STANISLAUS AMATEUR RADIO ASSOCIATION • Esl. 1976

The READOUT

Year 13 | Number 8 | August 1991

Thinking About A Cell Phone?

So, you're thinking about putting a cellular phone in your car. You're thinking now that they have been around for awhile, they should be reliable, and they won't cost as much. Well, your reasoning is partially right. Their cheaper to buy, but the cost of using them will definitely put a bite on your pocketbook. After making up your mind to go for it the first problem is deciding what brand and type to buy, where to buy and how much should you pay. Let's see if we can help.

How cellular works

To start with it would be helpful to have a basic understanding of how the system works which should help you decide on a unit. There are three basic components that include a combination of mobile FM radio transceiver and phone; an 800 Mhz antenna and a local cell (receiving and transmitting site with a tower) that is connected to existing telephone lines provided through your local phone company.

Cellular phones operate with a maximum of 3 watts on 832 paired cell/mobile frequencies (called pairs) assigned by the FCC in the 800-900 Mhz range. They are spaced at 30 Khz intervals throughout the band. Roughly half for use by wire-line companies, like PacBell, that operate landline telephone companies.

The remainder are for the non-wire-line companies who are service suppliers not owned by telephone companies. Depending upon the size of the market area served will decide the number of cell sites used. Not all areas of the country have cell sites and you should make sure there is service to the areas that you plan to operate in. The beauty of the cellular phone system lies in its ability to switch automatically to the strongest in-

See "Cellular" Page 4

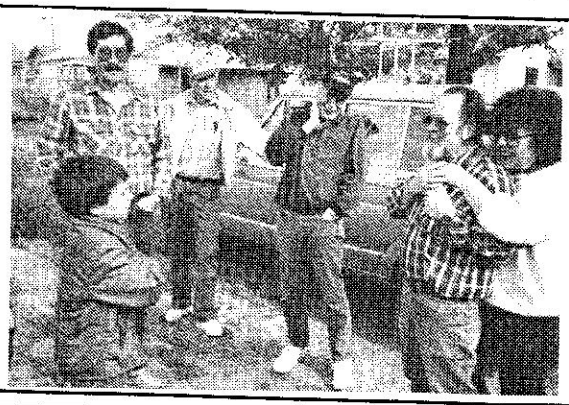
Appeals Court Deflates PRB-1

A Federal Appeals Court ruled in June that Amateur radio operators are not entitled by Federal Communications statutes to build lofty antennas.

The U.S. Court of Appeals denied a claim by Burlingame resident Vernon Howard, W6RES, a licensed Amateur radio operator, who argued that federal law guartanteed his right to build a 51-foot antenna tower in his back yard.

The three judge appeals panel also rejected Howard's contention that the city of Burlingame violated

See 'PRB-1 page 4



SARA members meet to talk after the SARA Transmitter hunt in May. From left to right, Dave Grout, N6YHZ; Fred Robbins, KK6FH, Merle Maxwell, N6YLN and Charlie, KJ6GE and his wife Jo, N6SAH. More pictures on page 8.

The READOUT is published monthly by the Stanislaus Amateur Radio Association.

***SARA* VHF Net**
Thursdays @ 8 p.m.
(Except Holidays)
2 meters 145.39 MHz WD6EJF
220 Band 224.14 MHz WD6EJF

10 Meter 28.440 kHz USB
Tuesdays at 730 pm.

Contributions to *The READOUT* are always welcome and may be submitted to the editor by mail or via packet at N6REB-BBS on 145.79 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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Modesto, CA 95355
209-523-5880

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

Silent Killer Ready To Strike

By Tim Low, N6ZUC

Bump, hit, spike, surge, transient, brown out, all names given to the general term of line disturbance. No matter what name you give it, it will be deadly to your gear.

Most assume that the power we get when we "plug in", is clean and well regulated by the power company. Most of the time it is. But no system is perfect. Sometimes things happen that are beyond human control.

An example of this might be a tree limb falling on a power line, severing it. All of the sudden, the load on the power grid is reduced. This unloading causes the voltage on the grid to rise sharply. This is what's commonly called a surge. The voltage might rise on a typical 117 volt line, to as much as 180 or 190 volts before the power company can lower the grid back to normal.

