

The READOUT

Year 15

Number 7

July 1993

The Official Newsletter of the Stanislaus Amateur Radio Association



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FCC analyzes transmitter signature to nail violator

A Fairfax (Virginia) ham radio operator whose phoney Maydays created a wild-geese chase in the West Indies last summer has agreed to reimburse the U.S. Coast Guard \$50,000. Jorge Mestre, NS3K, age 50, also was sentenced on May 12th to 60 days home confinement with work release privileges and one-year probation. In addition, he was ordered to perform 200 hours of community service, pay a fifty dollar special assessment and to permanently surrender his Amateur Extra Class ham-ticket. He could have received up to six years imprisonment and a fine of \$250,000.

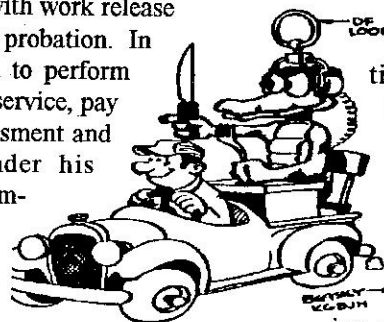
Actually the problem of phoney distress calls involving Mestre first came to the attention of the FCC in 1991. At that time the FCC circulated a press release saying they were investigating false distress signals which caused the Coast Guard to deploy a helicopter to the Duck Island, North Carolina area.

On November 10th, 1991, at approximately 10:00 PM a ham operator heard a distress call from a station with a Spanish accent identifying itself as KD4NIT. The station stated that he had run aground and was taking on water on a reef 20 miles east of Duck Island.

Two or three months later, a similar incident happened supposedly off the coast of Cuba. In both cases, the FCC quickly DF'ed the signals once they

were alerted by the amateurs. And both times the position readings pointed to Northern Virginia.

Unfortunately, however, the FCC didn't have time to get a mobile van out to do close in "fine tuned" DF'ing. They could only identify a transmission area of about 20 miles.



On August 7th, 1992, false distress communications consisting of both single sideband (SSB) voice and Morse Code transmissions were heard on the infamous 20 meter frequency of 14.313 MHz. They falsely reported a sinking vessel off the Turks and

Caicos Islands in the British West Indies. It was also incorrectly reported that six persons aboard the ship were in the water and needed to be rescued. For a period of about two hours during that evening, the concocted distress communications continued intermittently and included the internationally recognized Morse Code distress signal, "SOS."

The distress signals were monitored by other amateur radio operators who notified the Coast Guard and the FCC. Almost immediately, the Commission's long range direction finding network swung into action and began monitoring the signals. Again, the signals were traced to Northern Virginia. The Coast

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SARA VHF Net

Thursdays @ 8 P.M.

(Except Holidays)

2 meters 145.39 MHz WD6EJF

220 Band 224.14 MHz WD6EJF

10 Meters 28,440 kHz USB

Tuesdays at 730 P.M.

ARES Net Wednesday 800 P.M.

Contributions to *The READOUT* are always welcome and may be submitted to the editor by mail or via packet at KD6JZZ-BBS on 144.79 MHz, or directly at my PBBS, WA6ZLO-1 on 144.97 MHz. The deadline for articles is the 15th of the preceding month. Articles regarding religion or politics are not accepted.

Editor

Bob Pinheiro, WA6ZLO

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An ARRL affiliated club !

ARRL membership may be paid through SARA with the club retaining a \$2.00 commission. Please send your ARRL membership form along with your check made payable to SARA. We will deduct the \$2.00 and send a check to the ARRL.

SARA newsletter wins honors in nationwide publication contest

By Ernie, K6UVI

For the second time in as many years, *The READOUT* has been honored with a "Superior" rating award in the 1992 Amateur Radio News Service nationwide publication contest.

The READOUT competed with nearly 100 entries from throughout the country and a few from Canada scoring 279 points out of a possible 300 to earn a spot in the top nine newsletters judged. A three judge panel scored each newsletter on general format, appearance, content, general interest and attractiveness.

The contest is designed as a means of helping editors' improve their newsletters and recognize their achievements. An attractive certificate was presented to each editor and in our case, adorns the wall of our editor, Bob, WA6ZLO.

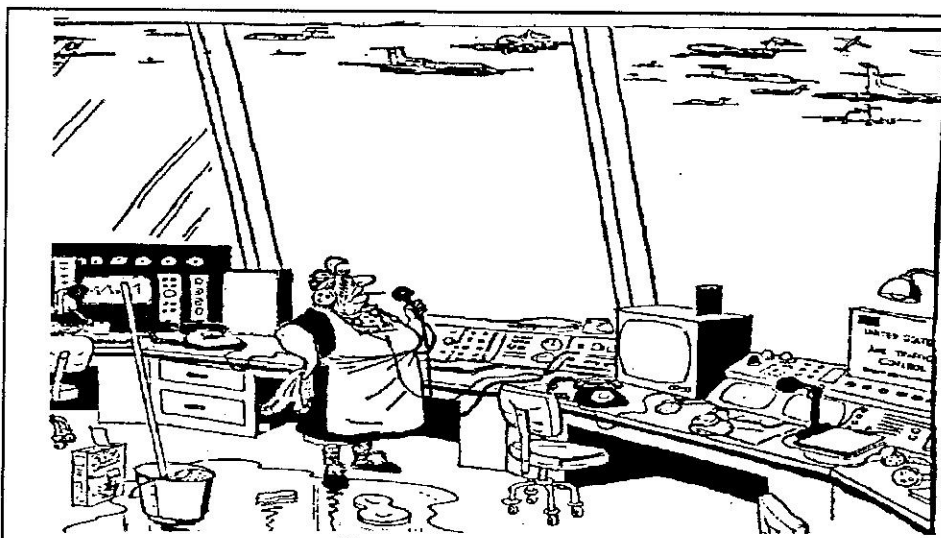
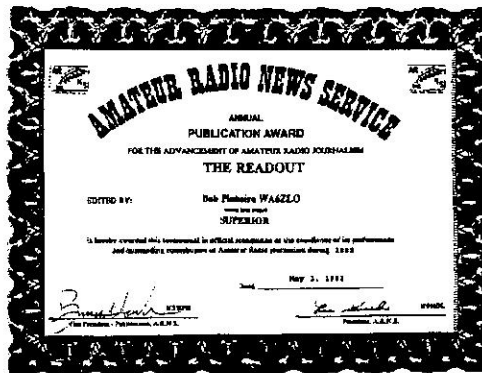
Bob said, "I want to thank all of those who have contributed to the newsletter; Ernie, K6UVI; Tim,

N6ZUC and especially Gary, KJ6Q, in Vacaville, without whose help we would not be able to print photos in *The READOUT*."

Bob has been the editor for nearly 15 years and published the very first newsletter on December 1, 1977. It consisted of four pages and was simply called "Club News". It was reproduced on a copy machine and distributed to approximately 35 members of SARA.

The name of the newsletter was changed a few years later when a contest was held to choose an official name. Ivan, W6SKH, was the winner with "The READOUT". It has been in continuous publication since then.

Bob thanked all the members of SARA who have helped support the newsletter with their dues, and afforded him the editorial freedom he has enjoyed since the first issue. He also thanked the Amateur Radio News Service and their judges, for the help they have given him in improving *The READOUT*.



"Now hear this—the big red one with the yellow tail is the last one I will bring down. I've got my own damn job to do!"

EMF and adverse health effects

By Jim Stiebing, WB5UFD



Concerns about the exposure to low frequency electric and magnetic fields (EMF) continue to grow. Like the radio frequency radiation exposure, there are literally hundreds of articles showing a statistical relationship between exposure to EMF and adverse health effects such as cancer.

There are also a number of studies which support the thesis that exposure to EMF in the 0 to 500,000 Hz range does cause statistically significant biological effects in test animals and in humans. And yes, the 60 Hz in those wires in the attic, walls, toaster, electric blankets, TV/Video, power supplies, etc. are also a part of the stuff they are talking about when they EMF exposure—it's in the Extremely Low Frequency (ELF) part of the spectrum usually defined as 30-300 Hz.

So, you ask, why aren't all of us dying given that we live in an environment virtually saturated with 60 Hz EMF. The answer is it may be a statistically low risk exposure which isn't as significant as tobacco smoke, ozone, solvents, cholesterol, etc. and other risk factors which could be masking its effects. It may also be affecting us in ways not yet investigated—cancer gets all of the attention but there are a lot of other known and potential effects.

The real answer is nobody knows for sure—yet. A lot of people have lived the last 50+ years of their lives exposed to EMF at levels that are many orders of magnitude greater than those experienced

before 1940— that's over 100,000,000 living, breathing guinea pigs and more coming, so stay tuned.

