Visit Your Local
RADIO CLUB

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


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: W0LKI info Net every Thurs., 7 p.m., WA7KYT/R 146.16/146.76 rptr.

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 rptr.

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.

ARKANSAS

Central Arkansas Radio Emergency Net, (CAREN). Meets 1st Thurs./monthly, 7 p.m., 1111 West Capitol Ave., Little Rock, AR. Thurs. night net, 8 p.m., 146.940, swap net afterward. Severe WX net anytime 146.940. Code 8 theory classes continuously. Info, KB5IDB, Bob Hancock, (501) 771-2617.

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. WA6WIY Rptr., 146.835, 146.235. Net Tues. 7:30 p.m.

Amateur Radio Club of El Cajon. WA6BGS. P.O. Box 50, El Cajon, CA 92022. Meets 2nd Thurs./monthly, 7 p.m., La Mesa Church of Christ, 5150 Jackson Dr., La Mesa, CA. Rptrs. 147.675(-), 224.080(-). PL 107.2. Nets 147.570 Wed./Sat., 7 p.m. Info (619) 697-2770.

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 Radic Club. Meets 1st Fri./monthly, 8 p.m. at the Cozy Diner, 1695 Mangrove, 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 Cafetorium 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.

Escondido Amateur Radio Society (E.A.R.S.). Meets 4th Mon./monthly, 7:30 p.m., North County Blind Activities Center, 157 E. Valley Pkwy., Ste. 1B, Escondido, CA 92025. Info Net Sundays, 8 p.m. 146.88(-) or 743-4212.

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.

Golden Empire Amateur Radio Society (VEC). P.O. Box 508, Chico, CA 95927. Club call W6RHC, Repeater 146.25/85. Meets: 3rd Fri./monthly, 8 p.m. at 1528 Esplanade, Room 110B, Chico.

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 Klub, (LARK). Meets 3rd Sat./monthly, 9:30 a.m., City Council Chamber, 3575 Pacific Ave., Livermore, CA. Net Mon. 1900 on 147.12+. For info: Rosalie Powers, KC6RKU, 4103 Bishop Pine Wy, Livermore, CA 94550. (415) 447-3815.

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. 224.40(-).

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.

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. W6UU/R 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 Depart., 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 Smplx 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 WD6EJF, 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 W6SYY/R.

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 on 145.44-/42pl. Meets 3rd Thurs./monthly, nets ea. Mon. at 01715 pst/dst & on 144.33S.

West Valley Amateur Radio Assoc. P.O. Box 6544, San Jose, CA 95150-6544. Meets: 3rd Wed./monthly, 7:30 p.m. at Am. Red Cross Bldg., 18011 Saratoga-Los Gatos Rd., Los Gatos, CA. 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 covering Delaware & Tri-state area. Info/net Thurs/wkly, 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.

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. Old Bank Bldg., 900 No. Lake St., lower level, Northgate Shopping Ctr. & Rt. 31, Aurora, IL. Meets 2nd Tue./monthly, 7:30 p.m. VEC Xams 3rd Tue./monthly, 7:30 p.m.

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.

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.

NEBRASKA

The Ak-Sar-Ben ARC of Omaha, NE. Meets 2nd Fri.,7:30 p.m. at Omaha Red Cross near 38th and Dewey Streets. Main 2M Net Sunday night 0200Z on 146.94R-.

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., WB1CAG. P.O. Box 911, Dover NH 03820. (603) 332-9137/332-7343. Meets 2nd Sun./monthly, 7 p.m., Rochester Court House/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.

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. & Remmington 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.

Northwest ARC/W9LM. 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: 3rd Thurs./monthly, 7:30 p.m., Schaumburg Park Dist. Community Rec. Cntr. at Bode & Springinsguth Rds., Schaumburg, IL. Net 145.23, 8 p.m. Thurs. Info (708) 213-0910.

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.

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.

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 Grabel, 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.

Yonkers Amateur Radio Club (YARC). Meets 2nd Sun./monthly, 10 a.m., 1st Pct., Yonkers Police Station, E. Grassy Sprain Rd., Yonkers, NY. Info: P.O. Box 378, Centuck Sta., Yonkers, NY 10710. (914) 963-8995. 146.265/865, 445.150/440.150.

NORTH CAROLINA

North Carolina Chapter TSRAC. 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, AI8S (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"

Silvercreek Amateur Radio Assn. (SARA) Meets 3rd Thur./monthly, 7:30 p.m., Doylestown Village Hall, Doylestown OH. WD8PNF/R 147.99/39 rptr. For info call (216) 745-2573.

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.

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

Butler County Amateur Radio Assn. P.O. Box 1787, Butler, PA 16003-1787. Meets 1st Tue./monthly, 7:30 p.m., Red Cross Bldg., 312 Mercer St., Butler, PA. Call-in W3UDX 147.96/36. Net 10:10 p.m. nightly.

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. Info on WA4KXV rptr, 146.97/37.

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 WD8JNU/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.

WITH THE HANDI-HAMS

Deaf and hard of hearing use TDDs as link to ham radio

BOB GALLEY, WB7AMM

This whole project started because of my personal hearing loss. I continue to lose decibels and there is one thing that I didn't want to lose along with my hearing and that is my long-enjoyed hobby of ham radio. My hearing loss also associated me with many children who are deeply interested in science but do not have the joy of having this hobby. I had heard of several ways that the deaf had in approaching the problem of getting into and becoming hams and being deaf, but all were complicated or took relearning CW (Morse code) in a visual (use of lights) or in a sensory (feeling vibrations) form.

Deaf persons have a device which they use on telephones to talk to each other, called the TDD (Telephone Device for the Deaf). It reminded me of the many RTTY contacts I made as EL2AX and I decided that it was a good avenue for me to try to get these kids into ham radio.

Each of these devices has a built in modem whose audio output could be used for audio input to a transceiver and the audio output of the transceiver could be decoded by the TDD.

Sure we could have gone the packet route, but since most of the deaf have a TDD, it made it simple just to use an audio adapter to get them started. If they want to get into packet later on after they become hams themselves and have the finances to do so, that would be their choice.

The TDD cradles a standard telephone with a curved handle and round ear and mouth ends. So the next thing was to get several of these older models. I contacted AT&T's Denver office via my own TDD and Kathrin Frazier authorized Tami Fuentes of the local office to issue what handpieces I needed for the project. Tami Fuentes collected the needed parts over a period of several weeks along with several newer hand pieces to use as revision parts, and building the project was under way.

Putting it together was really a simple job after all the pieces were gathered. The whole system consists of the revised telephone handset, a homemade foot switch, a jack for the audio output of the transceiver, and a connection to substitute for the normal microphone/PTT of the transceiver.

The microphone in the old handset was replaced with the ear phone of a newer model handset. I broke off the microphone lines of the old mount and drilled a hole to allow for the wires from the new piece to pass to the bottom of the mount and attach to the handpiece's regular attachment screws.

The foot switch was made of several pieces of wood hinged and resting on a normally open momentary pushbutton switch. A switch operated by the foot is necessary to allow freedom of the hands for typing on the TDD while transmitting.

The jack for the speaker bypass came from an ear piece for an old broadcast band radio. There was no difficulty cutting the fine wire, but soldering them took a little care.

Being sure that the microphone connection was exactly right was my greatest concern. Each rig has a different set-up so I wanted to make sure that my set-up matched my rig and that the adapter for my friend's rig matched his. Since I did not have a diagram of the microphone assembly's internal connections I did what most good hams do and took it apart for examination. Mapping that out gave me the proper placement for the new mike connection's wires. I also knew that my microphone was a 600 ohm mike and that the telephone was also a 600 ohm system.

The wire ends of all these units were correctly joined in a little black box for convenience and one TDD connector was completed. The next was to complete another unit for my friend's 2M rig and we would be able to take the next step.

The next item on the agenda was to get another ham to help. I have been connected with the Amateur Radio Missionary Service for years and a number of them winter here in Arizona and were great targets for my demands. K0GAZ agreed to help and we gave the equipment the initial trial between his 2M base rig and mine in the car sitting in his driveway. Everything worked out like a dream and the FM of 2M helped to cut down on any noise which might interfere with the TDD's decoding. (I tried a lot of voice chatter later to disturb the TDD and it was almost impossible to do so.)

Now to get the kids involved. We tried the experiment from the home of Robert Hatch, 11 years old and a student at the Phoenix Day School for the Deaf (PDSD). Robert and his mother attend Bethany Community Church. Robert, along with several of his friends, were able to type their message to my friend in Mesa, Arizona: "Thank you for helping us get into ham radio."

In the future we plan to extend the experiment between PDSD and the Arizona State School for the Deaf in Tucson and also New Mexico School for the Deaf in Santa Fe. It should give a lot of kids an opportunity to choose ham radio as a hobby.

It has been fun running this experiment. If you are interested in ham radio and are deaf, or if you are a user of TDD and interested, please write to Bob Galley, WB7AMM, 2307 N. Arrowhead Dr., Chandler, Arizona 85224. □

Search And Rescue Communications

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

I love poking fun at some perceptions. Several months ago a Civil Air Patrol search coordinator (also a newly licensed but inactive Amateur Radio operator) got upset when I extolled the benefits of involving Amateur Radio operators and using their expertise in helping the CAP get a communications program going. "Hah!" he yelled. "What would I want with a bunch of radio hobbyists!"

I asked him to define "radio hobbyist" and he said it was a person who just played with radios and electronics but made money doing something else. I asked if he looked at Amateur Radio in the same light as collecting stamps or coins and he answered yes, and further berated the poor "radio hobbyist."

Seeing that he was feeling smug, I posed the question: "How do you view your CAP search pilots, 98 percent of whom do not make their living as pilots?"

"Well," he said, "that's different." After a lengthy discussion I got the distinct message that it was okay for an Amateur Radio operator to stand in awe of the effort and skill it takes to be a search pilot, but good communicators could be pulled in off the *street* by the dozens.

What's important?

It's sad sometimes that, instead of an SAR team, there's a pecking order of importance. A good communications network is just as important as a good data gathering team or a good air search team. Taking pride and doing a specific SAR skill well does not mean all other specialties are less important. A well run SAR group will emphasize the overall mission rather than any special interest group.

Take a minute to reflect on your teamwork skills. If you're building an SAR team, each member is equally important (including yourself as team leader). It's pretty obvious to your group's membership when you play up to the special interest groups. Even in an Amateur Radio group, be careful not to side with packet, CW, RTTY, voice, or television. Build a *team* of varied specialists.

The parade

The Days of '47 Parade, for the first time, asked for Amateur Radio assistance. This three-hour parade marks Utah's statehood and is one of the biggest events around here. The parade committee was skeptical at first, but as the cellular phone batteries died and the commercial radio system quit working . . . well, you can guess the outcome. Several parade committee members expressed thanks at how well Amateur Radio did and what a tremendous service was provided.

The parade went off real smooth! It even sounded easy. Net control was in control. Operators were in place on time. Backs were slapped and it was a fun time. What happened? The ARES group has had weekly training nets for a year. There have been quarterly exercises and in-person meetings. The group has defined training levels as well as important skills and equipment for each member. It sounds good on the air because the training took hold in action. I was impressed at the pre-parade meeting when I saw the spare battery packs, earphones, and better-than-rubber-duck antennas. Operators even had their ARES identification cards and other necessary equipment.

I was in Wyoming during a bicycle race and listened as the radio club conducted a net and handled communications over quite a wide area. Again, it sounded good—real good. It was obvious that there had been some training.

Public service support like this by Amateur Radio doesn't just happen. Across the country the events that go well happen because of a foundation of leadership, training and experience. You don't just walk in off the street; making your training effective means doing it regularly, spending time preparing and sharing expertise. It does no good to have a great "checkpoint seven" with six other poor checkpoints. Share the expertise; build your team!

Unix motto

Unix (a computer language) programmers may be familiar with the phrase: "Build on the work of others." Found in an AT&T Unix programmer's guide, this philosophy applies to many projects, especially search and rescue and communications.

In 1981 there was a local CAP project to equip a communications/command vehicle. As the effort was begun, a member related how a similar project had been done five years earlier. "Where's the vehicle now? we asked. It turned out the vehicle had been left to disrepair and finally disposed of as junk. The radios and equipment had been assigned to other projects.

It's difficult to go through the cycle of "let's do something" and come to learn it's been done but abandoned. Building on another's work requires two things: a vision of what can be accomplished and an understanding of what has been done. Without either, the effort becomes frustrating (mostly to everyone else).

Putting a plan into place involves consistency, experience and evaluation. What are we going to do? How are we going to do it? And once in place, can we keep it working? If you plan on having a team of direction finding experts, it's essential to develop, train and equip this team. As you build skills you may reach a point where you cannot take on more skill challenges without hindering those which you already do well.

Remember that one of your most important "internal" skills you can build is communications with each other.

This too takes continual effort! When the Amateur Radio operators showed up for the parade, many had been called by Alan, KA7RZR. Alan put the message on local nets and on the packet BBS but knew that wouldn't reach everyone. A few personal calls resulted in good participation. Don't assume the word will get out. If you have a search mission and need pilots, observers or communicators, you may have to resort to an alerting officer to make calls. (You do have an alerting officer who has a current group roster—don't you?)

POD, POT and POS

For those who've asked, here's a little about search and rescue theory. If you thought SAR was just going out and looking "all over," here's a quick introduction to a fascinating area of SAR expertise.

When someone is missing one of the first priorities is to define the search area. With a plane crash the area is constant. For a missing person, the search area moves as the missing person moves, and with boats, you must consider current, wind and water movement.

Search planners outline an area they feel has a high probability it contains the location of the missing person. The whole area may be designated as 100 percent of target (POT), i.e., the target is surely within the area. (I'm not getting into the complex stuff here like area confinement for moving targets.) The search area is divided up into smaller sections or grids. A grid could be fairly large, as in the case of a lake or forest, or pretty small if, for instance, you're looking for an elderly walkaway from a nursing home. If each of these grids is of equal size, it's pretty simple to mathematically come up with a per-grid probability of finding your target. With 10 grids, the chance the missing person is in your grid would be 10 percent.

Because we're people of habit, these probabilities are skewed based on past experience and gathered information. If 90 percent of the walkaways from the nursing home head toward the supermarket, the grids are weighted in that direction. Your grid may be 15 percent because you're next to the store while a grid in the other direction will be five percent.

As the search strategists quickly plot the search areas they assign priorities based on where the target is most likely to be found. The high priority grids are searched first. As a grid is searched, the probability of detection (POD) is calculated. Simply put, if the victim were in the grid, what's the probability he or she would be found?

It often takes several searches of a grid to achieve an acceptable POD—meaning the grid was searched pretty well. When that happens, that grid's priority decreases and other grids become more important. (It's kind of like a water bed. When you push down in one spot, another pops up.)

To measure the search effectiveness or probability of success (POS), you multiply the POD by the POT. If your grid had a 10 percent POT and you searched it with 50 percent effectiveness (POD), then your probability of search success would be five percent. There is, by the way, a computer program that calculates all this for you. It's called CASP (Computer Assisted Search Planning) and was written in BASIC. If search planning excites you, there are quite a few publications available. Drop me a line if you want more information.

Many skills make up search and rescue—each skill just as needed as another. When you get to thinking your skill is superior, look around. What's most important is a *team* of *varied experience*! □

YL Roundup

Darlene Magen, WD5FQX, of Hot Springs, Arkansas, is a YL of many talents and interests. She is an adventure seeker, traveler, Amateur Radio operator, writer, and mother. Darlene has operated in 39 different countries in a nearly year-long, impromptu globetrotting DX-pedition that she took about 20 years ago. And, now she is passing on her adventure-seeking legacy to her daughter, Diane, KG5CF, who received her Novice call at the age of 13 and earned her private pilot's license at the age of 17.

"I might fly around the world and operate," says Diane, who is now 18 and majoring in aeronautics at the University of North Dakota in Grand Forks, North Dakota. Her hope is to become a commercial pilot for an airline upon graduation. "I like traveling, and it's a neat way to meet people!" She says her mother's globetrotting experience has influenced her. "I'm just starting to realize its impact on my choices," KG5CF remarks.

At the age of sixteen, Diane was appointed as a page for the US House of Representatives. She spent two semesters in Washington, DC, was an honor student and received the Year Book Award and Citizenship Award, which is the most prestigious award that any page can receive. "I enjoyed it and I'll never foget it. I learned so much about how government works," stresses Diane.