If you had a volt meter monitoring the voltage at this time, you would see the voltage instantaneously peak, followed by a slow reduction down to the nominal line voltage. This may take 15 to 30 seconds, or more. During this time your equipment is being damaged.

Another typical disturbance is the brown out. Usually this is caused when your local utility is unable to supply enough power to meet the demand of its customers. Anyone living in a hot climate will have experienced this during the summer months.

Low voltage, if stable, within reason, won't be cause for concern. Problem is, it's usually not stable, as it fluctuates with the load on the grid. Jumping up and down as air conditioners, etc., cycle on and off. This fluctuation can cause the real killer of solid state electronics--transient spikes.

Transients, are in actuality, nothing more than distortion of the AC sine wave. This distortion, can be spikes, superimposed on the 60 Hz, (cycles for all the old guys), that is used for power here in the U.S. These spikes are normally only a few millionths of a second in duration, but can reach thousands of volts.

These short duration spikes that your old "fire bottle" rig would take in stride, can wreck havoc with the newer stuff. They love to eat power supplies, motors and microprocessors (computers). Every thing we buy and plug in would have an easier life if all it was fed was pure clean power.

Can we get pure, clean power? How much money do you have? Sure it's possible, but for the average ham it's not practical. There are U.P.S. Systems, (not United Parcel Service, but uninterruptable power source), that are absolute marvels. So fast, that the slightest change in line voltage can cause it to kick in.

These computer controlled wonders convert battery power to AC power. They can fill in brown outs, knock down surges, and will filter out the spikes. Everyone should have one, and a private jet, and a vacation home in

See 'Silent Killer' page 5

SARA Minutes

By Ernie Rader, K6UVI, Secretary

The regular monthly meeting of The Stanislaus Amateur Radio Association was called to order by vice president Dave Grout, N6YHZ at 7:36 PM. President Oliver Bourns was on vacation. Introductions were made by all present.

Dave asked for a report on the fireworks stand fund raiser, but Steve, N6EKV was not present. Tommy, WJ6O said he had talked with Steve on the air and was told club profits were considerably less than last year. Dave admitted it had been difficult to fully staff the stands this year.

Treasurer's report was as follows: General Account beginning balance was $643.98, there were five credits totaling $624.42 and 11 debits totaling $1,054.52 leaving a balance of $413.88. Fund Raiser Account beginning balance was $1,242.82, there were two credits of $402.00, one debit of $600.00 leaving a balance of $1,144.82. Education Training Account beginning balance was $572.53, there was one credit of $150.14, one debit of $172.75 leaving a balance of $549.92. Next, Al, N6SAE, reported on the recent fireworks fund raising project. 1,913 tickets were sent out to be sold, 400 tickets were never purchased or returned and 10 tickets were returned with no money. This resulted in 1503 tickets being sold at $1.00 apiece, minus the $500.00 prize leaving a net profit of $1,003.00. There was an anonymous gift of $300.00 given to the club during this time to purchase new equipment. It was moved by N6SAE, seconded and approved that this generous gift be repaid.

The current membership roster was passed around and several corrections were made to it. The sign-in sheet was also passed around, however, I feel certain everyone was not given the opportunity to sign in as only 17 names appeared. Phil, WD0FFX reported that the club HF station is back in operation and that additional antennas need to be installed. He said tower climbers will be needed in the future to take care of that activity. The education classes are going well and the recent debit in the treasurers report was for additional classroom material.

Dave asked for a Repeater Committee report, but LeRoy was not present to give it.

Under old business Bob, WA6ZLO reminded those present that two meetings ago he had proposed amending the bylaws to include an additional membership classification for those living outside a 150 mile radius. The required signatures for that change had been received and the proposed amendment will be published in **The READOUT** and then voted on at the following meeting.

Under new business, Jim, KB5FB asked if anyone had considered soliciting those for payment who had not returned the 400 raffle tickets. Because of the time and effort involved at this late date, it was decided not to pursue the matter. It was moved and seconded to adjourn the meeting at 8:02 PM. Respectfully submitted, Ernie K6UVI, Secretary.