Unlike ionizing radiation there isn't a good human exposure database for EMF—if it weren't for Harry Truman and good medical records even the ionizing radiation data-base wouldn't be available. Harry gave'em hell and dropped those

“Cancer gets all of the attention, but there are a lot of other known and potential effects.”

bombs on Japan. If the Russians hadn't been so sloppy and incompetent following Chernobol there would be another very comprehensive statistic for ionizing radiation. The bottom line is that nobody is going to deliberately create one for non-ionizing radiation unless of course Saddam Hussein has found a way to kill his enemies with ELF EMF and is keeping really good medical records on the victims.

This thing with EMF exposure is further complicated by a lot of little unresolved questions that make comparative

research studies difficult—some of the most fundamental of which are:

—What should the standard method for measuring the field strength of EMF in the presence of humans and test animals?

—How do you measure the absorbed dose of EMF by humans and test animals?

—How do you measure induced responses in the cells and tissue of test animals and humans during EMF exposure?

New calls for research are targeting these and other questions that must be agreed upon by those doing studies which are needed to assess the danger of EMF exposure.

The Environmental Protection Agency (EPA) called for research to address the health issue of exposure to EMF in recent report (EPA/600/9-91/01F) and in a March press release. EPA concluded that “most studies have been hypothesis-generating studies rather than hypothesis-testing research” and EPA further points out that “many of the reported effects have not been independently confirmed.”

Does this mean there's no problem? No, you can't ignore the mounting catalogue of peer reviewed research which seems to show that something is going on. It does look like the risk may not be so great that we should panic and spend mountains of money to fix “it”— whatever “it” is.

Let's face it there's no such thing as a risk-free environment. The mad rush to reduce some risks to near zero regardless of cost is often based more on political science. Once things like the “reference dose” (RFD) for specific human health effects of EMF exposure are known, rational steps can be taken to reduce it to safe levels. This is a two step process of “risk assessment” followed by “risk management” which should wait for the more definitive research to be done. Until then it's a personal decision—you probably can reduce your exposure some if you work at it.

As for me, I don't have many opportunities to reduce my exposure and I probably will still turn the electric blanket on when I wake up cold at night—like cigarette smokers it's a risk I'm willing to take.

Thanks “The AARC Lite” Arlington Texas ARC.



By Charles McConnell, W6DPD

PACIFICON '93 promises to be bigger and better as plans take shape in Concord. You'll see more exhibit space, more technical sessions and more ATV things to see and do. "People surveyed, last year, said they wanted more of everything," said Pete Tormey N6QGN, the Chairman of PACIFICON. "We hope to make PACIFICON the biggest show on the West Coast!" PACIFICON '93 is set for October 22, 23 and 24.

"One area we are expanding is ATV," said Keith Lattin, N6PMF. "With the high altitude balloon launches, the ATV crew will stay jumping. The hotel cable system will carry all the ATV action live." ATV exhibitors and technical speak-

ers will show people how they can catch the action of joining ATV with other hobbies such as radio remote control.

Hams have an insatiable thirst for high tech—so this year's theme is Amateur Radio in the 21st Century. Technical sessions will focus on new technology. At PACIFICON '93 you can learn how digital signal processing (DSP) improves your rig, or how to breadboard circuits on a PC using SPICE circuit simulation. An even larger technical session is planned for spread spectrum technology. "Spread spectrum is fascinating. I enjoyed last years session," noted Garry Parrish, AA6GW, a spread spectrum enthusiast. "Spread spectrum is changing the future of radio" he said.

There will also be introductory sessions on ham radio topics and a session on satellite communications. Thanks to the Northern California packet Association, complete sessions on starting packet will be presented too.

The main convention floor will be filled with vendors from all aspects of amateur radio. Exhibit hours are 9 AM to 5 PM Saturday and 9AM to 3PM Sunday. Some exhibitors will have tables in the halls open Friday evening.

Ticket prices will be the same as last year. "We want people to come and have a good time, so we are holding the

line on prices," said Dwane McGlothlin, N6SPX, the ticket sales chairman. Advanced tickets are only \$3.00, the best bargain going in Amateur Radio.

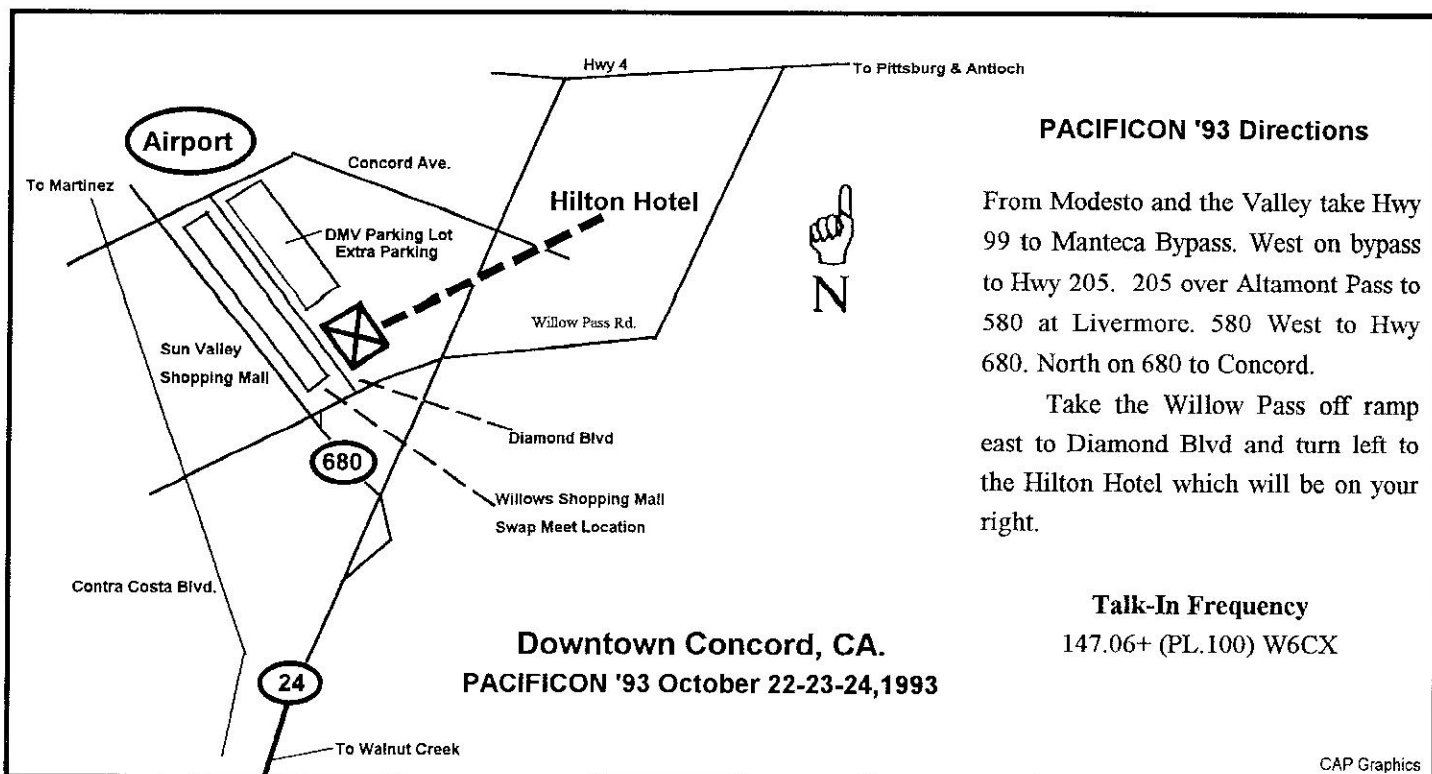
Members of MDARC will be traveling throughout Northern California to sell tickets at radio club meetings and at major swap meets. "It is always best to mail in your order for tickets. That way they'll be waiting for you when you arrive," Dwane said. If you send a self addressed stamped envelope, PACIFICON will mail the tickets to you.

Advance registration will be conducted through October 15, 1993. Admission will be \$3.00 prior to October 15, 1993, and \$5.00 after October 15, 1993.

Banquet entree of Prime Rib, Chicken or Vegetarian is \$29.00 each. For the ladies, the Marin County excursion is \$20.00 and the San Francisco shopping tour is also \$20.00. Reservations for overnight must be made directly with the Hilton Hotel. Call 1-800-826-2644.

Be sure to reserve your rooms in advance at the Hilton as they are sure to sell out. The special rate for PACIFICON '93 is \$72.00 per room (single or double). Be sure to mention PACIFICON '93 in order to get the special rate.

Write to PACIFICON, P.O. Box 272613, Concord, CA 94527. For phone information, call (510) 932-6125.