Diane has also had the benefit of meeting visitors from many of the places her mother, Darlene, went on her year-long trek to Oceania, Africa, Europe, Asia, North America and South America. "I've been exposed to a lot of different cultures and experienced different ways of living," she says.

Meeting DXers has been part of Magen family life. Darlene and Joe, WD5HIL, met in Ecuador. In May 1972, they were married. Joe was HC2OM, and Darlene became HC2YL. A year later, their daughter, Diane, was born in Ecuador.

And just as DXers were the norm, contesting, too, was part of normal amateur operations for the Magens. "I hope to get into competitions more and meet more people and possibly operate from a plane. One of my mom's friends does that," says Diane. "And I did get to operate from Ecuador two years ago when we were there. I also took the code exam there for my Extra Class license."

Darlene, WD5FQX, and Diane, KG5CF, have found adventure in Amateur Radio.

Diane says her mom wouldn't let her drive until she got her ham license. Once she got it, though, she started to upgrade. Darlene quips, "I guess I threatened my daughter with getting her ham license before getting her driver's license. She even got her pilot's license, but she still has no driver's license."

Darlene, like Diane, also flies into the adventure of living. Darlene's story commences with a DXpedition with her first husband, Gene, WA6DKW, to the islands of Tonga in the South Pacific, where time begins (it's on the other side of the international date line). While on the islands, Gene died of a heart attack and was buried in Nuku'alofa, Tonga. Darlene returned to California, where she had been living, passed her General Class license and returned to the Tonga Islands only a few short months later. She was reissued the call VR5DK, the call she had shared with her Silent Key husband.

"During my time of sadness, I checked into a couple of nets. The next thing I knew I was going to New Zealand and on to the island of

Rodrigues," Darlene recalls. "I was the only ham and the only YL on Mauritius Island. I stayed for six weeks. While on the Island, I became ill. I thought that my husband had died on one island and that I was going to die on another island."

But Darlene recovered and went on to many more countries. During her stay in Uganda, operating as 5X5NF, she recounts, "It was a very scary time. The military looked through the car checking for weapons. I stayed with some Canadian people who worked with the government. They helped me put up the antennas and hoped we wouldn't get arrested for having radio equipment.

"Mary Ann Crider, WA3HUP, who now lives in Pennsylvania, arranged for me to have a QSO with King Hussein, JY1," Darlene says. She also was King Hussein's guest and operated from his QTH. "And I was the first American YL to operate from the Vatican," she continues.

In Guayaquil, Darlene met Joe Magen, HC2OM, the American general manager of a phonograph manufacturing business, who was originally W2BTT of New Jersey. "Joe and I hit it off right away, his being a widower and my being a widow, and both having radio in common," she recalls. They continued QSOs and letters for three months before Joe flew to Los Angeles to be with Darlene in person. The romance of the airwaves ended with their marriage in Reno, Nevada. After a cross-country trip through the US, they returned to Ecuador and she received the call HC2YL, completing the perfect amateur fairy tale. By June of the next year, Diane had been born.

Naturally, such adventurers couldn't just settle down in one place. Darlene wrote a book entitled "Globetrotting via Amateur Radio" (which can be ordered from her at 103 Lee Mar, Hot Springs, Arkansas 71901). It tells the complete story of her year-long trek operating around the world, meeting people both on and off the air. Her book also includes pictures of many famous DXers.

And, though she had no intention of repeating her around-the-world adventure in 1971, she and Joe have planned other excursions. "We took a trip around the world when Diane was 5. We operated some, but not like I did in 1971—nothing exotic," Darlene says.

Now, 20 years after trotting around the globe operating, Darlene can be heard on many of the YL frequencies: Tangle Net, which meets on Thursdays at 1800 UTC on 14.298; Open House, which meets on Wednesdays at 1800 UTC (summer) and 1900 UTC (winter) on 14.288; TYLRUN (Texas Young Ladies Round-Up Net) on Thursdays at 1400 UTC on 3.942; YLISSB (Young Ladies International Single Sideband) on 14.332 or 21.373 every day when the band opens (which is about 1200 or 1300 UTC) until about 2400 UTC, Wednesdays on 28.673 at 2200 UTC (when band opens) and Saturday at 0330 UTC on 14.332; and YL DX Net (sometimes referred to as the 22 net) on Mondays at 0600 on 14.222.

Darlene has participated in emergency operations during earthquakes and other disasters, attended conventions and been active in the NTS (National Traffic System). She says, "I've not done any emergency operating lately. I've not been as active because I've been busy getting my daughter off to college."

But she does find time to operate at the Mid-America Museum in Hot Springs. It has an Amateur Radio exhibit as well as an antique radio exhibit. "The museum call is WA5BRF. On occasion, I go up and operate, and I take DX visitors there," Darlene adds.

If you have suggestions or comments for columns, please write Connie Dunn, KB5LES, 1916 Parkside Dr., Denton, TX 76201 or via packet at KB5LES N5LDD.NTX. □

Silent Keys

Bob Larson, KØOOM

Bob Larson, KØOOM, of Iowa City, Iowa, passed away on July 2 at the age of 61. He had been ill for several months from a recurrent cancer.

Bob was well known in Iowa City, having been born and having spent his entire life there. He received his license in the mid-1950s and was most heard recently on 2M. Earlier, he designed and built a 6M gamma-matched vertical coax beam and worked solid KØAAG, his brother, who lived in Davenport, a distance of about 60 miles, and KØEII who lived in Clinton. This pioneered the use of FM for radio amateurs in this area.

For a while, Bob worked at the University of Iowa doing research on vision in animals at the University Hospital's Department of Ophthalmology. His memorial service was attended by many, including his brother KØAAG and his nephew N9KGY. Bob is survived by his wife, Pamela, and his Dalmation, Molly.—*Information submitted by James K. Larson, KØAAG* □

In case you weren't on the scene or nobody told you about it, we had some "solar fireworks" in the last part of March. Thus, there were ten major flares in the third week and Region 6555 was responsible for eight of them. Down here on earth, we were treated to some absolutely miserable propagation conditions: several sudden ionospheric disturbances (SID), solar proton or polar cap absorption (PCA) events, a geomagnetic storm of some duration and, of exceptional note, a sudden frequency deviation (SFD) of the signals in a QSO of two of our readers, Hal Morgan, WA6NXW, and Charles Hansen, W0HW. In this article, I want to discuss SIDs and then the unusual, indeed unique, observations of an SFD. But first, the broad outlines of the period.

Region 6555, the villain of this piece, came around the east limb of the sun on March 17 and revealed itself as a major force at once, giving rise to seven x-ray bursts and six optical flares the very first day it could be seen. But the major event in its trip across the solar disk was on Thursday, March 22. Then, when its solar position was 26 degrees below the solar equator and 28 degrees east of the central meridian, it produced an X9/3B flare starting at 2242 UTC, the largest optical flare seen since January.

The 3B part of the classification means that it was a large (3), bright (B) flare. At the time of the outburst, the flare appeared in a mammouth spot group which covered an area of 2,260 millionths of the visible solar disk. As a bright flare, it stands out in the solar spectrographic records as one of the few more intense flares that occur in a cycle. There are many lesser flares with the 1S or 1F categories; they are small in area, sub-flares (S), or appear faint (F) to the terrestrial observer.

The optical flare lasted about 28 minutes, from 2242 to 2310 UTC, and the x-ray burst associated with it reached a peak intensity at 2247 UTC. The X9 classification means that the flare produced a peak flux in the 1-8 angstrom range of 9.4E-4 or 9.4/10,000W per square meter at the NOAA satellite's position. To put that in perspective, the background x-ray flux was running around 3E-6 or 3/1,000,000W per square meter just before the flare. Further, a "cold sun" at solar minimum gives a background flux of 1E-8 or only 1,100,000,000W per square meter.

Such a burst of x-rays would shut down the bands due to intense absorption in the D-region, at least for something like the duration of the x-ray burst. I know from several comments that this caught a lot of people by surprise. But some overheard on the bands correctly identified the cause as an SID or a burst of solar x-rays.

But that x-ray burst was "small potatoes" as Region 6555 did it again, only longer, on the next day. True, the flare was not as large, optically or in x-rays, being classified as an M6/2B flare. But, and this is the tough part, the flare lasted almost four hours, from 0245 to 0606 UTC on March 23. So there you go again, the bands now devastated for hours instead of minutes by a long-duration SID.

And, to add insult to injury, the strongest solar proton event in Cycle 22 and an intense geomagnetic storm arrived about the same time, around 0342 UTC on Saturday, March 24. This was kicked off by a huge spike in the earth's field, a storm sudden commencement (SSC) of 184 nanoteslas, followed by geomagnetic K-indices of 8 and 9 for the next six hours. After that, it was just a major geomagnetic storm, complete with aurora seen as far south as Atlanta, Georgia. The A-index went up to something like 100 and the bands were devastated for days.

Such conditions played havoc with the Sunday nets and DXing by weekend visitors to the bands, those poor folk who work for a living during the week. In any event, in case you missed it, that's the story in a nutshell. But let's turn to SIDs, those increases in ionospheric absorption due to energetic, "hard" x-rays in the 1-8 angstrom range. Now, they penetrate all the way down to the D-region, below 90 km, where energy is transferred by collision processes between ionospheric electrons and the neutral atmosphere.

To give you some feeling for the situation, let me remind you that the D-region appears only when the sun is up in the sky. The electron density there is quite low, maybe something like 100 to 1,000 electrons per cubic centimeter. But they collide with atmospheric constituents at a rapid rate, to the order of a million collisions per second. Those of us in the propagation game speak of the "electron-neutral collision frequency" and say that it's around 1 MHz or so. At a given height in the D-region, the loss rate depends on the product of the collision frequency and the density of free electrons. Where that product peaks is where the maximum rate of absorption occurs.

Ordinarily, HF waves excite other electrons in motion and by collisions, they transfer energy derived from the passing wave to the neutral atmosphere, sort of heating it. This is largely limited to the lower frequencies, say below 10 MHz. At higher frequencies, the effect is smaller, going inversely as the square of the frequency. Thus, the absorption losses on 28 MHz are one quarter the loss on 14 MHz.

But, with an intense solar flare putting out a huge flux of energetic x-rays which can penetrate to the D-region, suddenly there are many more free electrons present, eating up RF at a higher rate, and signals are attenuated accordingly. The inverse-square frequency dependence still holds but is of little comfort in huge x-ray events as those which occurred on March 22.

But, as soon as the solar flare ends

ınd the x-rays stop coming down at us ɔn earth, things return to normal, with ıt most only a short delay for ionic :hemistry to eat up or neutralize all :hose extra free electrons produced by :he solar x-rays. So the bands do :ecover, but we are put on notice that the geomagnetic storm could follow, delayed 20 to 40 hours, as the one which followed on March 24, 29 hours after the flare.

These D-region effects were limited to the sunlit hemisphere of the earth so stations in the dark, at longitudes from Nova Scotia to Bangkok, wouldn't have known that a flare had occurred on that occasion. Well, I should qualify that; they'd wonder why the person at this end of their QSO did not come back at the end of their transmission.

Radiation from solar flares covers a wide range of the spectrum, from RF noise to energetic x-rays. In between those extremes is radiation that can ionize atoms and molecules in the atmosphere but yet not energetic enough to penetrate to the D-region like the "hard," 1-8 angstrom x-rays. They can, however, produce ionospheric effects, ultra-violet light and "soft" x-rays, changing the level of ionization in the F-region, for example. That's what happened during the sudden frequency deviation (SFD) mentioned earlier, but I'm getting ahead of myself, so let's fill in some of the details.

Just before the flare, Hal, WA6NXW, was in the midst of a CW QSO with W0HW in Plymouth, Minnesota, on 28 MHz. That's a 1F hop path, covering about 2290 km. With the x-ray burst at 2247 UTC on March 22, signals faded but Hal noticed a frequency deviation of W0HW's signals, up and down about 100 Hz. He was so taken with the observation that he wrote to me about it. Frankly, I was quite impressed by it too, as all the other SFD examples I knew about were obtained by the continuous monitoring of something stable and ongoing, like signals from WWV.

When you look into the theory of it, the answer to what happened is fairly simple: WA6NXW was copying W0HW's signals while they were reflected from a moving "mirror," the F-layer. Thus, with the flare outburst, solar ultra-violet light and "soft" x-rays were ionizing the upper reaches of the F-layer, lowering the height at which W0HW's signals were reflected. After the peak intensity of the x-rays, the intensity declined and then the F-region slowly returned to its previous height.

While the x-ray intensity was increasing and the reflection height was being lowered, the frequency of W0HW's signals would be higher than usual. As the x-ray flux approached its peak intensity, the downard motion of the reflecting layer came to a halt and the frequency of W0HW's signals returned to the pre-flare value. Then, as the intensity of the x-ray flux declined, the height of the reflecting layer began increasing again, reversing the trend and lowering W0HW's frequency below its normal value. All this settled down to the pre-flare situation again when the x-ray flux from the flare itself finally went to zero.

If one does a Doppler calculation for signals reflected off a moving mirror, it becomes apparent that, when the signals from W0HW were 100 Hz different from the pre-flare value, a speed of about 500 msec was involved for the motion of the reflecting layer, rising or falling if the signals were above or below their original value.

Personally, I think these were exciting observations and I want to thank Hal, WA6NXW, for bringing them forth. Such observations help remind us that there's a real, dynamic ionosphere up there. We should keep an eye on it, not just turn up the drive control and take it for granted. It can teach us something from time to time, even bring us to our knees, as it were. Since we do rely on it, the more we know about it, the better. □

CONSTRUCTION

Isolation anyone?

KEN ARCHBOLD, W6TMA

It appears that older power amplifiers were designed without concern for arcing in the switch or a relay circuit which controls the amplifier T/R relay. Investigation of my Yaesu FL2100B substantiates this concern.

Having recently purchased a new and fairly expensive transceiver wanting to protect my investment, I decided to isolate the amplifier relay circuit from my transceiver relay circuit. I felt that arcing in the transceiver relay would eventually cause problems, expense and inconvenience.

Although the following approach does modify the FL2100B slightly, it is very slight and the unit is easily returned to its original status. The transceiver is not modified in any way.

Please note: although this article is written around the Yaesu amplifier, the isolation circuit will work equally well with other amplifiers with low voltage DC T/R relays. Because the isolation transistor saturation voltage is only about 0.1V, the power dissipation is nil.

In isolating the transceiver from the amplifier relay circuit, I used a simple two FET (field effect transistor) isolation circuit, which can be seen in the diagram.

Before going into the circuit itself, let me remind you of the operation of FETs. These enhancement-mode (normally off) devices offer very high input impedance at DC and low frequencies and, when saturated, very low voltage drop from drain to source. These two characteristics are the main reason for their use here.

First, refer to the diagram and assume we are not in the transmit mode. R1 and R2 bias Q1 to an on-state. According to the data sheet, the gate threshold voltage for the VP1204N2 is between 1 and 3.5V. R1 and R2 set the voltage to about 7.2V. This has Q1 in saturation and the drain-to-source voltage is 0.1V. Since the drain of Q1 is connected to the gate of Q1, Q2 is cut off. With Q2 cut off, no

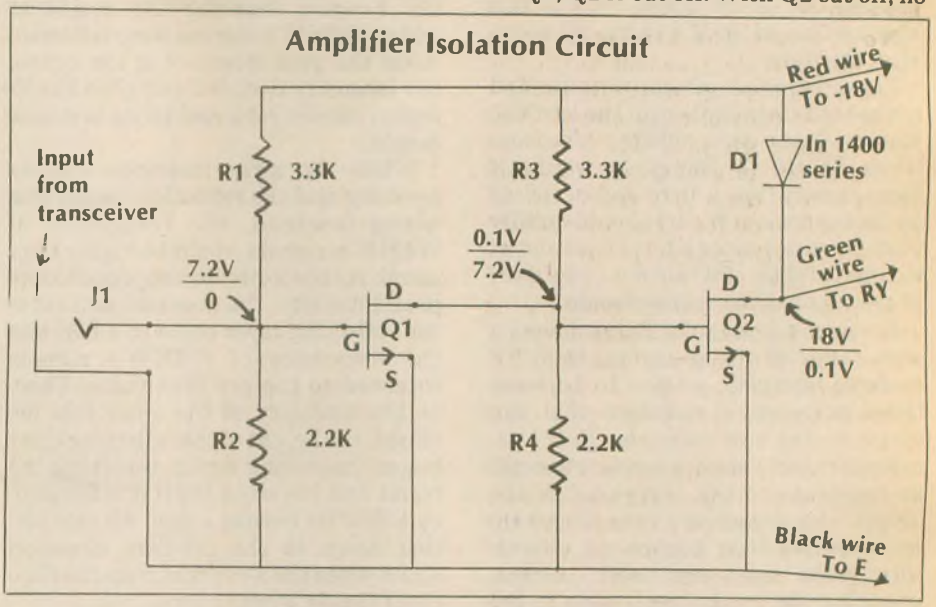


Figure 1. Schematic diagram. Q1 and Q2 are P/N VP1204N2, available from Supertex, Inc., 1225 Bordeaux Dr., Sunnyvale, CA 94086. All resistors are 1/8 or 1/4W. J1 is any handy jack used to tie the isolation circuit to the transceiver.