Petition For Amendment of Bylaws
June 18, 1991

Pursuant to Section VII the of the By-Laws, we the below listed members of the Stanislaus Amateur Radio Association petition the membership to amend Section IV sub-division (D) (Types of membership) to include a fifth class of membership as follows:

Section IV
D. Types of Membership:

5. Out of Area Rate: A person who is otherwise qualified for Full or Associate Membership, but resides more than 150 miles from Modesto, dues are $10.00 per year.

(Signed)

1. Ernie Rader, K6UVI
2. C. A. Pinheiro, WA6ZLO
3. Marion Zimmerman, KB6NMF
4. Fred Robbins, KK6FN
5. Ray Erickson, KC6TVC
6. Rob Carlson, KC6TFG
7. Bart Atwood Ebi, KF6AX
8. Phil Hartz, WD0FFX
9. Brad Johnson, KC6TDH
10. Tom Griswold, N6LSA

...'Cellular'

From front page

coming mobile signal and pass your call automatically from one cell to the next as a you pass from one cell area to another. The sampling technique used to do this job is so advanced that you will not know that your call is being switched electronically for best results.

Selecting a phone

The first task is to assess what your needs are and then decide what type of cellular phone to buy. It's not a simple matter of calling the phone company and asking them to hook you up. It doesn't work that way. Cellular phones are sold by scores of independent jobbers and prices can range from around $300 for a no frills model to well over $500 for one with all the bells and whistles... or should we say rings.

Chances are you will be confused with all the conflicting claims made by the various manufacturers when you realize there are hundreds of models with many features to choose from. The confusion really sets in as you try to decide which to select. To start, ask yourself..."what do I really need?" Do you need one with all the bells and whistles, or just a generic one with only the basic requirements? The loaded models of course cost more but have many additional features comparable to what you find on better solid state phones in household and business service today.

Types of phones

There are three basic phones to choose from. Transportables (usually called bag phones because they are carried around like a purse or bag on your shoulder); hand-helds and mobile's for your car. Transportables operate by plugging them into a cigarette lighter. They have their own built in antenna but, will operate better if you use an outside antenna. Hand-helds come equipped with battery pack and attached antenna. Regular mobile units are installed in your car or truck. Some major brands on the market include Motorola, Mitsubishi, DiamondTell, Novatel, Panasonic, Realistic, Audioviox, Clairon, GE, OKI and NEC just to mention a few.

After you select and purchase your phone, you must then decide on which cellular service company you want to use. The jobber that sells you the phone usually has an arrangement with such a company and can make the arrangements for you. This is necessary because the jobber needs to program a chip in the

See 'Cellular' page 7

..'PRB-1'

from front page

his free speech rights by initially denying his 1987 application to build the tower after his neighbors objected to the project.

The court ruled that Federal Communications Commission regulations entitle ham radio operators only to a fair consideration by city officials of their applications to build antennas and a reasonable effort consistent with local zoning goals to accomodate the projects.

The decision upholds the ruling of a Federal District judge in San Francisco who validated Burlingame's authority to regulate the heights of backyard antennas over 25 feet high.

-Thanks S. F. Chronicle

Talking Frog

Two young ladies were walking down the street when they encountered a talking FROG. The frog spoke to them and said, "Oh, beautiful ladies, won't one of you please kiss me so I will be transformed into a handsome Amateur radio operator?" The first lady picked up the frog and put it in her purse.

The second lady asked, "Are you gong to kiss him?" "No way" said the first lady. "I can make more money with a talking frog than a handsome ham"

(Sold as a package only)

1. Kenwood TS140S with the mobile mount
2. Astron 35M 35 amp metered power supply
3. MFJ 949D Versatuner
4. 4-1 Balun
5. MFJ mobile antenna matcher
6. Hustler resonators RM75, RM40, RM20, RM10.
7. Misc amateur radio stuff (connectors, wire etc.)

Sold as a package, all for only for $900.00

(Will sell separately)

1. Uniden BC155XL 16 channel scanner $55.00

Call Vorus Stillwell, WA6LJB, 527-3683

...'Silent Killer' *from page 2*

Mexico. You get the idea--they're expensive. So what's a ham to do?

There are all kinds of devices on the market that claim to be the answer to your problems. You've seen them, or bought them. Usually they're nothing more than glorified outlet strips. They all have one thing in common, they don't work very well.