PACIFICON '93 Directions

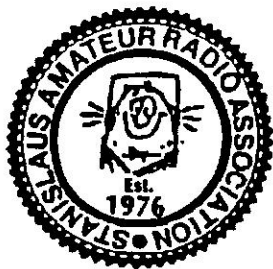
From Modesto and the Valley take Hwy 99 to Manteca Bypass. West on bypass to Hwy 205. 205 over Altamont Pass to 580 at Livermore. 580 West to Hwy 680. North on 680 to Concord.

Take the Willow Pass off ramp east to Diamond Blvd and turn left to the Hilton Hotel which will be on your right.

Talk-In Frequency

147.06+ (PL.100) W6CX

CAP Graphics



Editor's Notes

By Bob Pinheiro, WA6ZLO

Congratulations to Mike Siegel, KI6PR, who was reelected to the position of San Joaquin Valley Section Manager for the ARRL. Mike garnered 360 to 223 for James Wakefield, AH6CM. Mike's new term begins on July 1, 1993.

—Speaking of the ARRL, we may have misquoted Pacific Division Director, Charles McConnell, W6DPD, during his appearance at the *SARA* meeting in May. We quoted Charles as saying that after 20 years the Fresno Amateur Radio Club was giving up sponsoring the Fresno Hamfest. According to a story in SKIP, the newsletter of the Fresno Amateur Radio Club, "it ain't so." The club held a successful Swapfest-Hamfest on May 1st at Riverland Park near Kingsburg. It was the 51st continuous event (excluding the World War II years). The format and location of the hamfest were the only things changed. The new format emphasized a swapfest theme. Around 350 hams and friends turned out." I'm happy to set the record straight. Best of luck for future events.

—In the same SKIP newsletter was this interesting article written by Don, WB6NON, of Fresno. On the subject of homebrew attenuators Don writes "if you have RF floating around your shack try running your coax through a toilet paper center cylinder. Then pack the cylinder with steel wool until it's full. This method is almost as effective as torroids and much cheaper. If you don't want to use toilet paper cylinders, you can use PVC pipe or even a plastic bag."

—Congratulations to Ed Lacey, KA6CXR, on his recent marriage. Best wishes to Boyd Hornberg, W6DSM, who suffered a heart attack on June 7, 1993. He is home now and recovering from open heart surgery. Our Chief Engineer, LeRoy, NV6S, is home recuperating from a bout of phlebitis that put him in the hospital for a week.

—Welcome to new members Berry J. Griffin, KD6TTM, of Modesto. He is a new Technician. And welcome back Bob

Crawford, WD6CEV, of Modesto. Bob is a retired printer from the Modesto Bee and a past Secretary of *SARA*. Welcome to Lindsey Bertomen, KD6VZE, of Turlock. Lindsey is a Stanislaus County Deputy Sheriff and works in the Custodial Division. With these new members our membership stands at 161 and growing.

—Bill, KC6VWO, will be adding his talents to the entertainment at the Stanislaus County Fair in Turlock. Bill will sing and play his guitar in the outdoor gazebo of the flower building at starting from 7 to 815 pm on Saturday July 31, 1993.

—Our President, Sandy, KC6TBK, has a new job. She is working for KHOP-FM, Rock 104.1 as a D.J. She wanted me to point out that she is not the woman in the new Rock 104 billboard ads wearing nothing but her birthday suit.

—Work on our communications trailer is expected to pick up now that the club has authorized \$300 to fix the broken windows, window frames and the side door. This work is expected to be done within the next several weeks. Speaking of the trailer, as you know, Sheriff Les Weidman offered the club a parking spot for it behind the old, women's jail in Modesto. Although this is a fenced area, it is not as secure as we had hoped for. In fact, one of the Sheriff's vehicles stored there has been broken into three times over the last several months. Needless to say this presents a very serious problem for us with any equipment we would leave in the trailer even with a burglar alarm on it. We are therefore looking for a more secure spot. Ideally, an enclosed storage shed would be great. We have checked the prices at the various mini-storage facilities around the city and their prices are comparable to each other, about \$20.00 a month. That's \$240.00 a year which is prohibitive. If anyone knows of a secure place we can park the trailer when not in use, please contact me or Ernie, K6UUI. Here are the possibilities in the order of preference. 1-Secure Storage Shed. 2-Barn on a members property. 3-A shady area behind

a member's home out of the public view. We would prefer a member's home or place of business so he, or she, could keep an eye on it. However, we would consider a non-member's home if the situation was right. So, please give this matter some thought. Surely you know someone that would have a SECURE spot we can use. The trailer is only 15 X 8' and would not take up much room. If we find a secure spot, then we can leave the equipment in the trailer and it will be ready to go in a moment's notice.

Also, we are still in need of equipment for it. The most pressing need right now is a generator and an air conditioner. Can anyone help? Even an RV type water cooler for the top of the trailer would help on these hot summer days until we can secure an air conditioner. The generator should be at least a 4 KW size and compact enough to fit in the compartment designed for it on the side of the trailer.

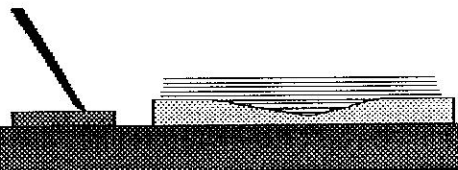
—Beginning with last month edition of **The READOUT**, we will have complete information on the upcoming PACIFICON '93 Hamfest in Concord. I will be printing the information between now and the Hamfest dates of October 22, 23 and 24. Last years premier event was an outstanding success and this years promises to be even better. See pages 4 and 8 for this month's information. I hope you are making plans to attend. A lot of work has gone into this event and I'm sure you won't be disappointed. The lineup of speakers, not to mention all the additional events, will be worth the paltry entry fee of only \$3.00.

—One last item. I'm looking for a person who would like to write a monthly column for **The READOUT** on the subject of "club news". The ideal person would be someone who monitors the club's repeaters regularly and can report on what's going on with our members. If interested, contact me evenings at 523-5880. No experience is necessary. The pay is outstanding! (HI HI.) No special equipment is necessary.

Enjoy your summer and try to stay cool. 73, Bob

FROM THE DESK OF

Tim Low, N6ZUC



You've purchased a new rig, selected and bought or built the antenna of your choice, and drug it all home and set it up. Now you have to deliver the signal from the transmitter to the antenna. How ya gonna do it?

Selection of the proper transmission line is essential for best overall operation of your station. Armed with a little info, you can easily make the right choice. There are some factors involved in making that choice that you should be aware of.

The first bit of information you need, may be obvious, but is none the less important. What frequency are you operating on? You see, all transmission lines are not created equal. If you look at the manufacturers specifications, you'll see that each transmission line type will call out loss in db per 100 feet at any given frequency. As the frequency rises, the loss per hundred foot does too. In some transmission lines, this gets critical. Some of the factors involved are the shape of the transmission line, and the characteristics of the components it's made of. These are the conductors and the dielectric.

The physical size of the transmission line can also be important if what you're using is coaxial cable, as most of us do. The smaller the cable, the less heat it will handle. Loss in transmission line is what generates this heat. This again becomes very important if you intend to operate with any substantial SWR, such as using a coaxial cable feeding an antenna with an input impedance different than that of the transmission line. Normally a tuner would be used on the transmitter side of the line. Not the greatest idea, but happens all the time. (See the February issue of the **READOUT** for more on that topic.) Take note also that when you look at the manufacturers specs for loss, this implies operation into an exact load of the lines characteristic impedance.

When determining the correct line

for your purpose, of great importance of course is the length of line you need. If the run to the antenna is long, generally a higher quality, physically larger diameter, therefore more expensive transmission line is called for. If it's possible to keep your antenna a little closer to the shack, you'll benefit in improved performance and lower cost. When you're looking at an extremely long runs at UHF frequencies, say over a hundred feet, the cost for suitable line can get down right unreasonable. When operating in the HF bands however, there are many good choices, at reasonable expense.

That brings us to another consideration. What is the input impedance of your antenna? We'll assume that you're operating modern manufactured gear, requiring a 50 ohm load. Mostly we shoot for an antenna with an input impedance around 50 ohms also. This makes it much easier to make a selection. Fifty ohms isn't necessary though. Many fine antennas operate with impedances from 50 ohms to several hundred ohms. It's best in my opinion to stay away from antennas with an impedance below fifty ohms, and we'll get into that another time.

If your antenna operates from 70 to 75 ohms, such as a dipole, there are good choices in coaxial cables for that impedance. As a benefit, if your not too critical, running a 75 ohm load on a 50 ohm transmitter is not all that bad a match. The SWR will still be very acceptable. If you want to, this is the perfect application for using a transmatch on the transmitter side of the system. That is if you demand a "flat" SWR. Tube gear will normally load into a 75 ohm load with a perfect match.