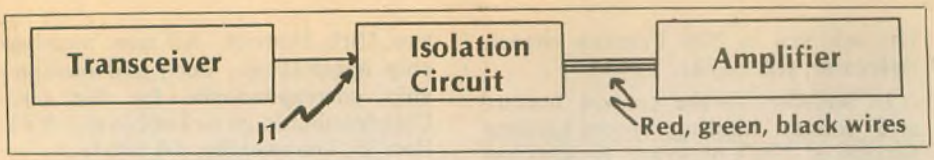


Figure 2. Applications block diagram

current is flowing through the amplifier relay RL1.

Now, when the transceiver is switched into the transmit mode, the base of Q1 is grounded by the transceiver control relay circuit, connected through jack J1. This unsaturates or shuts off Q1 and its drain voltage now rises to a point set by resistors R3 and R4. This point is also connected to the gate of Q2, and it rises to about 7.2V.

Q2 is now saturated and relay RL1 is energized. Because the drain-to-source saturation voltage is very low in FETs, the device dissipation is very low. There is no noticeable temperature rise at all.

Note: An assumption is that the transceiver provides a contact closure or grounds a lead on transmit. All the transceivers that I know of provide this option for external amplifier operation. If you're not sure, consult your operator's manual or ask the manufacturer.

One other comment about the circuit operation: Diode D1 is shown connected to the drain of Q2. This diode shunts the relay coil and provides a current path for the transient developed when the relay is de-energized and its associated magnetic field collapses. A 1N4000 series diode, such as the 1N4002, works great.

Now, let's get into the amplifier. Another assumption is that the amplifier ALC will not be used. I don't use external ALC with my new fangled transceiver and I assume that you don't either. But just in case you do, we'll look at that angle later.

Remove the cover and place the amplifier unit so that the bottom is up. Note the terminal strip on the back of the chassis marked E, ALC, E and RY. The wire connected to ALC should be cut away from the terminal and put out of the way. Be sure it can't come in contact with anything.

Directly behind the terminal strip is the power transformer. On it are marked all its various voltages, including 13V. Connected to 13V is a diode which runs a little internal terminal strip. Connect a jumper wire from the diode (from the little terminal strip side, not the transformer side) to what was the ALC terminal. This is to provide a DC operating voltage for the FET isolation circuit. I used a marker pen and marked that terminal -18V, so that it was clear that it was no longer an ALC terminal.

This is the only modification to the amplifier. It can now be put back together and returned to its normal operating position.

I built the isolation FET circuit in a little plastic box. The layout of the parts is not critical and I simply layed them out at my convenience, using a vector board, then placed the board in the little box.

One side of the box has a jack which receives a plug from the transceiver. Extending from the other end of the box are three wires: black common wire, which connects to E on terminal strip; red power wire, which connects to -18V (was ALC terminal); and green relay wire, which connects to RY on terminal strip.

That's the end of the project. The transceiver relay now switches about 18V / 3.3K - 5.5 mA. It should last a long time.

Note: for those of you who don't want to give up the ALC terminal on the amplifer, you can simply drill a small hole in the chassis and run the -18V wire directly to the isolation circuit.

This simple isolation circuit can add many thousands of operations to the life of your new-fangled transceiver's relays. Even if your amp is different from this one, a similar circuit may save the day. □

10-10 INTERNATIONAL News

Chuck Imsande, W6YLJ
10-10 19636

It was a shame!

As I reported last month, I was evaluating a 10-10 contesting program developed by Jim Hardy, K4HAV. I had looked forward to using it during the August 3 and 4 phone QSO party to actually log my contacts on a real-time basis. Jim sent me the latest version, as he promised, during the week before the contest. I loaded the updated version which had his new 10-10 county hunter feature, checked it out and found it worked just as advertised. The contest screen had been modified for adding counties so now record-keeping for 10-10 county hunting would be a snap!

Everything was ready, and I was waiting for Friday at 0000 UTC to try my luck for the first time using real-time contest logging on the computer. I checked the band conditions throughout the week, only to find 10M generally "stinko" most of the time. But never fear, 10-10 Contest Chairman Harry Syring, WB1FTQ, knows when to schedule contests. He rarely fails us!

The phone rang on Thursday night and the sister-in-law said the brother-in-law was quite ill and she needed help to run their electronics store on Friday and Saturday—could I come? Of course, I replied. That was the first part of the weekend. As they live about 50 miles from the home QTH, we decided to also spend Saturday night there and return early Sunday morning—still in time for a few hours of QSO party time. I rushed home, and guess what? No propagation on 10M. So that's the way my contest weekend went. Hope yours turned out better.

The Winter Phone QSO Party is scheduled for February 1 and 2, 1992, and with a little luck there will be *no* illness in the family and we *will* have propagation on 10M. I will be ready again to try my luck in real-time contest logging on the computer.

In the meantime, I would suggest that if you have an IBM (or IBM clone) that you drop Jim Hardy, K4HAV, a request for information about his 10-10 contest program and the new 10-10 county hunter addition. His address is 306 Frances Street, Sylvester, GA 31791.

In addition to the contest feature and county hunting record-keeping feature of Jim's program, he also has provisions for keeping your log for BARS, DX Countries, Worked all States and VP Numbers. If you are an old-timer in 10-10 or just a beginner, the computer is the way to keep your records. A program like Jim's can make your record-keeping job a whole lot easier.

We keep growing

According to Records Manager Lee Pasewalk, WB6MGM, monthly reports indicate that 10-10 continues to grow. A total of 1,645 new members joined 10-10 during the first six months of 1991. This compares to 1,597 new members during the first six months of 1990. The largest growth was in the 6th District with 223 new members, with the 4th District close behind with 218 new members. Third place went to the DX group with 172 new members, indicating the interest in 10-10 in the DX countries.

In addition to processing new member applications, our hard working area managers also processed 902 changes in membership status. These were for call changes, address changes, etc. A lot of paper-work requires processing for each new member, for each call change and for each change of address. A grand total of 2,711 records were processed during the first six months, which included 164 members noted as Silent Keys. And this grand total of 2,711 records does not include the number of members renewing their dues each month. All of this adds up to a whale of a lot of work that the area managers, records manager and treasurer do to keep 10-10 running smoothly. Many hours of volunteer time are spent each month just to keep our records current.

For those of you who are interested in the highest number issued, here it is: The highest number issued through the month of July 1991 was 59900, issued to N7QNO.

Attention 10th District

Debbie Peterson, KF0NV, 10-10 #43402, is now the manager for the entire 10th District. All new membership applications, dues and membership correspondence for the 10th District should go to Debbie at RR #1, Box 35, Ducncombe, IA 50532.

VR31RV from Belize

Don't forget 10-10's president, Norm Lefcourt, W6IRT, 10-10 #14981, will be operating as V31RV during the CQ World Wide DX contest October 25 through October 27. Norm will be a part of a group of Southern California hams going to Belize for the CQ World Wide. He will be on 10M as much as possible both before and during the contest. Look for Norm close to 28.400 and 28.600. Here's a chance to add a new country if you need Belize.

Jackson County, CO

Grace Dunlap, K5MRU, 10-10 #218, and her OM, George, K5MRT, 10-10 #8135, spend their winters in Texas and their summers in Colorado. Their summer QTH is located in Jackson County, a rare one for 10-10 county hunters, as Grace and George are the only 10-10ers in Jackson County. Grace and George will be in Colorado until sometime in October, so listen for them if you need Jackson County, CO for your 10-10 County Hunter Award. PS . . . Grace is our 5th District manager and her address can be found on page 31 of any issue of the *10-10 International News.*

More information

If you would like to know more about 10-10, send me $1 and two first class stamps along with a return address label and you will receive our 24-page Information Manual and a copy of the latest issue of our quarterly magazine, *The 10-10 International News.* My address is 18130 Bromley Street, Tarzana, CA 91356-1701.

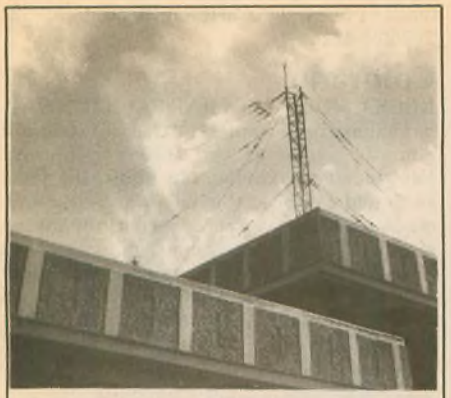
If you or your chapter have plans for some 10-10 activity in the near future, let me know about it. Is your family a unique 10-10 family, say with several 10-10 members? Going on a mobile trip with 10M aboard? Going to some rare counties? I am always looking for items for the column, so let me hear from you.

That's it for this month, 73, see you next month or maybe on 10M soon. □

●●●●●

Tourist: person who travels 1,000 or more miles to have his picture snapped beside his car, then doesn't remember where it was taken. *—Charro, Brownsville, TX*

●●●●●



AERIALS

KURT N. STERBA

Under the cloak of darkness, you are perched on a ladder. The mission is to string out a 20M dipole in the branches of a tree.

The feedline snakes along the ground and up into the tree. There is also a 15M and 10M dipole running parallel to the 20M radiator. Why is this surreptitious effort being made, on a night of little moon?

Because you live in a neighborhood where no antennas are permitted!

How will this work? Isn't anyone who puts antennas up in trees just a little sappy?

Well, it works—it works just fine, considering what it is. I tried it out during the Radiosport Contest and had a grand time. The conditions were somewhat down but I worked what DX I heard. The dipoles, first cut to textbook figures, had to be trimmed because of the tree and the dipoles' effects on each other.

A tip of the hat in the direction of Mississippi (fun on CW). MFJ's SWR Analyzer is truly a gift from Zeus or Mars or whoever. I wish I had thought of it! It is just GREAT! What a time and trouble saver! It's got a little transmitter built right into it and you can do everything right outside. Bless MFJ.

I just got a copy of the hot-off-the-press "*ARRL Antenna Book,*" 16th edition. How they could put out a whole book about aerials and not have anything in it by me is indeed puzzling. Except for that horrible oversight it is certainly the book to own. Glad to see that they are calling an S unit "6 dB." Now, if we could only get the rig makers to go along.

Thank your lucky stars there is an ARRL and they put out good books or else you would be at the mercy of such stuff as I just found in a national magazine. Get this: in talking about the dipole it said "good gain." All I can say is . . . gain—over *what?*

Then it said, "When you see an antenna rated in terms of dB, that means gain in decibels compared to a dipole."

That's not true at all! dBd is gain over a dipole, dBi is gain over isotropic and dB is what the telephone company talks about. I sometimes wonder just what's going on out there in radioland.

Another topic—a letter came in asking about Windoms. Good antenna before the days of $99 TV sets.

Another letter asked about an antenna for 75M nets and said that a vertical didn't do well up close. True.

A diagram of the property lines was enclosed. Looks like a perfect area for the fullwave horizontal loop. Height isn't needed. Divide the FMHz into 1005 and that's the loop size in feet. For example, 3.950 MHz is 254.4 feet. Or, 63.3 feet on a side. Or, 84.8 feet on a side, if done as a triangle. Feed it anywhere with coax.

Or put up a center-fed dipole of any length (using open wire) and a tuner, and it will work just fine. Some have found success on 75 by putting a wire five percent longer than a dipole, just above the ground under the dipole, spaced at what a reflector would be. This helps even more in pushing the energy straight up and having it come right back down, splattering over a local area.

I've got a lot of topics in file folders that I want to present here, but it might be very instructive at this time to instead run a quiz. My pals will already know the right answers. The gasbags who write in and yell at me will get them all wrong.

This is a True or False test.

1. With a good antenna tuner and a well-constructed open-wire feedline, a 130 ft. center-fed dipole will not radiate significantly more power on 75M than one 80 feet long for the same power fed from the transmitter.

True / False

2. A dipole cut to be self resonant at 3.750 MHz and fed with RG-8/*U* coax will not radiate significantly more on 3.750 MHz than on 3.5 or 4.0 MHz, with any feedline of 150 feet or less, assuming a transmatch is used.

True / False

3. The dipole (above) may have an SWR of 5:1 at the 75 and 80M band edges and still lose insignificant power, assuming a transmatch is properly used.

True / False

4. The radiator need not be of a self-resonant length for maximum resonant current flow.

True / False

5. A substantial mismatch at the feedline-antenna junction will not prevent the radiator from absorbing all real power available at the junction.

True / False

6. Reflected power does not represent lost power, except for an increase in line attenuation over nominal line attentuation. In a lossless line, no power is lost because of reflection. Only when flat line attenuation (mfg. specs) and SWR are both high is there significant power lost from reflection. On all HF bands, with low loss cable (RG8, 214, 9913, etc.) reflected power is generally insignificant.

True / False

Okay, here are the answers. Ready? All are *true!* Now, all know-nothings who want to argue, write to Pat Barthelow, AA6EG, who wrote all that in the publication of the Naval Postgraduate School ARC. I can tell you that those guys at the NPS are real smart. (I spent two days there once.) So you've been warned.

Coming up: various experiments, solutions and the like. This magazine just ran a survey, asking for your opinions about the various columns, etc. Some of your comments regarding this column have been relayed to me. You've made an old man very happy. TNX.