The best way to protect your investment, is to install M.O.V.'S, (metal oxide varistor). They can be purchased at electronic supply houses. They come in different values, indicating the clamping voltage at which they work.

For instance, for your typical 117 volt application, you would want to select the 130 volt device. This allows you sufficient headroom for minor fluctuations that are of no real consequence. You need two of them, one for each leg of the line. You also should install one across the lines. The voltage from line to line is in the range of 208 to 240 volts, (verify the actual voltage by measurement). You need to select an appropriate value clamping voltage for it. A 250 volt device is about right. As far as energy rating, buy the highest value you can afford.

These M.O.V.'S are installed at the mains of your electrical system. They must be mounted with hardware to the well grounded electrical box. If you are not familiar with home electrical systems, get someone who is, or hire an electrician to install them. Always keep safety in mind when working with electricity.

The M.O.V. is a plastic cased, flat, round device, with metal tabs for mounting to your grounded box, and metal tabs to connect a wire (#10 gauge minimum), from the device to the power lines. All connections must be solid. The device must be mounted firmly to the box with a good electrical connection. This means scraping away some paint so you have a good metal to metal contact.

Now the bad news. As my old electronics instructor used to say, "there's always a tradeoff, nothin's free". Every time the device does its job, it dies a little. How much depends on how hard it's hit. You will have to plan on changing them every couple years or so.

My first experience with the M.O.V. and what it can do, was at a radio station on the north coast. A drunk driver ran into a pole carrying the main power transmission lines, knocking it down. When the lines hit the ground, (hot), the voltage must have hit unbelievable levels. The only damage? Every M.O.V. in the place, connecting wire, and one power strip, were burnt and blown apart. The TV station next door didn't do as well. They didn't have protection. From my nice cozy warm bed that night, I felt bad about those TV engineers working the night away. I felt bad, I did... really!

While we go about the task of conditioning our power lines, there is another device you might want to consider, a power line filter. It will keep the RF developed in your shack from getting into your home electrical system. Keeping it from feeding back into your rigs power supply. This device also needs to mount firmly to a good solid ground, such as that I outlined in the June issue of ***The READOUT***.

Install a metal utility box in your shack. Mount the filters in this box and bring all your shacks electrical service through it. The filter connects directly in line with the wire. Mount outlets to this box, and you have well filtered outlet strip. Some additional M.O.V.'s at this point wouldn't hurt either, preventing spikes generated in the home from reaching your shack.

Power line filters, such as made by Corcom, can be purchased at most electrical supply stores. The Corcom general purpose RFI filter will operate at 20 amps and take a six times overload for up to eight seconds. It is for 120/250 volt use. You need one of these devices for each line you bring into your shack. Prices for these filters are in the 20 to 30 dollar range.

I mentioned last month also about lightning strikes to your antenna system. A real good idea also, is to invest in one of the gas discharge lightning suppressors now on the market. The specs are excellent, and your rig won't even know it's on there. It plugs directly in line with the coax and then must be properly bonded to the ground system. (See June's *The* ***READOUT*** for information on ground systems.) I plan on installing one on all my antennas. They are very reasonably priced.

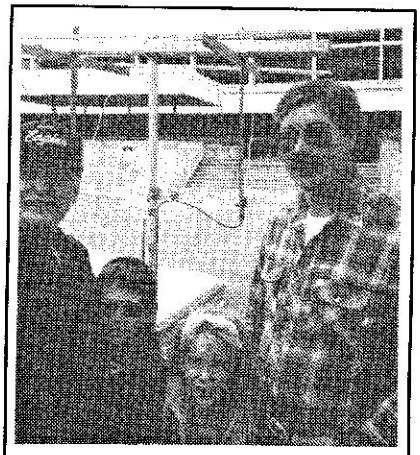
Again, as I said before, nothing is going to protect you from a direct hit. But, it will discharge static build-up and protect your from nearby hits. As always, if you need some clarification, or have any questions concerning this or other technical topics, I would be glad to help you find the answer.

You may write to me in care of the club's post office box.