Actually in many respects, especially when it comes to loss, the open wire types of a higher impedance are superior to any coaxial cable made. The open wire type can come in the standard 2 wire line that you've seen on older TV antennas, which

has a characteristic impedance around 300 ohms, or the multi-wire type. By the way, 300 ohms just happens to be the operating impedance of a folded dipole. Running that into the shack, and then doing some impedance matching at the transmitter, is a real fine system.

The beauty of open wire systems is that with a little incentive, you can make your own. They're not at all difficult, and there have been many articles published, and books written which describe the process. As always, it's not my intent to teach you "how to", but to give you a little taste of what's available. All it requires on your part is to do a little research. I think you'll find the rewards are well worth the effort.

How much power do you intend to run? This also is a determining factor in transmission line selection. Manufacturers will specify this rating too. Too high a voltage on the line can break down the dielectric of coaxial cable, and put you out of business. If the service you run is strictly FM, then the maximum carrier power is all you need to consider. If however, you are going to run AM or SSB, you need to take into account the peak power. When a carrier is modulated by amplitude, the peak voltage can double at modulation peaks. Pick a cable that will handle at least double, maybe a little more for safety sake.

Don't overlook your connectors. The typical PL-259 connectors are fine for frequencies up through VHF, but by the time you hit the 70cm band, consider N connectors. They exhibit much lower insertion loss, and will provide superior service. Don't forget to weatherize them, it's important to keep the rain out. Questions? Answers? comments? Direct them to me via packet at N6ZUC @ KC6NZN.#SOCA.CA.USA.NA, or write me in care of **The READOUT**.

73 -Tim

Working the Graffiti Century Bicycle Cruise

By Bob Pinheiro, WA6ZLO

It was a Saturday morning in Modesto. Cool breezes and a bright sun greeted over 400 men and women bicyclists from all over the State who were arrived at Graceada Park at 6 AM for the beginning of the Graffiti Century Bicycle Cruise sponsored by the Modesto Rotary Club. The colorful and attractive uniforms of the cyclists represented a rainbow of colors. They ranged in age from teens to seniors, all of whom appeared lean and, in good physical shape.

Again this year, **SARA** was asked to provide the communications for the run, and unlike previous years, I volunteered to help. Prior to this, my only understanding of such an event was the funny sounding traffic I had heard on the repeater from previous events. I had often wondered what a "Sag Wagon" was, and why it was so important that communications were needed. Being facetious, I wondered if it was a wagon that sagged in the middle. In reality they are private vehicles assigned to different geographical parts of the cruise to provide assistance where and when needed.

As with most events, it was a bit chaotic for the first hour. Officials tried to get everyone signed up, answer questions and provide them with maps of the three separate cruises being offered. Perhaps that was one of the reasons they started at 6 A.M. Another is the time it takes to complete the three cruises of 25, 62 and 100 miles which are offered. The latter takes most of the day and ended up in Del Puerto Canyon in the Coast Range Mountains approximately 40 miles west of Modesto.

I learned that this was not a race, it is a cruise much like a Sunday drive. Cruise or not, it requires serious physical endurance and training, especially for the hundred mile run.

After some last minute checks of maps and equipment, the riders hit the road around 730 AM and the communications crew reported to their stations. Liz, KD6GIW, was assigned to be net control at the starting point in Graceada Park. There were six Sag Wagons, each with one of our members riding along, with

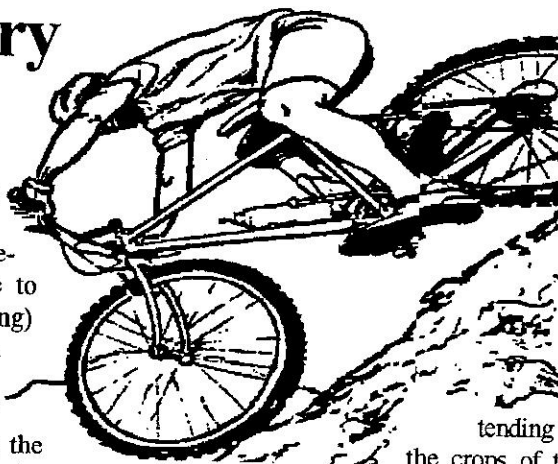
radios. The origin of the term "Sag Wagon" is a bit hazy. The best interpretation I got was a vehicle used to provide assistance to those participants who fall (sagging) behind and need assistance. Such assistance could range from as little as a patch kit to fix a flat, directions, food and water, or in the worst case scenario, medical help in the event of a fall.

Prior to the cyclists hitting the road, Rotary club members had carefully marked the three routes with spray paint markings on the pavement at every turn. This alone took two men the better part of a day complete. These markings made it possible for the cyclists to concentrate on their riding and not have to look at maps to guide them over the courses.

The cruise took the riders through the streets of Modesto, over country back roads and north on Highway 99 to Ripon. The ride continued through downtown Ripon and then west through the almond orchards that line the country roads west of town. Within minutes the cyclists arrived at Caswell State Park where the first rest stop was set up. There, food and drinks were offered with a shady place to rest. **SARA** member Cameron, KD6HJG, was providing the communications from this point back to Graceada Park.

Then it was off again with the route moving through the scenic farm country of western San Joaquin County, repleat with the aromatic smells of this rich agricultural area permeating the air, as they headed toward the small farming community of Grayson where the second rest stop was set up. Larry, WB6GJT, was assigned to this rest stop. He notified Graceada of various needs, ranging from food and water requests to an inquiry as to when the porta-potty would arrive.

Within minutes the riders were on the road again. The sixty two mile riders turned back towards Modesto while the 100 mile riders headed west along the fertile fields of Western Stanislaus County towards Del Puerto Canyon. Along the way they dodged occasional pieces of farm equipment on the roadway and field worker



tending to the crops of tomatoes, bell peppers, broccoli, apricots, melons and a myriad of other crops which are grown on this fertile plain.

Approximately five hours from the starting point, the riders entered Del Puerto Canyon at Interstate 5. They struggled the twisting, 18 miles, incline to the top of the Canyon and the rest stop at Frank Rains Park. Jack, WB6IDT, was on station in the park attempting to provide communication. As we had feared, it was not possible to get a signal out of the park because of the terrain.

After food and water and some rest, it was time to start home. The only injuries during the entire run occurred in the canyon and our radio operators were on the scene to get the information out. The first involved a cyclist (who was a local doctor) who took a nasty spill and broke his collar bone and a rib about 10 miles into the canyon. Minutes later a bay area cyclist lost control of his bike and was thrown to the pavement. He suffered a concussion and was disorientated. We used the Sag Wagon's radio operators to relay from one to the other while in the canyon. As a result, we were able to communicate the information from the canyon. The two injured men were quickly picked up and transported to Doctors Hospital in Modesto. Their friends and relatives, waiting at Graceada Park, were also notified by radio.

At times our communications were very difficult as the **SARA** repeaters went down the day before the event and our chief engineer was not able to get up the hill to fix the problem before the event. Ernie, K6UVI, arranged for the group to use the W6OA repeater, 146.655 MHz, at Tracy. Del Puerto Canyon is virtually impossible to get repeater signals in or out

See 'Graffiti' page 13

South of Border down Mexico way

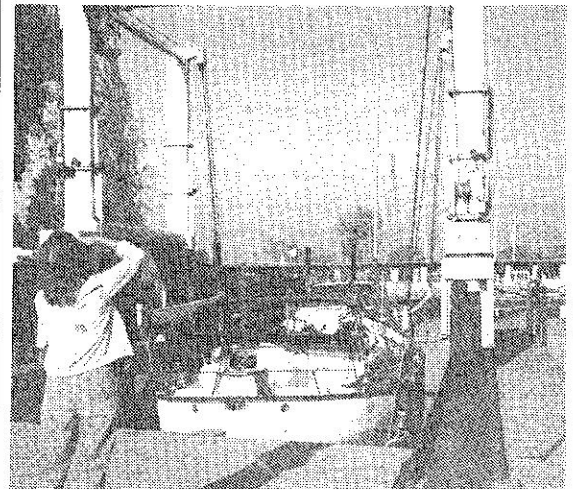


Señor Tom, N6LSF

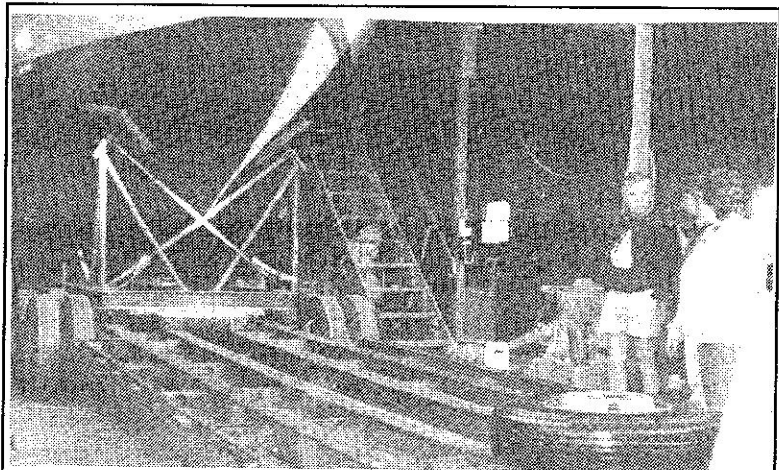
When he wasn't flying the friendly skies for United Airlines, Tom Johnson, N6LSF, was busy repairing and restoring his sea going vessel in a shed outside his Oakdale home. Those of us who listened to Tom's progress on the *SARA* repeater, wondered if he would ever finish.