(KNS goes by his secret name so he can comment on wacky things found in magazines and not have his subscription cancelled by the miscreants.) □

HAMFESTS

Arizona

OLD PUEBLO RADIO CLUB presents the fourth annual Tucson Hamfest October 20 from 7 a.m. to 1 p.m. at the DeAnza Drive-in. There will be hourly drawings, an ARCA meeting and a repeater owner meeting. Admission for buyers is $1. Sellers can purchase spaces at $4 each. Talk-in on 146.22/82, 146.28/88, 146.52 simplex. Contact A.J. Pawlowski, KB7KZ, 3418 W. Green Trees Dr., Tucson, AZ 85741; 602/742-2605. □

California

KINGS ARC Hams and Hackers will hold a swap meet on October 12 from 8 a.m. to 3 p.m. at the Hanford Fraternal Hall. Electronic items, computers and ham gear will be available, as well as door prizes, refreshments and a tri-tip barbeque. Buyers will be admitted free, and the seller's fee is $5. There is plenty of parking, and RV parking is free. Talk-in on 145.11 (+), 147.33 (+), 224.82 (+), 441.675 (+) and 443.70. For RV reservations or further information, contact Rick, WB6VFZ, 209/583-9377; Doug Silveira, KC6BGQ, 209/584-5514; or Carleton Reed, AA6GZ, 209/924-4221. □

Colorado

ROCKY MOUNTAIN RADIO LEAGUE will be holding their swapfest on October 20 from 8 a.m. to 2 p.m. at the Jefferson County Fairgrounds in Golden. In addition to the swap and exhibits, this also will be the Colorado ARRL convention. The fairgrounds are also handicapped accessible. Admission is $2 for buyers; table spaces are $7 each. Vendor set-up is at 7 a.m. Talk-in on 144.62 and 145.22. Contact Jim Ungry, WØLGF, 303/751-7795. □

Georgia

ARC OF AUGUSTA will sponsor the Augusta Hamfest and computer fair on October 19 from 9:30 a.m. to 5 p.m. at the Augusta-Richmond County Civic Center. There will be hourly prize drawings, with the main prize drawing at 4:30 p.m. WCARS/VEC exams will be held at 10:00 a.m. Admission tickets can be purchased in advance for $4, or $5 at the gate. Children 12 and under are admitted free. Dealer tables are $10 each plus admission ticket, and set-up time is 6:30 a.m. Tailgating space is free with the purchase of an admission ticket. Talk-in on 145.45, alternate 145.49. For general information, contact Jim Abercrombie, N4JA, P.O. Box 5943, Augusta, GA 30906; 404/790-7802; for tables and advance tickets contact Roy Hillis, N4VSN, Rt. 1 Box 58, Girard, GA 30426; 912/569-4261. □

Illinois

CENTRALIA WIRELESS ASSOCIATION will hold its annual hamfest on October 20 from 8 a.m. at the Kaskaskia College Gymnasium, 3 miles northwest of Centralia. Various prizes will be given away throughout the day, with the main prizes to be awarded at 2 p.m. Plenty of free parking is available. The admission/main prize tickets are $2 each, or 3 for $5, and may be purchased in advance, or at the hamfest. It is not necessary to be present to win the main prizes. Flea market tables are available for $5 each, and dealer/exhibitor set-up is at 7 a.m. Talk-in on 147.27/87, and 443.2/448.2. Contact Bud King, WA9U, 618/532-6606; for ticket orders, send an SASE to CWA, Inc., P.O. Box 1166, Centralia, IL 62801. □

Indiana

HUNTINGTON COUNTY ARS is sponsoring its annual hamfest on October 6 from 8 a.m. to 3 p.m. at the PAL Club. The hamfest will feature an indoor flea market, free parking, and the building is handicap accessible. There will be VE testing for all license classes. Admission is $3.50 in advance and $4 at the door. Table space is available for $5/8 ft. table, on a first-come, first-served basis. Vendor set-up is at 6 a.m. Talk-in on 146.085/685, and 448.974/43.975. Contact Jim Covey, KC9GX, 1752 Kocher St., Huntington, IN 46750; 219/356-3269. □

Kansas

WICHITA ARC will host the 1991 Kansas State ARRL Convention October 5 and 6 at the Red Coach Inn in Wichita. Contact Jim Belford, WXØA, 10811 W. 3rd, Wichita, KS 67212; 316/721-7576. □

Massachusetts

MIT RADIO SOCIETY, MIT Electronics Research Society, and the Harvard Wireless Club will hold a tailgate electronics computer

and Amateur Radio flea market on October 20 from 9 a.m. to 2 p.m. at Albany and Main Streets in Cambridge. Off-street parking is available for over 1000 buyers. Admission for buyers is $1.50, and covered tailgate spaces are available for $8 each at the gate. Seller set-up is at 7 a.m. Discounts available for advance registrations. Talk-in on 146.52, and 449.725/444.725 W1XM/R—pl 114.8(2A). Contact Steve Finberg, W1GSL, P.O. Box 82, MIT Branch, Cambridge, MA 02139; 617/253-3776. □

Michigan

UTICA-SHELBY EMERGENCY COMMUNICATIONS ASSOC., ARC is sponsoring a swap and shop October 13 from 8 a.m. to 2 p.m. at Eisenhower High School. Prizes will be awarded hourly, with the main prize drawing at 1 p.m. Tickets are $3 in advance, $4 at the door. Table space is $10/6 ft. table, and tailgate space is $5. Talk-in on 147.18(+). Contact Doug Drauch, N8KDL, 29343 Taylor, S.C.S., MI 48081; 313/778-2289. □

Minnesota

TWIN CITIES FM CLUB presents the seventh annual Hamfest Minnesota and Computer Expo on October 12 at Hennepin Technical College in Brooklyn Park. Robert Locker, Jr., W9KNI, and Carole Perry, WB2MGP, will be the two guest speakers featured. There will also be seminars and VE testing, and parking is free. Admission is $4.50 in advance or $6 at the door. Double-decker fleamarket spaces are $12 to $18 per table, depending on location. Talk-in on 146.16/76. Contact Hamfest Minnesota & Computer Expo, P.O. Box 5598, Hopkins, MN 55343; 612/535-0637. □

Mississippi

MISSISSIPPI COAST ARA, Inc. will sponsor the ARRL Mississippi State Convention and 15th annual ham/swapfest on October 5 and 6 from 8 a.m. to 5 p.m. Saturday and 8 a.m. to 2 p.m. Sunday at the Joppa Shrine Temple in Biloxi. There will be VE exams (for those who pre-register), forums, and RV parking is available. Admission is free. Talk-in on 146.13/73. Contact Charlie Kunz, AA5QJ, 6337 Chaucer Dr., Ocean Springs, MS 39564-2306; 601/377-6495 days, 601/875-9516 evenings. □

Nevada

SIERRA INTERMOUNTAIN EMERGENCY RADIO ASSOC., Inc., will hold a hamfest/computer fair on October 12 from 9 a.m. to 3 p.m. at the Carson Valley Inn in Minden. Amateur Radio demonstrations will be held, as well as a radio clinic, computer software and hardware demos, exhibits, and door and raffle prizes. General admission is $3. Commercial exhibit spaces are $35, individual spaces are $15 if available. An outdoor swap meet will be held, and spaces are available at $5 each. Talk-in on 147.33(+), or 442.475(+). Contact Ed Rogers, W6FFT, 702/266-3661; or Duncan Insley, WA6RRU, 702/267-4223. □

New Jersey

MT. AIRY VHF RADIO CLUB, Inc. presents Hamarama '91, a hamfest, on October 6 from 6 a.m. to 4 p.m. at the Garden State Park in Cherry Hill. Admission is $4, and vendor spaces are $8 each. Parking costs $1. Contact Al Boblitt, K3EOD, 8389 Langdon St., Philadelphia, PA 19152; 215/742-3312. □

•

JERSEY SHORE ARA, NEPTUNE ARA, OCEAN-MONMOUTH ARC, and GARDEN STATE ARA are sponsoring the fourth annual Shore Area Ham and Computerfest October 13 from 8 a.m. to 4 p.m. at the Allaire Airport. There will be VE testing, and food and beverages by an outside caterer. Ample parking for cars and aircraft. Admission is $5 in advance or $6 at the door. XYLs and kids under 12 are admitted free. Table space inside the hangar is $20, and power is available. Outside tailgating spaces are $10 each. Vendor set-up is at 6 a.m. Talk-in on 145.110 for cars, and UNICOM 123.00 MHz for aircraft. Contact Shore Area Hamfest, P.O. Box 635, Eatontown, NJ 07724-0635; or phone Al Jackson, NK2O; 908/922-8121. □

•

BERGEN ARA is sponsoring a hamfest on October 12 from 8 a.m. to 2 p.m. at Fairleigh Dickinson University in Teaneck. VE exams will start at 8 a.m. and end at 10 a.m. (walk-in only). There will also be unlimited free parking. Buyer's admission is $2, and children will be admitted free. Vendor spaces are $8. Talk-in on 146.790. Contact Jim Joyce, K2ZO, 286 Ridgewood Blvd. N., Westwood, NJ 07675; 201/664-6725. □

•

TRI-COUNTY RADIO ASSOCIATION, Inc. will hold a hamfest and flea market on October 19 from 8 a.m. to 2 p.m. at St. Anne's School in Garwood. Walk-in VE exams will be held promptly at 9:30 a.m. Admission is $3, children under 12 are admitted free. Table spaces are $8 each, or $10 with AC. Tailgating space is limited and reservations are required. Talk-in on 147.255/855, or 146.52. Contact Dick Franklin, W2EUF, 23 Shawnee Rd., Cranford, NJ 07016; 908/276-6522. □

New York

YONKERS ARC is calling all hams to their Ham Fair October 6 from 9 a.m. to 3 p.m. at the Yonkers Municipal Parking Garage. VE testing will be held from 12 p.m. to 3 p.m. at the first precinct Police Station. Free coffee will be available. Admission for buyers is $5, children under 12 are admitted free. Vendor space is $10, bring your own table, and there is no advance registration. Set-up is at 8 a.m. Talk-in on 146.865 (−), or 440.15 (−). Contact YARC, P.O. Box 378, Centuck Station, Yonkers, NY 10710; 914/963-1021. □

•

RADIO AMATEURS OF GREATER SYRACUSE announces its 36th hamfest October 5 from 9 a.m. to 4 p.m. at the Tri-County Convention Center in Baldwinsville. Everything is indoors at this giant, new arena. Technical talks and contests will be held, and there are restaurants, snack bars, stores, indoor mini-golf, and a movie theater on the premises for non-ham spouses and kids. The arena is handicap accessible. VE exams will be held for those who pre-register by September 28. Admission is $5 at the door, age 16 and under admitted free if with adult. Flea market tables are available for $9/8 ft. No tailgating, as everything is indoors. Commercial exhibitors must contact RAGS for booth charges and information. Vendor set-up is Friday, 4 p.m. to 10 p.m., and Saturday 6:30 a.m. to 8:30 a.m. Talk-in on 146.31/91. Call 315/469-0590 for information, all calls will be returned. □

North Dakota

FORX ARC will be holding its annual hamfest on October 12 from 9 a.m. to 5 p.m. at the City Auditorium in Grand Forks. Talk-in on 146.34/94. Contact John Engel, WA0LPV, 616 8th St. SE, E. Grand Forks, MN 56721. □

Ohio

NORTHWEST OHIO ARC will hold their annual hamfest on October 13 at the Allen County Fairgrounds in E. Lima. The fest will be held in two heated buildings, and is handicap accessible. VE exams will be held for all classes (must pre-register). Table space is available for $8/full table, and $4/half table. Contact W8TY, 1370 Stevick Rd., Lima, OH 45807; 419/336-1336. □

•

MARION ARC will hold its 16th annual Heart of Ohio Hamfest and Computer Show on October 27 from 8 a.m. to 3 p.m. at the Marion County Fairgrounds Coliseum. Plenty of parking. No VE exams this year. Tickets are $3.50 in advance, and $4.50 at the door. Vendor tables are $7 each. Talk-in on 146.52 simplex or 147.90/30 repeater. Contact Dan Burns, N8JMF, 844 Robinson, Marion, OH 43302; 614/382-2384. □

•

INDEPENDENT RADIO ASSOCIATION will hold its ninth annual hamfest on October 6 from 8 a.m. to 4 p.m. at the Clark County Fairgrounds in Springfield. There will be hourly prize drawings, and the Grand Prize is an ICOM IC-288A with power supply. Admission is $4 in advance or $5 at the door; kids under 12 are admitted free. Vendors can purchase table space for $7.50 in advance, or $9 at the hamfest. Talk-in on 145.45 and 224.26. For more information, call 513/325-1456. □

Pennsylvania

PENN WIRELESS ASSOCIATION is sponsoring the third annual TRADEFEST '91 on October 20 from 8 a.m. to 2 p.m. at the Yezzi Athletic Field in Bensalem. Refreshment proceeds benefit local youth athletic association. VE exams will be held. Admission is $3 ($7 per carload), and kids 12 and under are admitted free. Premium or multiple vendor spaces can be guaranteed by advance payment of $5 each. Vendor check-in is at 6:30 a.m. Talk-in on 145.25/(−0.6) and 146.52 simplex. Contact PWA Tradefest '91, P.O. Box L-734, Langhorne, PA 19047; or phone Steve at 215/752-1202. □

South Carolina

YORK COUNTY ARS is sponsoring the 40th annual Rock Hill Hamfest and Computer Fair October 5 and 6 from 9 a.m. to 5 p.m. on Saturday, and 9 a.m. to 3 p.m. on Sunday, at the Charlotte Knights Baseball Stadium. VE exams on Saturday at 10 a.m. for those who pre-register. On-site paved parking included in ticket price. Admission tickets are $6 per adult in advance, or $7 at the gate, and are valid for both days. Talk-in on 147.03/(-.43). Contact YCARS, 2129 Squire Rd., Rock Hill, SC 29730. □

Tennessee

MID-SOUTH ARA announces MemFest '91 October 12 and 13 from 9 a.m. to 4 p.m. on Saturday, and 9 a.m. to 2 p.m. on Sunday in the Pipkin Building at the Mid-South Fairgrounds in Memphis. VE exams will be held. Admission is $5 at the door. Flea market tables are $16 each for the weekend. Talk-in on 146.28/88, and 449.00/444.00. Contact Nita Wofford, N4DON, 2966 Cordell, Memphis, TN 38118; 901/363-4971. □

•

KINGSPORT, BRISTOL, AND JOHNSON CITY RADIO CLUBS are sponsoring the Tri-Cities Hamfest October 19, at the Appalachian Fairgrounds in Gray. A large indoor and outdoor flea market is available, as well as RV hookups. Admission is $5. Contact Tri-Cities Hamfest, P.O. Box 3682 CRS, Johnson City, TN 37602. □

Texas

INTERNATIONAL HAMFIESTA sponsored by Amateur Radio clubs of El Paso, Texas, Juarez, Mexico, and Las Cruces, New Mexico, will be held on October 19 and 20 from 8 a.m. to 5 p.m. Saturday, and 8 a.m. to 3 p.m. Sunday at the El Maida Shrine Temple in El Paso. VE exams will be held both days. In addition, there will be seminars, entertainment, RV parking, and a QCWA breakfast. Admission is $5 in advance, and $6 at the door. Tables are available for $5 each, and tailgate spaces are also $5. Contact Chris Hines, N5LZB, Box 31628, El Paso, TX 79931; 915/584-3824. □

Washington

LEWIS-CLARK ARC is sponsoring the Second Annual Lewis-Clark Hamfest October 19 at the Clarkston Center Campus of Walla Walla Community College in Clarkston. Contact Kenneth L. Anderson, KB7IAW, 305 Weisgerber Building, Lewiston, ID 83501. □

•

MOUNT BAKER ARC is sponsoring their Second Annual Hamfest October 26 in Bellingham. Contact Gary Prowse, KB7IGR/VE7IGR, 7646 Terrace St., Ferndale, WA 98264. □

Pennsylvania QSO Party

Operating periods for this contest will be from 1600Z October 12 to 0500Z October 13, and from 1300Z October 13 to 2200Z October 13.

Entry classes: single operator no assistance; mobile—fully mobile, multi OK; multi op—single transmitter; multi op—multi transmitter; QRP—single operator only, 5W output maximum; Novice/Tech *Novice frequencies only!* —portable.

Operation: CW and Phone (SSB or FM). CW in CW subbands only. No repeater QSOs. Frequencies: SSB: 1.850, 3.980, 7.280, 14.280, 21.380, 28.580; CW: 40 kHz up from the bottom and 1810 kHz. Try 160M at 0300 Saturday; Novice/Tech: 10 kHz up from the bottom end of the subband. Remember SSB on 10M. Mobile window: 5 kHz below listed frequencies. *Please keep this clear for weak mobiles.*

Contacts: PA stations work everyone; others work PA stations. Stations may be worked once per mode on each band. Mobiles may be reworked as they change counties. ALL stations that are out of their normal call sign district must identify with a /4 or /7 or /3 as appropriate so that other stations can tell where they are without asking. For example: K8HVT/3.

Exchanges: Sequential serial number plus county or ARRL or CRRL section. Stations on county lines will give out *one* serial number per contact but all counties may be counted as multipliers.

Scoring: CW QSOs on 160/80: two points; other CW QSOs: one and a half points; phone QSOs: one point. *Multipliers:* Pennsylvania stations: Add ARRL sections, CRRL sections, PA Counties and one for DX (150 total). Out-of-state stations: Pennsylvania counties (67 total). *Final Score:* Total points multiplied by total multipliers. *Mobile bonus:* Add 500 points to your final score for each PA county from which you made at least 10 QSOs. *QRP bonus:* Multiply your final score by two. *Novice/Tech bonus:* Multiply your final score by three.

Awards: A minimum of 20 QSOs is required to be eligible for any award. Certificates will be given to winners in each county, section, and DX country. Club awards will go to the winner in each club if three or more members enter.

Logs: Logs must be submitted on an official form or reasonable facsimile. Forms are available from NARC. Entries with 100 or more QSOs must have dupe sheets. Computer logs and dupe sheets OK. Illegible or late logs will be used as check logs only. 100 points will be deducted for each dupe found. Send logs by November 16, 1991 to: PA QSO Party, Nittany Amateur Radio Club, P.O. Box 614, State College, PA 16804-0614. Please enclose $1 with your entry to help defray the costs of printing, mailing, etc. (*please no SASEs*).