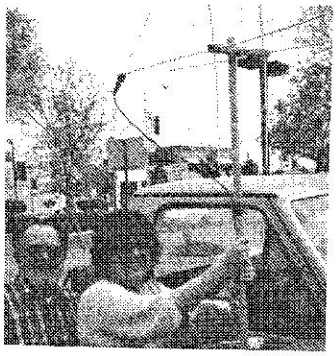
73, Tim

SARA Transmitter Hunt

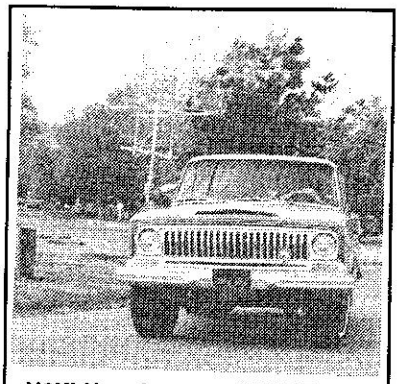
May 20, 1991



L-R Merle, N6YLN, & Dave, N6YHZ & Dave's children.

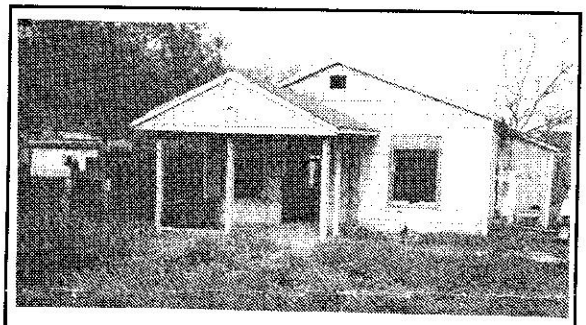


Charle, KJ6GE and wife Jo, N6SAH and their minature quad ready for the hunt



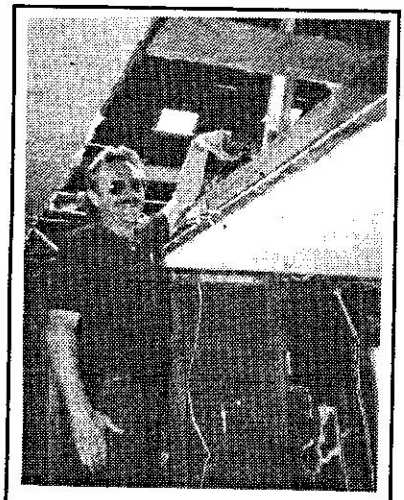
N6YLN and partner N6YHZ start the search with cublical quad mounted on rearview mirror.

Bob, WA6ZLO, with two element portable vertical antenna and talkie.

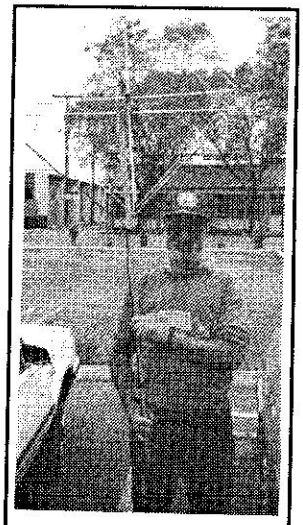


The scene of the crime. The transmitter was hidden in the attic of this abandoned hour on Wheatley Ave in West Modesto.

Fred Robbins, KK6FH peers through opening in fence zeroing in on the hidden transmitter.



Jim, N6KMR, shows where he hid the transmitter in the abandon house on Wheatley Ave.



Phil, WDØFFQ with his cubical quad ready for the hunt.

L-R Winners Phil, WDØFFX and his partner Judy, KC6MEI, receive the cash money prize from Dave, KJ6DL, for finding the transmitter first.

....Celluar *From page 4*

phone with the number that is assigned by the cell carrier. Also, the jobber provides the carrier with the identification number of the phone which is also burned into a chip at the time of it's manufacture. They are called ESN's for electronic serial numbers. This number is permanently assigned to the phone.

Additionally, If the phone is ever stolen, you can notify your carrier and they will notify a national data base maintained by the Cellular telephone industry which will list the phone as stolen. Stolen phones are quickly locked out of all systems because of this system.