Tom had plans for the vessel when he retired from United and as soon as he could get it sea-worthy. His labor of love came to fruition last year when the vessel was towed to the marina in Alameda and introduced to the waters of the Pacific Ocean. As Tom had promised, it did not sink! The last report we got on Tom he was enjoying the boat and plying the waters off coast of La Paz, Baja California, Mexico.

We managed to get these pictures of the boat thanks to Charlene, WB6PJY. Hopefully, when Tom reads this he will be prompted to send us more pictures and gives us an update. In the meantime a word of caution Tom, don't drink the water, except in Margarita's.



Tom's boat dropping into the water at Alameda



Tom, N6LSF, loading the boat out of his barn in route to Alameda.

Modesto June 12th VE Test Results

By Chet Jensen, W6XK

The results of the ARRL/VEC test session in Modesto on June 12, 1993:

Number of applicants: 29
Number of new licenses: 9
New Novice: 0
New Technician: 4
New Technician-Plus: 3
New General: 1
New Advanced: 1

New Extra: 0
Pass rate (total elements administered): 46%
New Novice: None
New Technician: James Breitenfeld, Philip Solbjor, Robert Hull, Paul Kendrick
New Technician-Plus: Francisco Bautista KA6MPY; Shari Hetzler, KD6UEE; Diana Barnett, KD6UEK.
New General: David Boley, KD6VFO.
New Advanced: Raymond Lee, KD6VFP.
New Extra: None
Participating VEs: W6XK, N6SAE, WA6OHP, KI6YQ, WA6GUO, AA5TX, KC6WXX, AB6PQ, K6RAU, KI6PR,

N6DOA, N6QIY

Total number of applicants served by the Tri-County VE Team:

1986: 15
1987: 104
1988: 187
1989: 123
1990: 107
1991: 221
1992: 224
1993: 114
Total: 1,095

Next test session: September 11, 1993 in Modesto. Contact: W6XK @ KD6JZZ or (209) 883-2968



SARA Technical Report

By LeRoy Campbell, NV6S

Murphy struck both the repeaters and the repeater technician this month. To begin with, I have the new 440 duplexers sitting in my shack waiting to be installed on our repeater. I also have a new battery for the digital site. I have crystals ordered to put the Ka-node on 144.910 MHz.

Plans were being made to make all this work happen when I noticed my leg swelling up. Each day it seemed to get worse until I finally gave up and went to the doctor. He seemed to think that it might be phlebitis and, or, a blood clot. I was off for a siege of tests with nothing was found at first. We went on for another week with continued swelling. At about the end of this week the repeaters decided to die as well. I was unable to make the trip up the hill to administer first aid to the repeaters. On that Monday I was hospitalized for phlebitis with a clot. I spent six days in the hospital while they attempted to thin my blood and finally got it too thin and had to restore it.

During that time Brad, KC6TDH,

went up the hill and replaced a fuse to get things running for the club again. The repeaters are now functioning nicely and I am attempting to recover and find time to do my planned work at the site.

I would like to thank all the local hams that came to see me during my hospital stay. We owe thanks to Grady, K6IXA, for his help with a temporary repeater, and to AB6AE who allowed the use of his equipment to support Grady during the down time for the repeater. We also owe thanks to Alex, K6LPG, for much technical help.

My special thanks to Brad and others who helped in getting the repeaters going during my illness. 73, LeRoy.

U. S. Amateur License Renewal

Term of license—10 years (Since 1984)

Grace Period—2 years

How to Renew—Complete an FCC form 610 and mail it with a copy of your current license to the Federal Communications Commission, Gettysburg, PA 17325-7245.

Grace period—If you file before your license expires, you may continue to operate until your renewed license arrives. You may not operate if you send it in after it expires.

When should you apply for renewal?— You may apply for renewal anytime during the term of the license, but the FCC suggests waiting until 90 days before it expires.

Change of address— If you change address, you must notify the FCC on a 610 form. The FCC will make the change and automatically renew your license for another 10 years from that date.

Fees— There are no fees imposed for Amateur licenses at this time.

By the way, when does your license expire?

ARRL Rules Book

FCC denies VE discrimination complaint

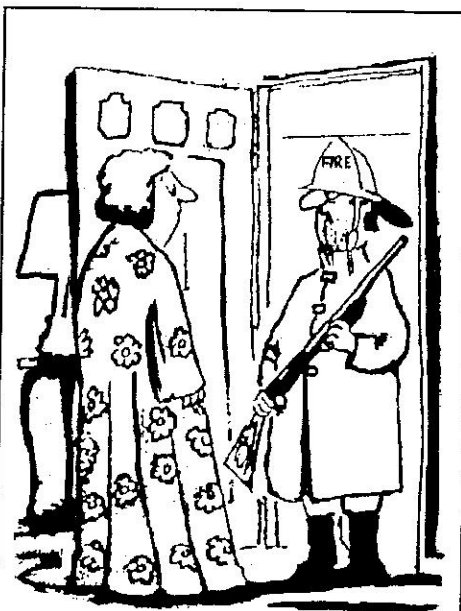
West Virginia amateur, Leonidas R. Moten, WD8POF, has received a letter from the FCC stating that a local VE team did not discriminate against him. Moten, who is blind, was precluded from acting as a VE at an amateur radio operator testing session held on June 27, 1992. The VE team said Moten was not qualified because he was not able to "...observe the examinee throughout the entire examination" as required by Section 997.509(a).

The discrimination complaint started at the state level when Moten filed a protest with the West Virginia - Human Rights Commission. It eventually became a federal complaint. Section 504 of the Rehabilitation Act of 1973 specifies that "No otherwise qualified individual with handicaps ...shall solely by reason of her or his handicap be excluded from the participation in ...any program or activity... conducted by any Executive agency..."

PRB Chief Ralph Haller also refused to grant Moten a waiver of the Part 97.509(a) requirement since it "...would clearly defeat the purpose of the Commission's rule to insure that at least three examiners are present to observe examinees and thus preserve the integrity of the examination process." W5YI Report

Sticker and Decals Removal Tip

Ever have trouble removing decals from your transceiver, car windows, bumpers or other pieces of gear? Even price tag stickers can be tough to get off and attracts dirt and grime. This tip from the finish folks at Ranger Boat Co. can make sticker and decal removal quick and easy. Use a common hair dryer and gradually heat the entire decal. After the decal peels off, use simple white vinegar or WD-40 to remove any sticky residue. Wash with soap and water and you got it.



"I got your cat out of the tree lady!"

420-450 MHz Band plan

420.00-426.00	.....	ATV repeater or simplex with 421.25 MHz video carrier, control
426.00-432.00	.....	Links and experimental ATV simplex with 427.250 MHz
432.00-432.070	....	Video carrier frequency
432.07-432.08	.....	EME (Earth-Moon-Earth) Propagation beacons
432.08-432.10	.....	Weak signal CW
432.100		70-cm calling frequency
432.10-432.125	....	Mixed mobile and weak signal work
432.125-432.175	...	OSCAR inputs
432.175-433.00	....	Mixed mode and weak signals
433.00-435.00	.....	Auxiliary repeater links
435.00-438.00	.....	Satellite only (Internationally)
438.00-444.00	.....	ATV repeater input with 439.250 MHz video carrier frequency and repeater links
442.00-445.00	.....	Repeater inputs and outputs (local option)
445.00-447.00	.....	Shared by auxiliary and control links, repeaters and simplex (local option)
446.00	.....	National Simplex Frequency
447.00-450.00	.....	Repeater inputs and outputs (local option)

The following Packet Radio frequency recommendations were adopted by the ARRL Board Directors in January 1988.