Questions concerning these rules or the PA QSO Party in general should be sent to the above address or via packet to K3CM @ W3YA.PA. USA. NA. Requests for the PA QSO Party information packet which includes the rules, an entry form, and sample log and dupe sheets should be sent to the above address and include an SSE. Persons who participated in the party in 1986 or later will automatically receive these materials. □

1991 Illinois QSO Party

Sponsored by the Radio Amateur Megacycle Society, this event will take place from 1800Z Oct. 13 until 0200Z Oct. 14.

Suggested frequencies: *CW*-3.550, 7.050 and 14.050; *phone*—3.890, 7.290 and 14.290. Novices call 30kHz above bottom end of subbands for CW and 28.390 for phone. Other bands may also be used.

Exchange: Illinois stations give RST and county; others give RST and state, province or country.

Scoring: Count one point per phone QSO, two points per CW QSO. No repeater QSOs. Stations may be worked once per band and mode and once per band/mode/county for IL mobile stations. Contacts with/by mobile stations stopped at the border of two Illinois counties count as two counties and two QSOs. Illinois stations multiply points by sum of states, IL counties, VE provinces and a maximum of five DXCC countries (W/K and VE included). Count additional DX for points but not multipliers. All others multiply points by number of IL counties worked. Illinois mobiles may add 200 points to final score for each county from which 10 or more QSOs were made. All stations may earn one extra multiplier for every eight QSOs made with the same Illinois county.

Awards: The highest Illinois fixed station and mobile station scores will receive an award plaque. Certificates will be awarded to: the 10 highest scores, Illinois fixed stations; the five highest scores, Illinois mobile stations; the highest score in each state, province and country; and the highest club/team aggregate score.

Logs: Entrants shall submit a log containing GMT, call, RST, state or province, IL county, band and mode. *Circle new multipliers as worked.* IL mobiles must indicate county changes in log. Any station with over 100 QSOs must submit a dupe sheet. A summary sheet shall also be submitted with every log. Entries must be postmarked by Nov. 11. Mail to RAMS, c/o Joe LeKostaj, WB9GOJ, 9134 Ewing Ave., Evanston, IL 60203.

YL Anniversary Party

The CW portion of the contest will take place from Wed., Oct. 16 at 1400 UTC to Thurs., Oct. 17, at 1359 UTC. The SSB portion of the contest will take place from Wed., Oct. 30 at 1400 UTC to Thurs., Oct. 31, at 1359 UTC.

Eligibility: All licensed women operators throughout the world are invited to participate. YLRL members only are eligible for the cup awards. Non-members will receive certificates. Only YLRL members are eligible for the Corcoran and Hager awards.

Procedure: Call "CQ YL"

Operation: All bands may be used. No cross band operation. Net contacts and repeater contacts do not count. A station may be worked and counted once on each band. Do not send carbon copies of logs. Logs must be signed by the operator and no logs will be returned. Please type or print. For each duplicate contact that is removed from the log by the Vice President, a penalty of three additional and equal contacts will be exacted.

Exchange: Station worked, QSO number, RS(T) and country/state/VE province.

Scoring: A) CW and SSB will be scored as separate contests. Submit separate logs for each contest. B) All YLs within one of the United States or within a Canadian province—Score one point for each QSO with another station located within a state or province. Score two points for each contact with a station not located within a state or province (i.e. DX). DX is all stations not located within a state or province. DX YLs shall score two points for each contact with a station on another continent and one point for each contact with a station on their own continent. Multiply the number of contact points by the total number of different states/provinces/countries worked. C) Contestants running with a power output of 100W or less on CW and 200W PEP or less on SSB, *at all times,* may multiply the results of B) by 1.50 (low power multiplier). The maximum power output that may be used at any time during the contest is 750W on CW and 1500W PEP on SSB.

Logs: All logs must show the operator's state, province, or country to qualify for awards. Logs must also state whether or not operator is a member of YLRL. For each QSO, logs must show the station worked, time, band and date. Logs must also state the power output. If you have 200 or more QSOs, submit a separate log for each band and submit a "dupe" sheet. Remember to file separate logs for each contest. Logs must show claimed score and be postmarked by Nov. 30, or they will be disqualified.

Mail logs to: Dana Tramba NØFYQ, Vice Pres., YLRL RR1, Box 213, Peck, Kansas 67120. □

Discovery of the New World Contest

Sponsored by the UDRA, this contest will be held October 12 and 13 from 0000Z Saturday to 2400Z Sunday, a 48-hour period. The objective is for amateurs around the world to contact the American continent, and for amateurs within the American continent to contact each other.

Procedure: Call "CQ 500 years Discovery America."

Operation: Contacts between different countries and continents are permitted. Each station can be contacted only once per band. Contacts between stations in the same country, including those in HI, will only be valid as multipliers; their point-value is zero. Duplicate contacts should be shown as zero points. Contacts shall be voice (SSB) only on 10, 15, 20, 40 and 80M bands. Competition will be between single operators on one band and on multi-bands.

Exchange: There will be five-number exchanges, the first two numbers corresponding to the signal report and the rest to the corresponding number of the QSO, beginning with 001 (example: 59001). There must be a

different numerical register for each band.

Scoring: North and South America are both considered one continent. For QSOs between stations in the Americas, count two points on 10, 15 and 20M; four points on 40 and 80M. Between a station in the Americas and another continent, count three points on 10, 15 and 20M; six points on 40 and 80M. Between stations in countries outside the Americas, count one point on 10, 15 and 20M; one point on 40 and 80M. The following will be considered as *multipliers:* all countries of the American continent according to the DXCC list; the nine HI zones; the UDRA stations—HI1UD to HI9UD and HI500UD (Radio Club Dominicano), HI3JR, HI3RCD and HI8RCD. Final points will be the sum of all points multiplied by the multipliers. Each band will be calculated separately.

Awards: Certificates will be awarded for various accomplishments within the contest, and the overall winner will receive a grand prize round trip ticket to Santo Domingo including three days hotel accommodations, and a plaque.

Logs: A separate log should be submitted for each band worked, and should include the following information: band, hour (in UTC), station contacted, report sent and received, prefix of the country multiplier and value of contact, and a summary of the points, multipliers and total points for each band. Logs must be postmarked no later than November 30, 1991, and should be sent to: UDRA, Concurso 500 anos America, P.O. Box 449-3, Santiago Republica Dominicana. □

Word pictures of Field Day

Hundreds of thousands of signals reunite each year. Sandy peanut butter and warm fuzzy tasting pop shared with a day and night full of radio people. A poet said the signal's slim fingers touched everywhere; surely the man who could do this could communicate with God. Right now all he wants is that N7.

Awakened by a silenced generator, stone bruised hips complain at movement, the mind is amazed that all have stirred to unite in the darkness. Who does your hair, my grinning friend?

"That six pack ring'll hold the double zep up a few more hours till we finish." Pine bark hurts the hands of an insurance salesman climbing a tree in the early morning.

"Norm, we took the battery out of your truck last night; we needed it for the CW station." Norm understands.

"Did you hear that YL on 20M phone? Worked them three deep! What an operator." Operators, the awesome power of so many of them.

Fourth Sunday of June, late afternoon is quiet time on the bands. XYLs shush kids. "Daddy's real tired, let him sleep. If the world needed him, he'd be there, just like he was last night." — *Dave Reynolds, KE7QF* □

Information in "New Products" is supplied by the manufacturers to acquaint *Worldradio* readers with new products on the market.

Digicom type Packet without a TNC

BayCom is a software-based packet system for the PC/Clones that does not require an expensive TNC. The software is public domain and was created by the originators of the world famous Commodore Digicom >64 packet program. This software makes your computer emulate a TNC. All program updates are done to the software so you never have to buy ROMS, now or in the future.

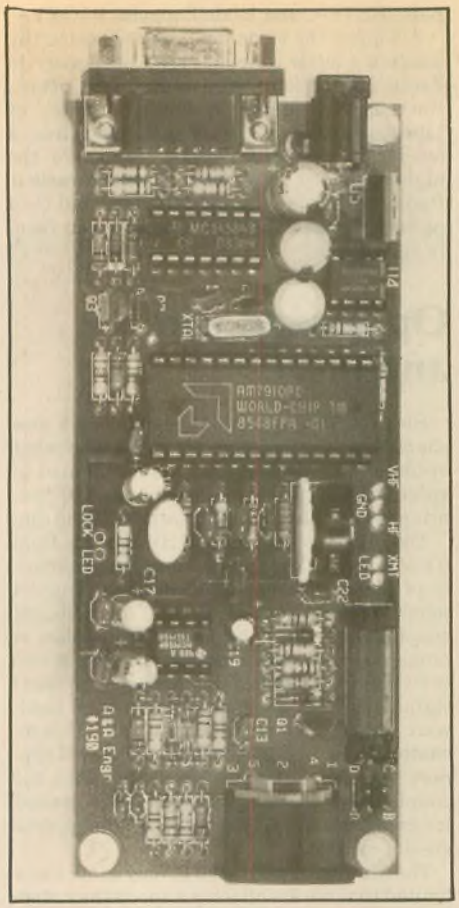
The software requires a modem interface between your transceiver and the computer serial port. The A & A version of the modem plugs directly into a standard 9-pin serial port, or 25-pin port with an optional cable adapter. A 45 second watchdog timer and reed relay PTT are standard. Operating power required is +8 to +14V DC at 100 mA. A small, compact wall power supply is included with every kit or assembly.

The circuit uses the AM 7910 World Modem Chip which is crystal controlled—*no alignment is required* for either HF or VHF operation. A single, three position mode switch allows HF, VHF normal or VHF with equalizer operation. The VHF equalizer mode boosts the high end of the incoming audio, which makes packet operation possible with some of the "low fidelity" hand-helds that are out there.

The modem circuit provides improved HF receive operation. Although not a true squelch, if the volume is set within range, the circuit will respond to the tones and ignore most of the HF background noise. Other modems are fooled into thinking the HF channel is busy because of the noise.

A & A Engineering offers blank boards, kits, assembled and tested modem boards and 9 to 25-pin "D" adapter. The circuit board is double sided, plated through, fully solder masked and silk screened. The board features a 2.1 mm power input plug, 9-pin female "D" computer I/O connector and a 5-pin board mounted DIN for radio I/O. Also included are a three position mode switch, transmit and lock LEDs.

Each kit or assembly includes a free disc. Version 1.20 is presently the most popular version of the software because it has the best English documentation. When you print the document files you get a 49-page user's manual. If you intend to use the BayCom program, you are encouraged to register and



make a donation of 20DM (about $12) to the authors of the program. This will serve as appreciation and encouragement to the authors for their fine work and allow you to receive future software updates.

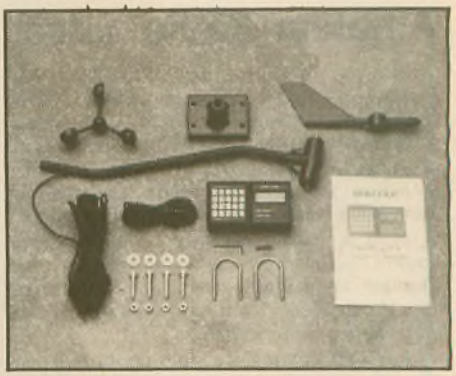
The price for a blank board, #190-PCB is $12.95; a complete kit, #190-KIT is $59.95. An assembled and tested board, order #190-ASY, is only $89.95. California residents must add 7.75 percent sales tax. Shipping in the US is $5 per unit. For foreign shipping, please inquire. Visa and Mastercard accepted. Contact A & A Engineering, 2521 W. LaPalma #K, Anaheim, CA 92801; 714/952-2114 or FAX 714/952-3280. □

Weather station

Now you can monitor weather conditions like never before with the New Azimuth WeatherStar Master Model ALT6.

An incredible value, the new ALT6 gives you all of these functions: barometric pressure (inches or mm); altitude; wind speed (mph/kph), wind gust record; wind direction (two and 10 degree increments); daily and yearly rain (0.1 in. increments) with optional self emptying rain gauge; inside temperature (with alarm); outside temperature (with alarm); min/max temperature record; wind chill factor; time of day (12/24 hour with alarm); and programmable scanning of functions.

The ALT6 lets you set an alarm to warn of excessive wind gusts around your antennas and QTH. For barometric pressure reading, the computer's on-board barometric trans-



ducer sensor is rugged and accurate to hundredths of an inch or mm of mercury. It also functions as an altimeter.

It will look great in your shack and can be mounted in an optional stainless desk stand or in a flush mount. It's powered with alkaline batteries or NiCd battery pack, which are trickle charged with an optional AC power adaptor.

The new WeatherStar Master ALT6 is an exceptional value at just $299.95 (plus $7.50 shipping). It comes with computer, electronic barometer, remote precision wind direction vane, wind speed sensor, external temperature

sensor (on 25 ft. cable), programmable alarms, mounting hardware and 40 feet of cable. Optional self-emptying rain gauge RG3: just $49.95. Several power and mounting options are available. Call toll free, write or FAX Azimuth WeatherStar, 3612-W Alta Vista Ave., Santa Rosa, CA 95409; 1-800/882-7388, 213/577-8007; FAX 707/573-1482. □

Amateur Radio video

Icom is proud to introduce *More than Radios*, a unique Amateur Radio video created and produced by Zman Productions.

Production on this 28 minute video began in June 1990. Zman Productions, together with local hams, explored and settled on an innovative concept for a video. They wanted to send a special message to all Amateur Radio operators in a very unique way. Through their ideas, dedication, hard work and the help of Icom's sponsorship, *More than Radios* materialized.

More than Radios is a story about real people with a simple statement about Amateur Radio woven into the plot. The video is set in various towns throughout Washington state. Shooting took place during the weekends to accommodate the cast and crew, which consists of six actors, 12 extras and 15 crew members. One project goal was to involve as many real Amateur Radio operators in front of the camera as well as behind the scenes.

The creation of *More than Radios* took approximately six months from start to finish. Icom would like to recognize all the hard work of Zman Productions and crew. Zman Productions is owned and directed by Chuck Zappala, KE7SA, and Dixie Zappala, N7OYY.

A copy of the video tape can be obtained by sending a letter on your club's stationery to Zman Productions, 8051 N.E. 143rd Street, Bothell, WA 98011. A limited number of tapes are available. All tapes are made from a one-inch video tape master to insure the highest quality. Icom encourages all Amateur Radio operators to enjoy the video and then pass this special message along to your family and friends. □

Optimized wire antenna

Electron Processing has announced a new shortwave wire antenna for those who want optimum performance and are not limited in space. The Multiwire-4 antenna, at 130 feet, brings in signals that only a large antenna can.

The Multiwire-4 covers all SWL bands from 0.5 MHz to 30 MHz and is comprised primarily of four wire elements of different lengths joined together at the feed point in a compact coupling box. The antenna can be installed in numerous configurations requiring from two to five supports. Quality components are used throughout, and it is supplied with all hardware required for most installations. This includes 50 feet of coax feedline, 100 feet of support rope, and a static bleed built into the coupling box. Please specify connector desired for cable end or receiver type. End supports are not included.

The Multiwire-4 is priced at only $100. For a limited time we are offering a special introductory price of $90. There is a $5 shipping and handling charge. To order or for additional information, contact Electron Processing, Inc. at P.O. Box 68, Cedar, MI 49621 or call 616/228-7020. □

Dualband base/repeater antenna

NCG Company introduces a New Comet Dualband 2M/70cm base/repeater antenna centered to the American amateur frequencies, 146MHz through 446 MHz: the CA-2X4MAX.

This new antenna incorporates Comet's exclusive SLC (Super Linear Converter) system. The SLC system uses parallel elements instead of coiled elements in order to maintain a stable resonant frequency over the life of the antenna.

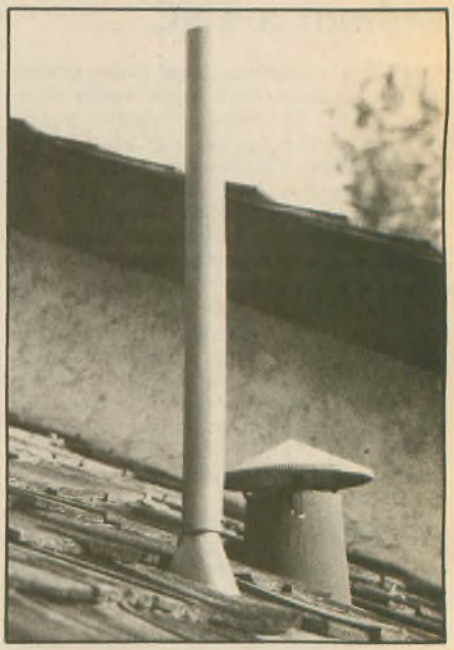
A newly designed jointing system is made of durable ABS plastic to screw the sections together. It has an overall length of 17 feet, eight inches, a UHF (SO-239) connector, and reported gain figures of 8.5dB on 2M and 11.5dB on 70 cm.

The radiation pattern of the CA-2X4MAX is virtually flat, radiating directly to the horizon to provide maximum long distance communication.

The CA-2X4MAX is now available at most of the leading amateur equipment dealers. For more information or your nearest dealer, contact NCG Company, 1275 N. Grove St., Anaheim, CA 92806; 800/962-2611 (or, in California, 714/630-4541).

Disguised antenna

The Forbes Group has introduced the 2M Ventenna™, the first antenna to address the problem of restrictive ordinances and covenants. The Ventenna is so simple it installs in less than 10 minutes, yet it's so unique that a patent has been filed.



The Ventenna simply slips over an existing vent pipe on the roof. It actually becomes part of the vent, effectively disguising the fact that it's a high performance antenna. Alternatively, a dummy vent-pipe fixture can be installed near the peak of the roof with the ventenna mounted onto that pipe. Once installed, the Ventenna is virtually invisible. And, since it actually becomes part of the vent pipe, it is not restricted by ordinances or covenants.

The Ventenna covers the entire 2M band and handles full-legal power. The 2:1 bandwidth is more than 7 MHz.

The Ventenna is available to fit either 1½ or 2 in. vent pipe. The 2M version is available for immediate shipment, and a dual-band version will be available soon. The 2M Ventenna is $39.95 (plus $4 shipping and handling) and may be ordered by contacting the Forbes Group at P.O. Box 445, Rocklin, CA 95677; 916/624-7069. Dealer inquiries are invited. □

Happy Halloween !

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
Arizona			
Nov. 2	Tucson	K7OPX (602) 886-7217	w/i only
California			
Oct. 5	Apple Valley	N6ZCA (619) 244-4012	p/r pref; w/i OK
Nov. 2	Bakersfield	K8GR (805) 861-6743 24-hr. voicemail	w/i OK
Nov. 2	Burbank	KE6AR (818) 349-0927	w/i
Nov. 30	Carson	AA6TC (213) 830-0242	w/i OK
Nov. 23	Chula Vista	(619) 465-EXAM	p/r by 11/13
Nov. 16	Cupertino	(408) 243-8349	w/i OK
Nov. 30	Escondido	KB6WB (619) 465-EXAM	p/r by 11/20
Nov. 30	Fairfield	Jerry (916) 662-0801	w/i only
Nov. 21	Fountain Valley	KI6WK (714) 846-6984	p/r
Nov. 23	Hawthorne	WS6T (213) 600-4160	p/r
Nov. 9	Hesperia	NF6I (619) 241-4732; K6BET (619) 244-6080	w/i OK
Nov. 21	Long Beach	KA6HOQ (714) 897-6331	w/i OK
Nov. 2	Los Angeles	Ali Hassan, AA6WC (213) 778-6226	w/i OK
Nov. 17	Porterville	Pat (209) 539-2429	w/i
Nov. 9	Redding	NT6E (916) 253-REVA	w/i
Nov. 16	Redwood City	Dudley (408) 245-4801	w/i only
Nov. 16	Ridgecrest	WA6KZV (619) 375-7245	w/i OK
Nov. 14	Sacramento	Lyle, AA6DJ (916) 483-3293; (916) 925-0159	Novice/Tech only; w/i
Nov. 16	San Diego	KB6WB (619) 465-EXAM	p/r by 11/6
Nov. 9	San Marcos	(619) 465-EXAM	p/r by 10/30
Nov. 9	San Pedro	N6DYZ (213) 325-2965	w/i OK
Nov. 9	Santa Barbara	AA6JG (805) 964-8946	w/i
Nov. 16	Signal Hill	NN6Q (213) 420-9480	p/r pref; w/i
Nov. 16	Sonora	WA6NSK (209) 586-4917	w/i
Nov. 30	Stockton	Vern, K6DOP (209) 887-3297	w/i
Colorado			
Nov. 11	Boulder	Barbara, NØBWS (303) 530-2903	p/r pref; w/i OK
Nov. 9	Denver	WØIJR (303) 366-9689	w/i OK
Nov. 16	Westminster	NØCFM (303) 451-1231; NØHNR (303) 278-4280	p/r or w/i
Connecticut			
Nov. 23	Gales Ferry	KY1F (203) 536-0187	w/i
Nov. 24	Milford	NB1M (203) 933-5125; WA1YQE (203) 874-1014	w/i
Nov. 27	Shelton	WJ1T (203) 736-0488	w/i pref.
Nov. 17	West Hartford	Larry, K1IED, (203) 644-2356	p/r pref
Idaho			
Nov. 9	Boise	W7JMH (208) 343-9153	w/i
Illinois			
Nov. 19	Aurora	N9AKE (708) 892-1252	w/i pref
Nov. 9	Belleville	John Sundstrom, WAØLIS (618) 397-7235	w/i
Nov. 17	Bloomington	NX9M (309) 662-3910	w/i OK
Nov. 16	Bolingbrook	NW9K (815) 886-5135	w/i OK
Nov. 16	Godfrey	KF9F (618) 466-2306	w/i OK
Nov. 16	Loves Park	W9SS (815) 877-6768	p/r; w/i
Nov. 9	Oak Forest	KA9HDN (312) 247-0650	w/i
Indiana			
Nov. 2	South Bend	NI9Y (219) 255-4455	w/i OK
Nov. 15	South Bend	NY9A (219) 232-6883	w/i OK
Iowa			
Nov. 17	Des Moines	NAØR (515) 964-0900 or (515) 967-3890	w/i
Nov. 15	Sioux City	NFØN (402) 494-6070	w/i OK
Maryland			
Nov. 9	Laurel	NT3Z (301) 761-7115; or WC3I (301) 262-5083	w/i
Nov. 16	Laurel	WB3GXW (301) 572-5124	p/r pref
Nov. 21	Rockville	John, W3QF (301) 564-0178	p/r pref; w/i OK
Massachusetts			
Nov. 4	Boston	WN1U (617) 436-2413	w/i
Nov. 20	Cambridge	Nick, KA1MQX (617) 253-3776	w/i
Minnesota			
Nov. 9	St. Paul	KDØCL (612) 881-7181	p/r pref
Mississippi			
Nov. 30	Gulfport	AA5SP (601) 875-9341 days; (601) 875-0222 eves	p/r requested
Nov. 12	Ocean Springs	AA5SP (601) 875-9341; AA5TX (601) 875-2142	p/r pref; w/i OK
Missouri			
Nov. 2	Antonia	Jim, WDØGDY (314) 671-4243	no w/i
Nov. 2	Kimberling City	NQØG (417) 739-2888	w/i
New Jersey			
Nov. 16	Bayonne	WA2QYX (201) 451-9471	w/i OK
Nov. 21	Bellmawr	WA2VQG (609) 546-7710	w/i
Nov. 9	Cranford	N2XJ (201) 635-7686	
Nov. 13	Fort Monmouth	WB2GYS (908) 532-5353	w/i
Nov. 4	Sayreville	K2FD (201) 442-9215	w/i
Nov. 16	West Trenton	Don Wright, (609) 737-1723	
New York			
Nov. 9	Greenvale	WA2BGE (516) 921-0085	w/i OK
Nov. 24	North Babylon	KA2RGI (516) 957-0218	w/i OK
Nov. 3	Yonkers	AC2V (914) 237-5589	w/i OK
Ohio			
Nov. 2	Cincinnati	Herb, WA8PBW (513) 891-7556	p/r pref; w/i OK
Nov. 9	Columbus	William Tabor, (614) 864-8370	w/i
Nov. 23	Fremont	W4SIG (419) 332-2473	
Nov. 9	Toledo	NC8M (419) 825-3423	
Oregon			
Nov. 2	Portland	WT7S (503) 760-7545	no p/r
Nov. 13	Roseburg	W6OFF (503) 673-0558; AA7GC (503) 673-7564	w/i OK
Pennsylvania			
Nov. 2	Erie	W3CG (814) 665-9124	w/i
Nov. 7	Philadelphia	ND3Q (215) 482-0386 or (215) 879-0505	w/i
South Carolina			
Nov. 16	N. Charleston	A4IX (803) 873-9465	w/i
Texas			
Nov. 16	DFW Airport	KF5BL (214) 252-8015	w/i
Nov. 12	Houston	ND5F (713) 464-9044	p/r pref; w/i OK
Nov. 30	San Antonio	K5JWK (512) 657-1549	w/i
Virginia			
Nov. 16	Hampton	N4BDH (804) 487-8611	
Nov. 2	Middletown	NC4B (703) 869-5241	p/r pref
Nov. 2	Portsmouth	AA4AT (804) 484-2857	
Nov. 16	Richmond	Ron, WU4G (804) 798-5191	w/i
Washington			
Nov. 16	Renton	WA7UVJ (206) 854-4031	w/i only
Wisconsin			
Nov. 2	Racine	NW9P (414) 658-8390	w/i

Wouldn't it be easier to send it just once?

You can send us your club's entire 1992 VE exam schedule (please include all exact dates) in advance. We'll keep it here on file and list your sessions as they come up. Schedules commencing with January '92 exam dates must be in by October 15 to ensure inclusion in our December issue. □

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.

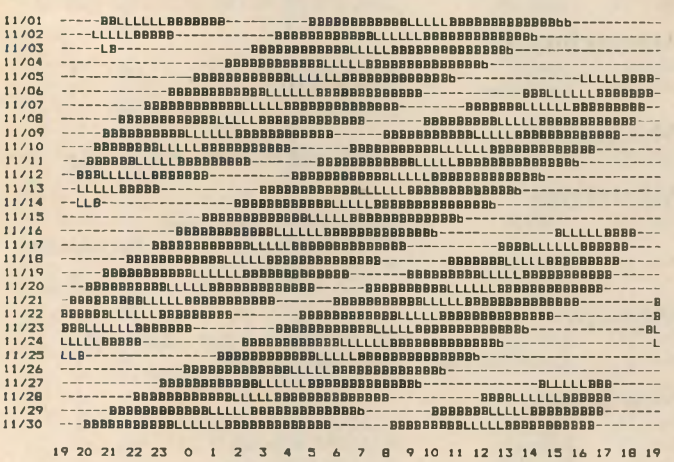
A dash mark indicates the satellite is out of range and therefore not able to be heard. The letter "B" indicates OSCAR-13 is audible at that location and signals should be heard between 145.810 and 146.880 MHz (SSB and CW). A letter "O" indicates the satellite is audible, but the only signal you will 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

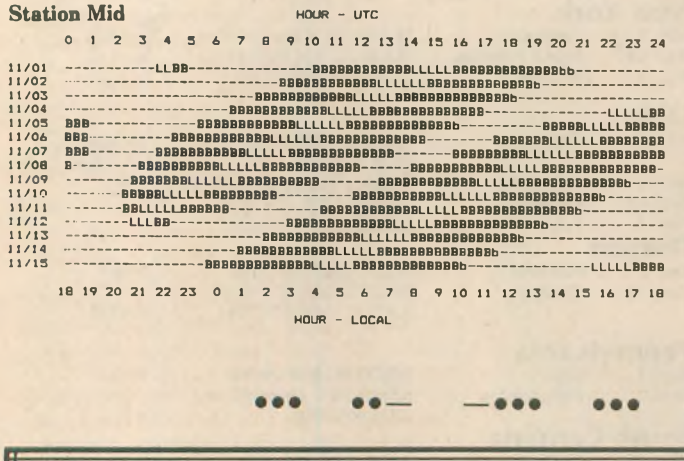
HOUR – UTC



HOUR – LOCAL

Station Mid

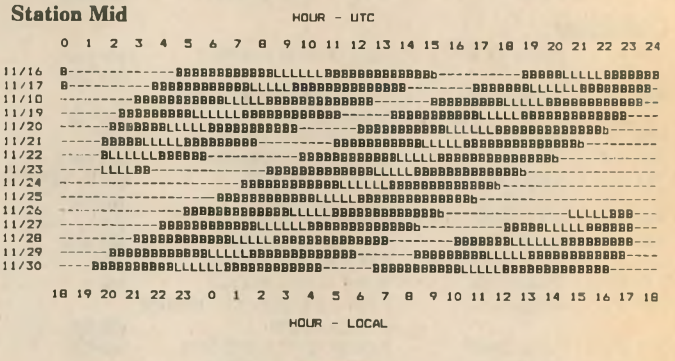
HOUR – UTC



HOUR – LOCAL

Station Mid

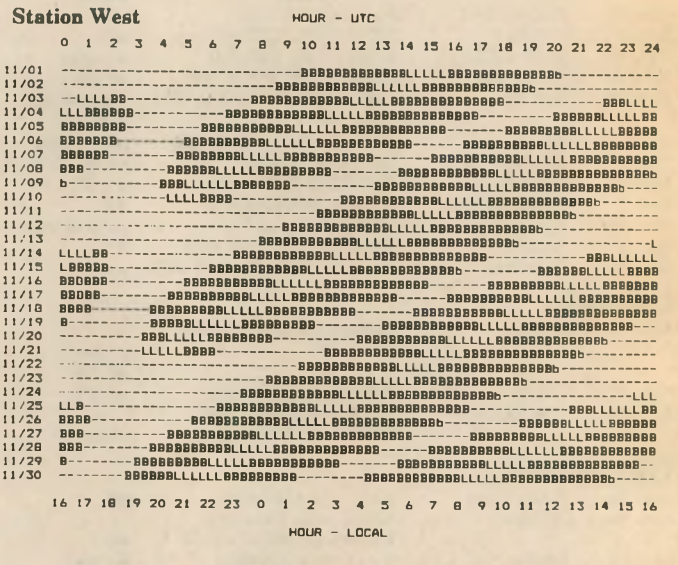
HOUR – UTC



HOUR – LOCAL

Station West

HOUR – UTC

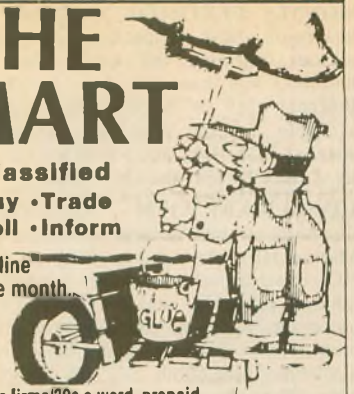


HOUR – LOCAL

ADVERTISER'S INDEX

THE MART

Classified
•Buy •Trade
•Sell •Inform



Mart deadline
20th of the month.

Business firms/30¢ a word, prepaid.
Private individuals/15¢ a word, prepaid.

THE MART *Worldradio*
2120 28th St., Sacramento, CA 95818

WORLDRADIO ON CASSETTES for the blind. For information, contact TOM CARTEN, K1PZU, 1602-Y King's College, Wilkes-Barre, PA 18711.

QSL SAMPLES — 25¢. SAMCARDS, 48 Monte Carlo Dr., Pittsburgh, PA 15239.

ELECTRON TUBES! Transmitting, receiving, military obsolete. . .all types. Large inventory. Fast delivery. DAILY ELECTRONICS, P.O. Box 5029, Compton, CA 90224. 213/774-1255, outside CA 800-346-6667.

WANTED REPLY COUPONS of all types, IRCs & others. Buy, sell, trade. JIM NOLL, P.O. Box 3410, Escondido, CA 92033.

AMATEUR RADIO REPAIR: FCC licensed, 17 years experience, lab quality test equipment, reasonable rates, G.B. COMMUNICATIONS, INC., 963 Birch Bay Lynden Road, Lynden, WA 98264. 206/354-5884.