1) 100-kHz-bandwidth channels:

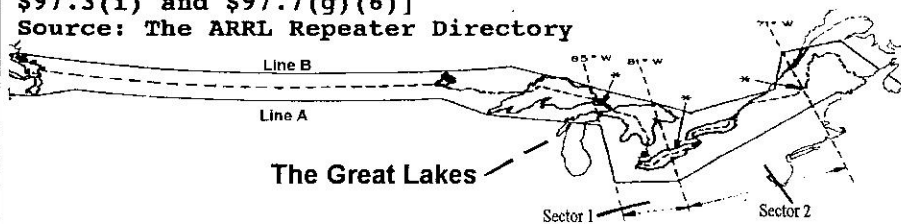
430.05	430.35	430.65
430.15	430.45	430.85
430.25	430.55	430.95

2) 25 kHz bandwidth channels

430.025	441.000	441.050
440.975	441.025	441.075

The band is shared by amateurs with Government Radio location services (RADAR); amateurs must not interfere with these priority Government stations. As part of WARC-79 proceedings, the 420-430 MHz portion of the band was removed from the Amateur Radio Service north of Line A (see figure). In a later action, FCC allocated portions of the band 421-430 MHz to the Land Mobile Service within 50-mile radius centered on Buffalo, Detroit and Cleveland. Amateur stations south of Line A in the vicinities of these cities may continue to operate 421-430 MHz spectrum as long as they do not cause interference to land mobile or government radio-location users. Additionally, 50-watt PEP output limitations apply to certain amateurs operating within circles of designated military installations in the U.S. [See §97.3(i) and §97.7(g)(6)]

Source: The ARRL Repeater Directory



Federal Judge OK's FCC Fines

A Federal Court judge in Washington, DC, has found for the Federal Communications Commission in a lawsuit in which the ARRL supported the FCC.

The suit, brought by Action For Children's Television and 20 other broadcasting and public-interest organizations, challenged the FCC's monetary forfeiture procedures in indecency cases.

The League's interest in the matter, the ARRL said in a friend-of-the-court brief, was to protect the interests of radio amateurs in effective FCC enforcement. On May 18, U.S. District judge Royce C. Lamberth granted an FCC motion to dismiss the plaintiffs' request that all indecency forfeiture proceedings currently before the FCC be dismissed as well as a Commission motion to dismiss the major complainants in the lawsuit for "lack of standing."

In addition, Judge Lamberth granted the FCC's motion to dismiss the two other major points sought by the plaintiffs:

1— To find that the review procedures now used by the FCC be used to adjudicate alleged indecency violations under federal law and

2— To enjoin the FCC from initiating or conducting forfeiture proceedings for alleged violations of federal law concerning indecency. The court did deny the FCC's motion to dismiss a constitutional claim by Infinity Broadcasting Corp. arising from a 1990 notice of apparent liability. The entire case was ordered dismissed.

ARRL Bulletin via Packet

ARRL name will remain

The ARRL Board of Directors decided not to change the name of the organization. The support for the change was just over 50%. The board felt more support would have been necessary to make the change a success. Thanks to all the members who expressed their opinion on this issue.

ARRL Bulletin via Packet

Court of Appeals Rules Against Boulder, Colorado Ham

The United States Court of Appeals for the tenth Circuit has overturned a lower district court decision that would have allowed Boulder, Colorado amateur radio operator David R. Evans, NQØI to install an eighty-foot crank up tower on his property. The case is significant in that the Federal Appeals Court finds amateur radio towers and antennas to be unsightly and therefore exempt from the preemption provisions of PRB-I, the 1985 FCC declaration concerning local regulation of amateur radio facilities.

The appeal sprung from a controversy between NQØI and the Boulder County Board of Commissioners about the height of an antenna tower he wanted to install at his home. Evans wanted a 100 foot high tower; the County decided thirty-five feet was sufficient; and the district court ruled eighty feet was just right. The appeals court reversed the lower district court decision.

Evans owns a home on a one acre plus tract in a zoned residential area. The area's principal charm is an attractive panoramic view of the nearby Rocky Mountains. There can be no doubt that people buy in his area because of the view. In order to preserve the view enjoyed by residents, the County imposes a general height limitation of thirty-five feet for structures, a limitation which all parties agree impairs Evans' ability to conduct the radio communications he desires.

Neighborhood residents express concern that the erection of a large metal antenna tower would not only interfere with the superb aesthetic scenery they enjoy, but would also devalue their property. While Evans believes he could alleviate the problem by screening the tower with trees, the trees would not be of sufficient height for at least 10 years.

Evans appealed to the federal district court contending the County's application of its zoning regulations had been preempted by the FCC order, PRB-I. The district court agreed with Evans and held the regulations were invalid as applied. The local Zoning Resolution was indeed

preempted by federal law and the County failed to adequately consider Evans' needs for a greater antenna height in violation of PRB-I.

The court then selected one of Evans' four proposed alternatives and ordered the County to approve the application for a special use permit to erect an eighty-foot antenna tower.

NQØI's neighbors appealed again, this time to the U.S. Court of Appeals. Their reversal contains an interesting perspective on the FCC Regulations:

"Ever since Guglielmo Marconi erected the first radio antenna, conflicts have arisen between amateur radio operators and local zoning authorities concerning the height of antenna towers. Amateurs radio operators well know their ability to effectively receive and transmit communications directly relates to the height and location of their radio antenna. It is doubtful there exists an amateur radio operator who does not desire a higher antenna. On the other hand, zoning authorities exist, in part, to regulate land use based upon aesthetic considerations. Undoubtedly, most zoning authorities would detest few scenarios more than that of a high steel tower and its attendant gay wires protruding from a residential neighborhood and interfering with a superb mountain view.

The FCC, recognizing the inherent and continuing conflict between radio operators and zoning authorities, attempted to resolve the conflict by issuing an order described as PRB-I. They said '...we believe it is appropriate to strike a balance between the federal interest in promoting emergency operations and the legitimate interest of local government in regulating local zoning matters. Local regulations which involve placement, screening, or height of antennas based on health, safety, or aesthetic considerations must be crafted to accommodate reasonable amateur communications, and represent the minimum practicable regulation to accomplish the local authority's legitimate purpose.

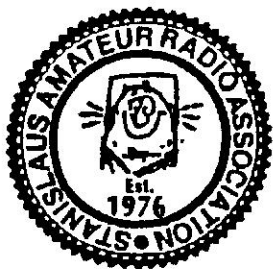
"The [PRB-I] regulations attempt to strike a compromise between two competing interests and, as is true of many compromises, have omitted the details leaving both sides the impression they received the biggest piece of the divided cake.

"Notwithstanding the inherent vagueness in the language, several principles may be gleaned from the FCC regulations. First, zoning authorities must reasonably accommodate amateur communications. Second, local regulations should be the minimum practicable in order to accomplish the zoning authority's legitimate purposes. Third, local authorities may not altogether preclude amateur communications. Finally, the FCC has explicitly declined to regulate the specific permissible heights for antenna towers."

The appeals court ruled that Boulder County did indeed reasonably accommodate the amateur operator since it was willing to consider the option of a crank-up 60 foot tower. Furthermore, "...complete shielding of the antenna by trees would impact mountain views no less than the antenna itself. ...In this case, denial of the permit after evaluating options and thoroughly considering the relevant evidence was a reasonable accommodation. ...the County's regulations are not preempted by PRB-I."

According to Evans, the "crank-up" tower mentioned in the decision was a recommendation by the Land Use Department and was never offered as such by the County. And the court did not mention the restrictions placed on its use: the tower had to withstand 100 mph winds and could only be cranked up and used in the hours between one hour after sunset and one hour before sunrise, or during local emergencies.

NQØI said that "...the Appeals Court held that 'the record is replete with evidence that Boulder County reasonably accommodated Evans' amateur communication goals'. Interestingly, the District Court had concluded that the record was devoid of any attempt by the County to accommodate my needs." WSYI Report



SARA Minutes

By Ernie Rader, K6UVI, Secretary

The June 15, 1993 meeting of *SARA* was called to order by President, Sandy, KC6TBK, at 730 hrs. Treasurer Andy, KD6MOD, reported all bills, except the club's equipment insurance bill, have been paid leaving a balance in the bank of \$2,201.64. He was holding the equipment insurance bill so the new 400 duplexer could be added to the list of insured equipment. He needed the serial number on the duplexer. The insurance bill was \$150.00.

Andy reported approximately 720 raffle tickets had been turned in so far. Brad, KC6TDH, reported that our Chief Engineer, LeRoy, NV6S, was in the hospital. Brad said he was going to Mt. Oso on routine business on June 16th and when he

finished his work he would take a look at the club's repeaters which failed last Friday (June 12). He said the preliminary report on LeRoy is Phlebitis of the right leg.

Sandy announced the ARRL Pacific Division Vice Director, Brad Wyatt, K6WR, had contacted her and exhibited an interest in speaking at a future club meeting. He also asked to be added to The READOUT mailing list. Bob, WA6ZLO, said he would take care of that.