QSL CARDS—Look good with top quality printing. Choose standard designs or fully customized cards. Request free brochure, samples, (stamps appreciated) from CHESTER QSL's, 310 Commercial, Dept. D, Emporia, KS 66801. FAX 316/342-4705.

RTTY JOURNAL published 10 times per year for those interested in digital communications. Read about RTTY, AMTOR, MSO'S, PACKET, RTTY DX and Contesting. Plus technical articles concerning the digital modes. $15.00 per year (foreign higher). RTTY JOURNAL, 9085 La Casita Ave., Fountain Valley, CA 92708.

EDITING A CLUB PAPER? Need one for your club? Interested in Amateur Radio public relations? Need some help? Amateur Radio News Service would like to hear from you. For info write PAM MYERS, N8IAK, 510 W. Harrison, Alliance, OH 44601.

RF TEST EQUIPMENT FOR SALE: Cleaning out shack. HP 415-B VSWR meter, like new, plus 50 ohm crystal detector—$90. Directional couplers, your choice, 220 to 470 MHz NARDA, or (2) 100 MHz Philco—$75 each. Global-E&L Instruments capacitor checker, new with 1B—$100. Prices include boxing and UPS shipping costs within continental U.S. PETER ONNIGIAN, W6QEU, 1236 40th Ave., Sacramento, CA 95822. 916/381-4469, office hours, PDT.

TELEX HY-GAIN ANTENNA SYSTEMS, rotators, towers. Full line sales. PILOT ELECTRIC CO INC, 1300 Hwy #35, Neptune, NJ 07753. 1-800/331-5308, FAX 908/775-3635.

FREE CATALOG—"How to", educational and computer book listing, 500+ titles! Best selection around! Contact: JACOMM, Box 1014-W, Dover, NJ 07802.

CHASSIS & CABINET KITS, SASE, K3IWK, 5120 Harmony Grove Rd. Dover, PA 17315.

PERSONALIZED HOURLY HF SKYWAVE PREDICTIONS from your city or town: SKYCOM 1.1 floppy disk for Apple Macintosh or IBM PC and compatible personal computers. Includes complete mathematical description of theory ($39.95). DX WINDOW floppy disk circular projection world radio map centered on your QTH shows sunrise-sunset gray line for any time of interest. Includes feature which displays any of 400 prefixes on world map instantly. For all Apple Macintosh machines ($39.95). SASE for more info: ATTN: DX; ENGINEERING SYSTEMS INC., P.O. Box 939, Vienna, VA 22183. Ph 703/255-6600.

AUTO-CALL MAGAZINE, official journal of the Foundation For Amateur Radio, a federation of over 50 clubs in the greater Washington, D.C. area. Great coverage of FCC, ARRL, VEC, Public Service and club activities in the area. A must for those even passing through the area. For sample copy write FOUNDATION FOR AMATEUR RADIO, P.O. Box 7612, Falls Church, VA 22046-1452.

AMATEUR RADIO REPAIR — experienced licensed, reasonable. ROBERT HALL ELECTRONICS, W6BSH, 1660 McKee Rd., Suite A, San Jose, CA 95116, 408/729-8200.

FREE ham gospel tracts, SASE, N3FTT, 5133 Gramercy, Clifton Heights, PA 19018.

WE BUY ELECTRON TUBES, DIODES, transistors, integrated circuits, semiconductors. ASTRAL ELECTRONICS, P.O. Box 707M, Linden, NJ 07036. Call toll-free 800/666-8467.

COMMODORE C64/C128 P.D. Amateur Radio, utility, business programs. Send SASE for list to WB1FOL, 77 Wentworth St., Malden, MA 02148.

CERTIFICATE FOR PROVEN TWO-way radio contacts with amateurs in all 10 USA call area. Award suitable to frame and proven achievements added on request. Send $2 (USA) or $3 (DX) to cover certificate cost. W6LS, 45527 3rd Street East, Lancaster CA 93535-1802.

WANTED: TUBES. I pay cash or trade for all types of transmitting or special purpose tubes. MIKE FORMAN, 1472 MacArthur Blvd., Oakland, CA 94602. 415/530-8840.

FREQUENCY DIRECTORIES: Large selection, SWL and scanner books, frequency guides: SWBC, mediumwave, Utes, Spy, Press, Weather, FAX, RTTY, Military, Federal Agencies, Marine, Aero, Police, Fire, etc. Big FREE catalog! CRB RESEARCH, Box 56-WR, Commack, NY 11725.

STAMP COLLECTORS — SASE brings my price list of Worldwide Ham Stamps. PHIL SAGER, WB4FDT, 411 Sparta, Ruston, LA 71270.

TEN-TEC, NEW FACTORY BOXED LATEST 1991 PRODUCTION MODELS, USA made, 535 Argonaut, 536 Delta, 562 OMNI V, 585 Paragon transceivers, 420 Hercules, 422 Centurion, 425 Titan linear amplifiers, 238, 253, 254 antenna tuners, 239, 240 dummy loads, mobile HF antennas, keyers, cabinets, filters. VISA/MC or check. For best mail-order deal, write/phone: BILL SLEP, 704/524-7519, SLEP ELECTRONICS COMPANY, Box 100, Otto, NC 28763-0100.

WANTED: BUY & SELL all types of electron tubes. Harold Bramstedt, C&N ELECTRONICS, 6104 Egg Lake Rd., Hugo, MN 55038, 1/800/421-9397 or 612/429-9397. FAX 612-429-0292.

FAIRFIELD CA VE EXAMS last Sat. every month. Registration and Theory: 10:00 a.m. Code: 1:00 p.m. SOLANO COMM. COLLEGE. JERRY, 916/662-0801.

NEW RADIO BUFFS' SPECIAL: America's best: Ten-Tec Omni V—$1850.00, Paragon—$1850.00, new Delta—$1399.00, Argonaut QRP—$1199.00, 961 power supply—$219.00, Hercules II—$1190.00, Titan—$2635.00, auto tuner—$899.00; Japan Radio Co. JRC 135HP—$2499.00, JRC 135 STANDARD—$1599.00, NRD 525—$999.00, NRD 535—$1599.00. Ask for price on all accessories. We also carry ICOM, MFJ, B&W, Ameco, Comet, KLM/Mirage, Spi-Ro, Sangean, AOR scanners, and many more Amateur Radio items. Call Henry N4EDQ, at RADIO BUFFS' AMATEUR RADIO SALES, or write: 4400 Highway 19A, Mount Dora, FL 32757, or call 1-800-828-6433. After hours FAX 904-589-5576. Our store hours are: Mon.,Thur., Fri. 10 a.m. 'til 5 p.m. EST.

TRANSMITTING TUBES WANTED FOR MUSEUM. Amateur or commercial. Tubes purchased, traded or donations welcome. All correspondence answered. Visitors welcome. K6DIA. YE OLDE TRANSMITTING TUBE MUSEUM, P.O. Box 97, Crescent City, CA 95531 707/464-6470.

PICTURE QSL CARDS of your shack, etc., from your photo or black ink artwork. 500 $26.00. 1000 $40.50. Also non-picture cards. Custom printed cards, send specifications for estimate. Send 2 stamps for illustrated literature. Generous sample kit $2.00, half pound of samples $3.00. RAUM'S, RD 2, Orchard Road, Coopersburg, PA 18036. Phone 1-215/679-7238.

ALL ABOUT CRYSTAL SETS. Theory and construction of crystal set radios. $7.95, ppd USA. ALLABOUT BOOKS, Dept. W, Box 14155, Fremont, CA 94539.

PLATE TRANSFORMERS for amplifier builders or replacement: Gonset P/N 271-107 for models 903, 913 linear amplifiers 115 VAC/1350 V at 500mA, size 5¼L × 4¼W × 4½H. Wt. 18 lbs. new—$37.00. Military TV-7 mutual conductance portable tube tester with tube data chart and operation manual, an excellent tube tester—$59.50. Tektronix USM-281C solid state DC-65MHz dual trace oscilloscope, mil/spec version of model 7603N11 with two 7A15AN11 amplifier plugins, 7B53AN11 time base, 1982 Tektronix catalog price—$7,160, our price—$365.00. Have quantity. VISA/MC or check. Write/phone: BILL SLEP, 704/524-7519, SLEP ELECTRONICS COMPANY, Box 100, Otto, NC 28763.

ROSS' $$$$ USED OCTOBER SPECIALS: Kenwood TS-440S/WAT—$1109.90 TS-830S—$699.90, TS-700A—$349.90, VOX-3—$35.00, TR-2400—$149.90, NC-3A—$39.90, FT-ONE/filters—$1299.90, SP-101PB—$46.90; Ten-Tec 229B—$249.90, 562(288)—$1599.90, 960—$189.90; ICOM R-71A&filters—$699.90, 2KL—$1459.90, SM6—$29.90. Looking for something not listed?? Call or send SASE. Have over 190 used items in stock. Mention ad. Prices cash, FOB Preston. Hours Tuesday-Friday 9:00 to 6:00; 9:00 - 2 P.M. Mondays. Closed Saturday & Sunday. ROSS DISTRIBUTING COMPANY, 78 South State, Preston, ID 83263. 208/852-0830.

More MART

HELP—Dedicated traffic net manager needs free IBM/compatible computer equipment to expand service to public. He is on fixed Social Security income. Contact: BILL, KB2KQM (friend), 516/475-8181, after 6 P.M. EST.

ULTRA-LOW frequency (ULF) monitoring and RF noise levels may be helpful in predicting earthquakes. Free sample newsletter, GEOMONITOR, 1055 West College, #321, Santa Rosa, CA 95401.

MAST-FREE STANDING 65 ft. w/motor drive. Wilson MT-61B, tilt-over, with RB-61B rotating base and raising feature. Incl. base mtd. Hygain T2X rotator. All for $1000. K6DR, Carmichael, 916/482-8147.

BEAUTIFUL THREE BR HOME. Located in Carmichael near Sacramento. Prime residential area and excellent DX and Contest location with a 65 ft. sky needle included. Prestigious location-offered at $350,000. K6DR, 916/482-8147.

WANTED; HAM EQUIPMENT AND OTHER PROPERTY. The Radio Club of Junior High School 22 NYC, Inc. is a non-profit organization, granted 501(C)(3) status by the IRS, incorporated with the goal of using the theme of Ham Radio to further and enhance the education of young people nationwide. Your property donation or financial support would be greatly appreciated and acknowledged with a receipt for your tax deductible contribution. Please look over whatever unwanted equipment you may have, and call us. We will pick up or arrange shipping. You will receive the tax deduction, but most important, the privilege of knowing that your gift really made a difference in the education and upbringing of a child. You are invited to check into the WB2JKJ Classroom Net, 1200 UTC on 7.238 MHz., also work the "22 Crew" during our special event operation October 23-25. Write us at: The RC of JHS 22 NYC, Inc., P.O. Box 1052, New York, NY 10002. 'Round-the-clock hotlines: Voice 516/674-4072, FAX 516/674-9600.

CO-AX ADAPTERS: 1-UG577/U, 4-UG201/AU, 4-UG83/U, 1-UG83B/U, 1-UG16A20 take all $20.00. W6XM, 619/459-5527.

ROSS' $$$$ NEW OCTOBER (ONLY) SPECIALS: Kenwood TM-241A—$349.90, R-5000—$849.90; MFJ 948—$85.90, 207—$93.90; Heath Kit SB-1000—$689.99; Yaesu FT-747GX—$679.90, FT-411E—$289.90; ICOM 228A—$304.90, 725—$755.00, 3200A—$459.99; Ten-Tec 425—$2,599.90, 585—$1789.90. All are mail order prices. Our retail show room will be closed for the next several months. If you want to pick up something let us know 1 day in advance. Call or send 2 stamps for used list and more specials. All limited time offer. Looking for something not listed or hard-to-find, call or write. Over 9039 ham-related items in stock for immediate shipment. Mention ad. Prices cash, FOB Preston. Hours Tuesday-Friday 9:00 to 6:00; 9:00 - 2:00 p.m. Mondays. Closed Saturday & Sunday. ROSS DISTRIBUTING COMPANY, 78 South State, Preston, ID 83263. 208/852-0830.

QUALITY HEAVY DUTY DIPOLE ANTENNAS: 18 meter with HD insulators & HD center conductor for 52 ohm, $32.95. 12 meter, same as above, $29.95 + shipping $4.00. SLACK ENTERPRISES, 101 Royal Park Drive, Apt 2H, Oakland Park, FL 33309.

GET YOUR "FCC COMMERCIAL GENERAL RADIOTELEPHONE LICENSE". Electronics Home Study. Fast, inexpensive! "Free" details. COMMAND PRODUCTIONS, D-173, Box 2824, San Francisco, CA 94126.

STAINLESS STEEL HARDWARE & ACCESSORIES: Over 800 types/sizes in stock. Send $1 for catalog. Credit with order. SHEPTER STAINLESS, INC., P.O. Box 58126, Cincinnati, OH 45258 0126. 73's, WA8JOC, President.

WEEKLY HAM TRADER. Mailed First Class every Friday. Subscriptions $13.00 for six months (26 issues) or $25.00 for full year (52 issues) U.S.A. Canada/Mexico/International inquire. Now free ads with subscriptions. Ad rate 20 cents per word. Prepaid ads and subscriptions to: WEEKLY HAM TRADER, P.O. Box 1159, Arnold, MO 63010.

"DON C. WALLACE, W6AM, AMATEUR RADIO'S PIONEER," by Jan D. Perkins, N6AW. This book describes the history of Amateur Radio as experienced by Don. Hardbound, 320 pages and 200 photographs, 24 in color. $29.95 + s&h ($3 US, $5 overseas). CA residents add 8.25%. WALLACE & WALLACE, 11823 E. Slauson Ave., Suite 38, Santa Fe Springs, CA 90670.

MAKE $$$! Become an American Electronics Dealer! Profit opportunities since 1965. Call DICK DELLEN, 1-800/872-1373.

AMATEUR HELPS FOR NOVICE, TECHNICIAN OR GENERAL. Programmed instruction—$10, computer code—$5, and diskette pool testing—$10. (Commodore, Apple, MSDOS) SASE. PUEBLO SUNSHINE SOFTWARE, WONIT, 920 West Adams, Pueblo, CO 81004.

FOR SALE: KENWOOD CW FILTER YK-455C-1—$69.00, Heath speaker SP-99—$35.00, 2ea Minimus-35 stereo speakers 5 inch square woofer and tweeter—$85, leather case for Zenith R-3000—$33.00, Comet duplexer CF-415 2M/440—$35.00. Wanted: Kenwood R-1000, ANT tuner, TS-130S/V, PS-30, Yaesu MIC MH-1B8, ICOM MIC HM-14, FRG-7, FR-101, HW-9. WS9T, 9145 Ivy Lane, Berlin, WI 54923.

CONVERT YOUR ELECTRONIC SKILLS, products, or service into a profitmaking home or mailorder business. We can help you! SASE: JACOMM-W, Box 1014, Dover, NJ 07802.

ROTOR-PARTS, rotor-service, rotor-accessories: brak-d-lays, quik-connects, pre-set mods. New models for sale. Free catalog. C.A.T.S., 7368 SR 105, Pemberville, OH 43450.

KENWOOD — TS830-S - MC50 MIC - SP230 speaker and manual near mint cond.—$700.00. Hitachi o'scope 100 MZ BW - D/T model V1050 probes and case like new—$900.00. Sencore video analyzer VA 48 w/probes & manual, mint cond.—$500.00. Hickok freq ctr #380 80 MZ, xclnt. cond—$100.00. ELCO #379 side sq. wve gen., xcel. cond—$150.00. Sprague cap/analyzer #TO-6A, xcel cond—$100.00. B&K E2000 RF gen, xcel. cond—$225.00. B&K radio anayst #960, good cond.—$50.00. Sencore FE14 m/meter xcel. cond.—$65.00 or will trade test equip for Collins 32S3A/75S3B/C & acc. or KWMZA W/ACC. Tel # 916/898-1509.

GIVE YOUR HAM LICENSE that first class look by proudly displaying it in an 8×11 certificate that'll tell everyone what you've accomplished! Professionally printed on 60 lb. paper, it'll make your license look like real "wallpaper"! $2.00 ea. ppd. Free info with SASE! MICHAEL SIMMONS, WB9CWE, 1041 West 6th St., #12, Belvidere, IL 61008.