ZLO reported no progress on the Communications Trailer. He said Denis RV was short-handed and extremely busy. He suggested the club remove the trailer from Denis RV and pay to have the windows fixed. He said a bid of \$90.00 was

received from a Patterson glass shop and suggested we accept the bid. After discussion, Bob, KC6TVE moved and Brad seconded a motion to spend up to \$300 on needed repairs. If more was needed, it would be brought before the membership for further discussion.

Use of some of the equipment at the club station for Field Day was approved. The meeting was adjourned at 9 pm. Several of those present then went to Stanislaus Medical Center where they visited with LeRoy, NV6S.

Respectfully submitted by Bob, WA6ZLO, for the Secretary who was representing the club at another meeting.

ATV and Ballooning at PACIFICON '93

By Charles McConnell, W6DPD

ATV and Ballooning
A new perspective in the world Amateur Radio will reach new height at PACIFICON '93 with high altitude balloon launches complete with ATV, VHF repeaters, beacons and a global positioning system.

The first launch is planned for Friday afternoon October 22nd. Launches are planned for Saturday and Sunday mornings as well. "After a few hours, the balloon reaches 100,000



feet," said Don Smith, W6NKF. After it reaches altitude, the balloon will be set to destroy itself and parachute back to earth.

"It should land near Stockton if all goes well," noted Don. "We will need chase teams in place to monitor their locations. And the video will be continuously broadcast at PACIFICON '93."

Bill Brown, WB8ELK, will be coordinating the balloon launches and also giving technical sessions at PACIFICON '93. Bill has been an avid balloonist and ham for many years.

New Pentium Computer Chip

Without question, the biggest benefit of the new Intel Pentium CPU chip is raw speed. With 60 MHz and 66 MHz clock speeds, it isn't any faster than the 486. But the Pentium incorporates at least five new architectural features that Intel claims makes it roughly twice as fast as a similarly rated 486.

Tests conducted by PC Computing Magazine wizards compared the performance of the 60 MHz Pentium to a 66 MHz 486DX2 and a 33MHz 486SX. In the test, the performance differences were stunning. There are 3.1 million (yes MILLION) transistors, nearly triple the number in a 486 chip) in a Pentium chip with a 64-bit external data path, separate built-in caches for data and instructions, a rebuilt floating-point unit (FPU), and a "superscaler" architecture that lets it process two instructions per clock tick.

Sources expect the Pentium to coast PC makers between \$900 and \$1,000 per chip, compared with the \$600 per CPU that Intel 486DX2/66 costs.

October 22-23 & 24, 1993 Concord, CA. Hilton Hotel

Graffiti

From page 8

of, and we used simplex between units while we were in the canyon. Chuck, NW6G, was a big help by pointing his beam toward the canyon from his home across the valley above Coulterville. He cross-banded 146.52 simplex, which we were using, back to the W6OA repeater. It helped, but there were still dead spots where we did not have any communications at all except car to car. Plans are underway to attack this problem for next year.

With the exception of the two accidents, the ride back to Graceada was uneventful. We did help recover a back pack which was left behind at the Laird Park rest stop. It returned it to its grateful owner.

Ernie, K6UVI, was the crew chief and handled all the arrangements. The rest of the crew included Bill, KC6VWO; Rita, KD6BNV; Don, AB6AE and his wife Fern, KD6IJN, Dobby, KC6TVG and Chuck, KC6YCH. Tom KE6PZ, also helped with his two meter equipped motorcycle. Each of the volunteers were presented with a handsome Graffiti Cruise T-Shirt with *SARA's* club logo printed on the back... a nice touch.

All in all, this was a class operation and *SARA* should be proud of the job it did. It was good training in field and mobile communications and it was fun also. If you have never volunteered for something like this, you are really missing an important opportunity to further the cause of Amateur radio in providing public service. It's the foundation that the Amateur Radio service is built on. Hopefully, we can have more operators next year and do an even better job.

AMATEUR RADIO CALL SIGNS

As of the first of June 1993

Radio District	Gp. 'A'	Gp. 'B'	Gp. 'C'	Gp. 'D'
	Extra	Advan	Tech/Gen	Novice
AA0NC	..	KG0GE	..	N0CO
AA1GS	..	KD1PE	..	N1PGU
AA2NZ	..	KF2PE	..	N2VAX
AA3ER	..	KE3II	..	N3PEV
AD4ES	..	KQ4VO	..	(***)
AB5NQ	..	KJ5MN	..	(***)
AB6TV	..	KN6MM	..	(***)
AA7WF	..	KI7NO	..	(***)
AA8LI	..	KG8BM	..	N8YVV
AA9HG	..	KF9PN	..	N9TRQ
N.Mariana Is.	AH8S	..	AH8AN	..
Guam	NH2P	..	AH2CS	..
Johnston Is.	AH3D	..	AH3AD	..
Midway Is.	AH4AA	..	AH4AG	..
Hawaii	(**)	..	AH6MS	..
Kure Is.	KH7AA	..		
Amer.Samoa	AH8G	..	AH8AF	..
Wake W.Peale	AH9C	..	AH9AD	..
Alaska	(**)	..	AL70Y	..
Virgin Is.	NP2Y	..	KP2CC	..
Puerto Rico	(**)	..	KP4VI	..

CALL SIGN WATCH: All 2-by-1 "W" prefixed call signs have been assigned in all radio districts. Group "A" 2-by-2 format call signs from the AA-AK block are next assigned to Extra Class amateurs when 2-by-1's are all allocated.

**=All Group A (2-by-1) format call signs have been assigned in Hawaii, Alaska and Puerto Rico. Group "B" (2-by-2) format call signs are assigned to Extra Class when Group 'A' are depleted.

***=GROUP "C" (1-by-3) call signs have now run out in the 4th, 5th, 6th, 7th and Puerto Rico call districts. According to the rules (adopted by the Commission Feb. 8, 1978, Docket No. 21135), Technician General class amateur are next assigned Group "D" (2-by-3 format) call signs when all Group "C" have been assigned.

Upgrading Novices holding a 2-by-3 format call sign in the 4th, 5th, 6th, 7th and Puerto Rico call areas will no longer be able to request a Group "C" call and will be automatically assigned another more recent 2-by-3 format call sign if they do!

The FCC will not be going back and reassigning unused "K" and "W" 1-by-3 format call signs. Source FCC Gettysburg, Pennsylvania via W5YI Report.

VE Exam Schedule

Test sessions in the Pacific Division, except Hawaii. To take a test you must show two means of ID; have the original of your license and a copy of it, if you are licensed; have the original of any CSCE to prove your passing a test before any VE group. All tests are walk-in unless noted below. Fee is \$5.60 Except for Novices. No-coders welcome.

Bishop, CA	.....	August 12	.....	619-873-4777
Fairfield, CA	..	Jul 31, Aug 28, Sept 25	.....	916-662-0801
Glen Ellen, CA	.	August 7, November 16	.....	707-996-6461
Merced, CA	.....	October 9	.....	209-383-2166
Modesto, CA	.....	September 11	.....	209-883-2968
Novato, CA	.....	September 11	.....	415-883-9789
Oakhurst, CA	...	September 11	.....	209-683-8772
Redding, CA	....	July 10	.....	916-243-6339
Yuba City, CA	..	July 13	.....	916-673-0868

Novice Exam Folded into VE Program

Effective July 1, 1993, the Novice class license examination has been incorporated in the Volunteer Examiner program. Three General Class, or higher, accredited volunteer examiners will be required to administer the test after July 1, 1993. There is no charge for a Novice examination.

Also, effective July 1, 1993, all questions for the Novice and Technician class licenses have been revised in a new pool of questions. Make sure you have the right study material.

Regulated and unregulated Power Supplies

By, William Van Horn, K3CP



"Hi Elmer," said Ima Lidd. "It's good to see you again. I have a question for you."

"Fine", replied Elmer. "It's good to see you, too. What is your question?"

"What is a regulated power supply and why do we need regulated power supplies for our transceivers? Why can't we use unregulated supplies of the proper voltage?"

Elmer said, "We could use any supply that gave us the correct voltage for our application as long as it delivered the proper voltage under all conditions. That's the key phrase Ima, 'Under all conditions.' Just think about what we require from our power supply for use on a 2 meter transceiver. We need 13.8 volts for the radio, but we need this voltage under two very different load conditions. On receive, the radio may only draw a few hundred milliamperes. while on transmit, it may draw 10 or 20 amperes."

"OK?", said Ima, "but why does that present a problem if the supply is capable of delivering the needed current?"

"Let's take an example," responded Elmer. "Remember when we talked about Ohm's law? We said that a current of one ampere flowing through a one ohm resistor would cause a voltage of one volt to stand across the resistor."

"Yes, I remember that" said Ima. "I also remember asking what you meant when you said voltage stood across a resistor. I'm not sure I understand what that means."

Elmer answered, "It's easy to understand. Imagine a circuit where you had a 12 volt source connected to 3 equal resistors in series. The voltage drop when measured at the end of each resistor would be equal at 4 volts each. We can then say that 4 volts stands across each resistor or that there is a voltage drop of 4 volts at each one. Do you understand now?"

"Yes, I do," said Ima. "If I took a meter and measured the voltage applied to each resistor, the meter would indicate 4 volts."

"That's right" said Elmer. "Now let's take a case where we are us-

ing a battery to power a 2 meter transceiver. In our example the following conditions apply. Battery voltage is 13.8 volts, the internal battery resistance is .5 ohm, the rig draws 0.2 amperes on receive and 10 amperes on transmit. That's two orders of magnitude change in current."

Ima interrupted, "Wait a minute Elmer. What is meant by the internal resistance of the battery? And what is two orders of magnitude?"

"I will answer the second question first. An order of magnitude refers to the power of ten - 1, 10, 100, 1000, and so forth. The difference between 100 and 1000 is said to be one (1) order of magnitude. The term is used by engineers to evaluate changes that are significant and meaningful as opposed to small changes that are not worth changing procedures to achieve. To answer your other question, let me remind you that all components have resistance. The internal resistance of a battery is simply the resistance of the battery. If a total short circuit were connected to a battery, the only thing limiting the current flow would be the battery resistance."

"I understand, Elmer. I thought I knew what the battery resistance was but I wanted to make sure."

"Now lets get back to the main topic. Applying Ohm's law to the circuit in the receive mode we can see what happens when we go from receive to transmit. The battery resistance is in series with the transceiver so that current flowing to the radio also flows through the battery. The drop across the battery resistance goes from 0.1 volts on receive to 5 volts on transmit. Without a regulated supply, the voltage to the rig would vary 4.9 volts between receive and transmit."

Elmer continued, "The condition is made worse when using a power supply instead of a battery because the resistance of most power supplies is higher than that of a battery."

"Very good Elmer," said Ima. "You can say that a regulated power supply is one that delivers the same voltage regardless of the load current."

"Within normal limits that's right. See you next time Ima."

Thanks W30K Corral, Delaware-Lehigh ARC, Inc.

FCC nabs violator

From front page

Guard, however, was unwilling to risk ignoring what might have been a real sinking and continued the its searching of the West Indies. U.S. Coast Guard rescue policy requires that it commit the assets necessary for locating a vessel in distress and for assuring the safety of individuals aboard such a vessel.

Upon receiving notification of the distress signal, the Coast Guard immediately began a major search and rescue operation. Coast Guard medium endurance cutters, fixed wing aircraft and two helicopters were deployed to the area claimed to be the sinking ship's location. Additionally, the Government of the Turks and Caicos Islands launched their patrol craft, and merchant marine ships in the area were advised of a vessel in distress.

The West Indies search ultimately cost the Coast Guard more than \$100,000. But it really was not an isolated incident. In the first half of 1992 alone more than 180 fake distress calls were received by the 5th Coast Guard District which is based in Portsmouth, Virginia, and covers waters from South Carolina to New Jersey.

Responding to such hoax distress calls diverts crucial Coast Guard equipment and personnel that may be needed to respond to real emergencies to conduct legitimate search and rescue operations, poses unnecessary threats to the safety of Coast Guard personnel, and is extremely costly to the government.

The FCC recorded the phony transmissions. Using the direction finding data, subsequent detailed technical analysis of tape recordings of the hoax transmissions, and information provided by other ham radio operators, the FCC was able to later identify Mestre's amateur radio station as the source of the deceptive distress messages.

Later on that night about 11:15 PM, another ham operator in the Fairfax, Virginia, area called the FCC and suggested that the distress calls might be a hoax. He said the transmissions were originating so close to him that they were overloading his equipment. He also believed the Spanish-accented voice sounded like a neighbor who had been known to use false DX call signs on the amateur air waves in the past.

The FCC used basically the same method of analyzing radio signals that

they developed in the famous "Captain Midnight" and "Playboy" satellite jamming cases. In both of these instances, the FCC was able to identify uplink transmitters that over-took satellite TV programming. In both instances, different satellite uplink operators jammed HBO and "Playboy" with video messages because they opposed scrambling and X-rated movies. How the technology works is interesting.

There are certain parameters of a signal that are peculiar to a specific radio transmitter. One of these features is the "turn on" time until a rig gets to full power on a specific frequency. Mestre was using CW during the August 7th incident which essentially is the same as turning the transmitter off and on. The FCC simply measured and carefully analyzed the signal rise time with an oscilloscope. By examining the radio signal "signature," the FCC was able to identify two radio transmitter "turn on" characteristics

"In the first half of 1992 alone, more than 180 fake distress calls were received"

that when matched with those qualities contained on another recording from that same transmitter clearly identified Mestre's transmitter as being responsible for sending the false Morse Code distress messages. The two transmitter characteristics measured included the transmitter's instantaneous frequency and power.

In theory, a radio transmitter should turn on instantly with full power on the frequency it is set to. In the real world, however, radio transmitters do not ...and

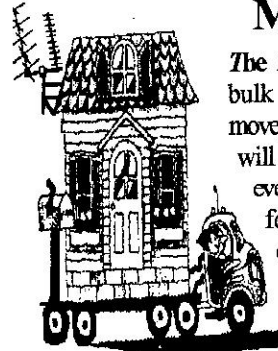
cannot do that, just as automobiles cannot accelerate instantly to highway speed. The actual variations from an ideal hypothetical transmitter "turn on" are both a function of the transmitter equipment design and the precise value of the particular electronic components in the transmitter which are seldom their exact nominal or ideal value. Two different transmitters adjusted to level in frequency will differ in their measured "turn on" characteristics. A study of their instantaneous frequency and magnitude of output power during the first one hundred milli-seconds or less after a radio transmitter is turned on conclusively reveals different and distinctive characteristics—even between different transmitters of the same manufacturer and model.

The subsequent testing of Mestre's radio equipment, which was seized under a federal search warrant, confirmed that his station was indeed responsible for the hoax transmissions. He is also suspected of having been involved in at least three additional false distress cases within the last several years.

Jorge Mestre, who had a relatively high level government job with the Nuclear Regulatory Agency, later came forward with his attorney and offered to plea bargain. This was just as the U.S. Attorney was getting ready to go to the Grand Jury to obtain a felony indictment. Mestre pled guilty on Friday, February 12 in Federal District Court in Alexandria, Virginia.

Besides the \$50,000 single lump sum repayment, Mestre agreed to surrender his amateur radio license and dispose of his ham equipment within 60 days. He must also participate in an alcoholic counseling and rehabilitation program.


Thanks W5YI Report and the K6BJH
for the cartoon on the front page.



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Tnx WB6WEC & Worldradio



"Heads up below—I think I've hooked the guy wires to my ladder instead of the tower!"



Calendar

July 4 Livermore Swap Meet 7AM-12PM
 July 10 Foothill Swap Meet All Day
 Los Altos College
 July 20 SARA Monthly Meeting 730 PM
 Aug 17 SARA Monthly Meeting 730 PM
 Aug 29 Reno Hamfest All Day
 Stead Air Force Base, Reno, NV
 Sept 17-19 ARRL SW Div. Convention 3 days
 Holiday Inn on the Beach in Ventura, CA.
 Sept. 25 Amador ARC Hamfest All Day
 Senior Center in Jackson
 Sept. 26 River City ARC Swap Meet All Day
 Sacramento
 Oct. 22-24 Pacificon '93 Convention 3 days
 Hilton Hotel in Concord, CA.

SARA meets the third Tuesday of each month (except holidays) at the Stanislaus County Administration Building 11th and H Streets in downtown Modesto. The meetings are held in the lower-level conference room at 730 pm. Visitors and interested persons are most welcome to attend. SARA is an ARRL affiliated club and is also affiliated with the Stanislaus County and City of Modesto RACES\ARES programs.

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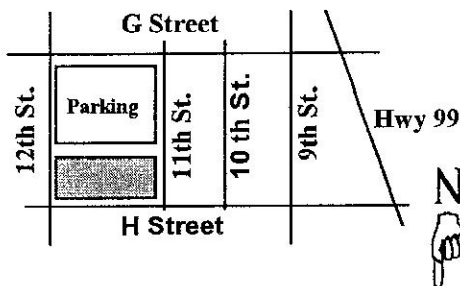
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Next SARA Meeting is July 20, 1993 at 730 pm & You're Invited!