ASSOCIATION OF SHAREWARE PROFESSIONALS CERTIFIED VENDOR. N4ZDU Shareware. IBM compatible, virus free, latest releases. All new, all kinds, Ham, games, business, you name it. $10. per megabyte. Postpaid. 3.5 or 5.25 HD. 300 megabytes available. Try our new BBS too, model call 904/542-3028. N4ZDU, ROBERT GILMORE, Rt. 3, Box 1151, Oldtown, FL 32680.

IONSOUND BY W1FM — propagation prediction software for Amateur, military, SWL and Marine HF. Menu-driven program for IBM PCs/compatibles. Provides comprehensive tabular summary and Skywave LUF/MUF ionograms for planning worldwide DX communications. Includes signal/noise and path availability predictions. See July 1990 CQ, May 1991 "Ocean Navigator" and "National Contest Journal" reviews. 5.25" or 3.5" DSDD—$35.00 w/ASCII documentation. 46-page printed/bound manual—$12.50. Postpaid. 617/862-6742, evenings. JACOB HANDWERKER, W1FM, 17 Pine Knoll Road, Lexington, MA 02173.

SPANISH TRANSLATIONS for your ham equipment ads, brochures, manuals. Retired Spanish professor, experienced in ham electronics technical writing. Free estimates for your sample text with SASE. DICK BEYM, NB6R, 17651 Caminito Hercuba, San Diego, CA 92128, 619/487-3880.

ELECTRIC RADIO magazine. In our third year. Articles on vintage ham and military gear; repair/restoration, history and AM operation. Large classified section. $2 for a sample copy. ER, Box 57, Hesperus, CO 81326.

JEHOVAH'S WITNESSES: Amateurs, SWLs, please send full details, telephone number, to: BOB ELLIS, P.O. Box 7349, Winter Haven, FL 33883-7349.

LET THE GOVERNMENT finance your Amateur Radio-related small business. Grants/loans to $500,000. Free recorded message: 707/449-8600. (LH3)

COMMODORE 64 HAM PROGRAMS—8 disk sides-over 200 Ham programs $16.95. 29¢ stamp gets unusual software catalog of utilities, games, adult and British disks. HOME-SPUN SOFTWARE, Box 1064-W, Estero, FL 33928.

WEEKLY HAM TRADER. Mailed First Class every Friday. Subscriptions $13.00 for six months (26 issues) or $25.00 for full year (52 issues) U.S.A., Canada/Mexico/International inquire. Now free ads with subscriptions. Ad rate 20 cents per word. Prepaid ads and subscriptions to: WEEKLY HAM TRADER, P.O. Box 1159, Arnold, MO 63010.

WANTED! Any make transceiver or receiver, transmitter in any condition! For cash! TELO TECHNOLOGY, (Dan), 1302 Uplands, Camano Island, WA 98292, 206/387-3558.

QSL CARDBOXES AND INDEX DIVIDERS—Organize your QSLs. Each box holds over 1,000 cards. Send SASE. 7-Mike, HAMSTUFF, P.O.Box 14455, Scottsdale, AZ 85267-4455.

BUILD 35' FREE STANDING TILT-OVER TOWER. Plan book—$8.95 plus $1.00 s&h. Other books available. GINGERY TOOL, P.O. Box 75, Fordland, MO 65652-0075.

BUILD A UNIVERSAL COIL WINDING MACHINE. Plan book—$8.95 plus $1.00 s&h. GINGERY TOOL, P.O. Box 75, Fordland, MO 65652-0075.

TUBES! hundreds! $2.00 each or $240.00 for all. SASE for list. Free shipping. N4IBX, P.O. Box 1297, Stuart, VA 24171.

MACINTOSH SOFTWARE! Marathon, the latest contesting program. Full-feature demo with manual—$8.00 (refundable), SASE for details. KEVIN KRUEGER, 1780 Ruth Street, North Saint Paul, MN 55109.

USE AIRMAIL POSTAGE for successful QSLing! Many countries, monthly bargains. List: #10 SASE. BILL PLUM, 12 Glenn Road, Flemington, NJ 08822.

WHOLESALE FLEAMARKET MERCHANDISE DIRECTORY. 60 pages—hundreds of distributors listed that you may contact who supply fleamarket dealers. All kinds of items—incredible prices! Electronics too! Great for Hamfest dealers. $10.00. JACOMM, Box 1014-W, Dover, NJ 07802 (prompt delivery).

MAKE BIG $$$! Become an American Dealer! Great profit opportunities for new businesses since 1965. Call NICK DELLEN, 1-800/872-1373.

HAM RADIO REPAIR CENTER quality workmanship. Solid state or tube, all makes and models. Also repair HF amplifiers. A-Z ELECTRONIC REPAIR, 3638 E. Indian School Rd., Phoenix, AZ 85018. 602/956-3024.

LEARN THE CODE — A course for family members and friends who don't know the difference between a dot or a dash. Monday through Friday, 0630-0700 California local time, 3760 KHz ± A2/A3/LSB, March, April, May, September, October, November, K6RAU. Starts first Monday of each month.

CODE PROFICIENCY DRILLS are transmitted from WB3IVO Brass Pounders ARC, each Saturday, Sunday, Monday and Thursday on 7060 kHz, starting 2000Z. Each Tuesday and Friday on 14060 kHz, starting 2000Z. Speeds range from 20 to 60 wpm.

WANTED: SHACKMASTER 100. KE6RL, 805/466-0912.

THE SPEC-COM JOURNAL is published bimonthly, 6 times per year. Dedicated to Fast Scan Television but committed to covering slow scan television, facsimile, RTTY, ASCII, AMTOR, packet radio, satellites, TVRO and all other specialized modes of communication. Now with thicker, color enhanced issues. Back issues and sample copies $3.50 ppd. Annual subscriptions: USA $20, Canada/Mexico $25, foreign surface $30. MC/VISA add 5% and Iowa residents add 4% for tax. KAØJAW has now joined WBØQCD to co-publish the SPEC-COM Journal for specialized amateur enthusiasts. Contact: MEMBERSHIP SERVICES, P.O. Box 1002, Dubuque, IA 52004-1002 or call 319/557-8791.

ATTENTION AMATEURS!! Military type ID dog tags, stainless steel, customized, name, call, QTH, etc. Five seventeen-space lines—$4.29 postpaid, neck chain included. JPW ENTERPRISES, P.O. Box 353, Logan, UT 84321.

MORSE CODE COMPUTER INTERFACES with software for IBM or COCO—$49.95. Ham License Study Programs—$14.95. Free Public Domain and Ham catalog for IBM or COCO. DYNAMIC ELECTRONICS, Box 896, Hartselle, AL 35640, 205/773-2758.

PYRAMID PHASE III power supplies, 3 amp to 50 amps, PILOT ELECTRIC CO INC, 1300 Hwy #35, Neptune, NJ 07753. 1-800/331-5308, FAX 908/775-3635.

CUSHCRAFT ANTENNAS, B&W Antennas PILOT ELECTRIC CO INC, 1300 Hwy #35, Neptune, NJ 07753. 1-800/331-5308, FAX 1-908/775-3635.

QSL SALE! 100 cards $8, 200/$11, 300/$14, 500/$20, 1000/$33. Many designs! Free shipping! Rubber stamps $5. Phone or write today for samples or ordering. SHELL PRINTING, KD9KW, Box 50, Rockton, IL 61072. 815/629-2193.

MODIFICATIONS AND RADIO REPAIR —Amateur, Scanners, CB First Class Engineer, Business since 1974. Send #10 SASE for info and list to: CHICK'S RADIO COMMUNICATIONS, 1340 Lander Road, Mayfield Hts., OH 44124-1606.

PARAGON QSL'S, seventeen two and three color stock designs or your custom design. ARRL Member card. Prices start at $19.95/100. DX or Contest specials, $29.95M. Rubber stamps for every use. Send $.52 SASE for samples. PARAGON STAMP, 190 Arboleda Rd., Santa Barbara, CA 93110.

ROTOR-PARTS, rotor-service, rotor-accessories: brak-d-lays, quik-connects, pre-set mods. New models for sale. Free catalog. C.A.T.S., 7368 SR 105, Pemberville, OH 43450.

WANTED: HALLICRAFTERS FPM 300 in good condition. W6EAG, GEORGE. Call 916/929-1922.

QRP FUN! Five watt, 40 meter QRP transmitter! Easily modified for 30 meters! Assembled and tested—only $24.95 postpaid! DWM ENTERPRISES, 1709 N. West, #103, Jackson, MI 49202.

ICOM BATTERY CASES, holds 8 AA batteries, drop-in or wall charge—$20.00, ICOM BP-8 clone, drop-in charge—$38.00, BP-7 clone, drop-in or wall chg—$39.00. Don't have a drop-in charger? We have a slide-on charge board—$7.00, use your 12V supply. With wall chgr—$12.00. BP-5 clone, drop-in or wall charge, 500 mAh—$35.00. Wall chgr's—$5.00. Empty BP7-8 cases, complete with hardware and instructions—$12.95. ICOM BP-83 600 mAh 7.2V—$33.00, BP-84 1000 mAh 7.2V—$44.00, BP85B 12V 600 mAh—$75.00. BP-85A 9.6V 600 mAh—$65.00. Yaesu FNB-12 12V 500 mAh pak—$43.00. Super FNB-4 800 mAh at 12V—$43.00, FNB-17 pak, 7.2V 600 mAh —$33.00. Inserts: BP-3—$14.50. BP-5—$20.00. BP-8—$21.00. BP-7—$23.00. Tempo Early S-1—$19.95. Tempo S1-5—$21.00. Santec flat AA pak with tabs—$19.00, with connectors—$25.00. Yaesu FNB-2—$19.95. FNB-17—$19.00. FNB-12 600 mAh—$29.00, FNB-4—$26.00. We have Alinco inserts, call for prices. Kenwood 25/2600—$18.00, 2400—$15.00, PB21—$12.00. Speaker mics, fits ICOM, Yaesu, Standard and Heath—$23.95. Mini speaker mics for above radios—$24.00. We will rebuild your battery pack for the cost of the insert, no additional charge! Send thru the US mail, please. All orders add $3.00 shipping, Illinois add 6.5% tax. Free catalog upon request. Need something not listed? Give us a call, we would love to be of service to you. Send to: DC ACE ELECTRONICS, INC., P.O. Box 364, Lincolnshire, IL 60069. Ph. 708/634-3337 days or 708/587-2291. Good checks ok. 1 last special—9 volt NiCds—$4.00 each.

DISCOUNT PRICES AT RT ELECTRONICS. Radios, scanners, antennas and more. Free flyer. RT ELECTRONICS, P.O. Box 2123, Warren, OH 44484.

LEARN CODE THE EASY W6PHA WAY! Former USAF code champ's unique, simple system allows all ages to learn quickly. No tapes, etc. Revised booklet $5.00 ppd. Guaranteed. Letters answered. GLOBALMAN PRODUCTS, Box 400WR, El Toro, CA 92630.

QSL'S — Send for free quality samples. KA6GND. MARCUM'S QSLs from THE PRINT SHOP, 4645 Pine St., Riverside, CA 92501 714/684-0933.

AMATEUR RADIO REPAIR! HT or amplifier—$20 per hour. TELO TECHNOLOGY, 1302 Uplands, Camano Island, WA 98292. 206/387-3558.

RADIO DESK CONSOLE CABINET. Build your own. Drawings, photographs, list of materials—$7.95 ppd. BILL MORRIS, WA5RSC, P.O. Box 3, Temple, TX 76503-0003.

NEW! STORM ALARM. 200 miles warning of severe storms! Patented—not radio! Free catalog! 205/859-8729. Wholesale prices available! STORMWISE, P.O. Box 17721, Huntsville, AL 35810.

BROWNIE'S QSLs since 1939. Catalog & Samples $1.00. 3035 Lehigh St. (REAR), Allentown, PA 18103.

POST CARD QSL KIT — Converts post cards, photos to QSLs! Stamp brings circular. K-K LABELS, P.O. Box 412, Troy, NY 12181-0412.

AA1A SIDEKICK ANTENNAS. 1-800/874-2880.

AMATEUR RADIO TRANSMITTERS, receivers, etc., that you can build dirt cheap. Write for list — WA4DSO, 3037 Audrey Drive, Gastonia, NC 28054.

JOIN THE XTAL SET SOCIETY. Dedicated to once again learning about and building Amateur Radio gear. $6 brings membership, (6) quarterly newsletters, and a complete set of plans to build a modern day crystal set. WØXI, RR1, Box 129A, Lawrence, KS 66044.

QUADS 10-15 meter—$99.95. LIGHTNING BOLT ANTENNAS, RD2, Rt 19, Volant, PA 16156, 412/530-7396.

QTH with 70 foot crank-up tower & mono banders. 4 bd., 3 bath, 1910 sq. ft., 8600' lot, 4 yrs. new at 330 ft. above sea level. Close to San Jose in great community near shopping & new schools. Offered at $330,000.00. CRAIG, 408/842-9386.

CW KEYBOARD HEATHKIT PROFESSIONALLY WIRED—$150. W6XM, 619/459-5527.

RADIO LOG IBM-compatible PC program. Stores, standard log information, plus 10/10#'s. Displays on screen, color or mono, also makes hard copies. Send $22.95 along with your name, address and call to R AND D EXPRESS, 14230 147 Place SE, Renton, WA 98059.

Wanted: TUBES

I pay cash or trade for all types of transmitting or special purpose Tubes.

MIKE FORMAN
1472 MacArthur Blvd.
Oakland, CA 94602
(415) 530-8840

ICOM

IC-901 FM Mobile

Fiber Optic Modular **OPTION 1**

BAND UNITS
Can be installed **in your trunk.**
Optional Band Units include:
- 10 W/10 meters • 25 W/220MHz
- 10 W/6 meters • 10 W/1.2GHz
- 2 meter/SSB/CW • 440MHz
- Broadband Receiver

Select band units according to your interests.

THE WORLD'S MOST VERSATILE MOBILE

ICOM'S NEW IC-901 OFFERS THREE EASY-TO-OPERATE TRANSCEIVER CONFIGURATIONS

The IC-901 can be (1) field-combined as a fully separated and fiber optic-linked system with multiple trunk-located band units, (2) a single-cabinet transceiver for dashmounting or (3) a remote-controlled unit for underseat installation. (OPC-243 cable not included.)

Compact Transceiver **OPTION 2**

Control head is installed directly to the interface unit, making one compact unit.

Entire unit may be mounted **in dash.**

Under the Seat **OPTION 3**

Dual band and interface unit can be installed **under seat.**

Remote Control **on visor.**

The IC-901 is supplied with 50 watts 2-meter and 35 watts 440MHz FM band units covering 138-174MHz Rx and 140-150MHz Tx plus 440-450MHz Rx/Tx. Adding more band units is a snap. They install easily out-of-sight in your trunk for security!

Outstanding Features Include: Full duplex operation, simultaneous dual band reception, ten memories per band, programmable band and memory scanning with skip function, any Tx offset, and much more.

The IC-901 also features a clever new **DTMF Calling System** which silently monitors a busy frequency or repeater for stations calling you. Squelch automatically opens when a signal with the same DTMF code you present is received.

Optional Pager Function. When activated, your IC-901 transmits a six-digit DTMF code to call others. Its last three digits identify you as the calling station.

ICOM America, Inc., 2380-116th Ave. N.E., Bellevue, WA 98004
CUSTOMER SERVICE HOTLINE (206) 454-7619
18102 Skypark South, Ste. 52-B, Irvine, CA 92714
1777 Phoenix Parkway, Suite 201, Atlanta, GA 30349
3071 - #5 Road, Unit 9, Richmond, B.C. V6X 2T4 Canada

For full details call the Icom Brochure Hotline at 1-800-999-9877.

ICOM
First in Communications

Famous Faces

Noted Amateurs Contest

How's your Amateur Radio IQ*? (*Identification Quotient) Correctly identify these five amateurs by printing name and call in the space under each picture, and mail to the address below. All correct entries received by 10/31/91 will be placed in a drawing. The winner will receive a three-year subscription to *Worldradio*.

Worldradio

(USPS 947000)
PO Box 189490
Sacramento, CA 95818

POSTMASTER: Send changes of address to above (Please include mailing label.)

Second-class postage paid Sacramento, California and additional mailing offices