Monthly charges

Cellular calls are not cheap. There are different rates depending on the time of the day. Of course, commute hours in the morning and evening are the most expensive. Late night and weekend calls are cheaper. It's hard to give you an example of what to expect, but, if you're careful and keep you calls down and during none peak rate hours, you can get by for around $40 to $50 a month. Otherwise the sky is the limit.

Also, keep in mind when you travel outside your our cell area, there are additional charges tacked on for what is called "roamer" fees. And, keep in mind that calls made to your cell phones will be charged to your bill. All the fees will add up and you must be cognizant of them.

So, now you must decide. If you need it for business, then it's well worth the expense. If you want it for convenience, the thickness of your wallet will decide whether or not you can afford it. Good Luck!

Phone Patch Rules

The ability to interconnect our equipment with public telephone systems is a great privilege we as Radio Amateurs in the United States enjoy. The public interest has been well served by Amateurs with such facilities, however, it is a privilege that is often abused. The Amateur radio service is not a common carrier and its primary purpose is not the handling of and routing messages on behalf of non-amateurs.

However, third-party communications as an incidental part of Amateur radio adds an important dimension to our public service capabilities. We must remember that International phone patches are only permitted where there are third-party agreements in place with the governments of those foreign governments.

Phone patches or autopatches involving the **BUSINESS** affairs of any party are prohibited. Particular caution must be exercised in calling any business telephones. Calls placed to order a commercial product or to ascertain its availability is prohibited as are calls to one's office to leave or receive business related messages. Patches should be kept as brief as possible, as a courtesy to other Amateurs.

It is sometimes confusing, especially to new members, as to what is permitted and what is not. Autopatches and phone patches in general, have long been a source of irritation to the FCC because of violations of the rules, specifically as they apply to forbidden business communications. The list below represents excerpts from a letter written by the FCC in reply to a letter received inquiring about third party traffic and business calls.

The FCC answered the following questions as YES or NO!

1. *Can you use an autopatch to secure a grocery list for home needs?* **YES!**

2. *Can you use an autopatch to secure a personal appointment?* **YES!** *(Qualified as being yes only so long as the appointment is with a spouse or friends and not of a business nature, i.e making a dentist appointment would be prohibited.*

3. *May the autopatch be used to report an emergency such as a fire or accident?* **YES!**

4. *May other criminal, civil, or traffic offenses, (i.e. robberies, fights, drunk drivers, etc.) be reported?* **YES!**

5. *Assuming that a telephone line is tied up (party lines, etc.) can the Autopatch be used to contact a plumber or electrician in case of a plumbing or electrical EMERGENCY?* **YES!**

6. *Can you use the autopatch to help benevolent, non-profit organizations such as the Lions Clubs, Heart Fund, Boy Scouts, etc.?* **YES!**

7. *Can the autopatch be*

See "Rules" page 8

Cable TV Interference

Most interference problems involving cable television systems can be easily solved by installing a choke on the cable line as close as possible to the point where the cable connects to your television sent.

Most Amateur TVI cases involving cable TV systems is caused by RF energy entering the system on the drop cable's shield (braid) which acts as a random-wire antenna for MF and HF signals. The drop cable is the cable between your house and the pole.

In most cases the TVI can be completely eliminated or at least substantially reduced by wrapping 8 to 10 turns of the cable through an old TV-deflection-yoke ferrite core. Wrap the cable turns as close to the TV input as possible and not more that 2 or 3 feet away from the input terminals.

The average deflection yoke is around 60 to 80 micorhenries of inductance and when placed in series with the drop cable shield the inductance acts as a broad-band choke because of the low distributed capacity of the winding.

The choke will not affect the RF signal in the cable and this method does not break the cable shield. If this does not do the trick, the next logical culprit is the power cord (AC) going to the television set. Use the same procedure here with deflection yokes or ferrite cores.

If you have your own antenna system, and are using 300 ohms twinlead you can't use the deflection yoke. You must use ferrite beads. However, don't put one on each lead, that will kill the TV signal. Instead, you must rout the twinlead though one ferrite bead.

This method allows the TV signal to pass through but the RF interference is suppressed by the ferrite bead. This is because the twinlead is a transmission line to the TV signal but looks like a single wire to the RF interference.

Next SARA Meeting

August 20, 1991
730 pm
Stanislaus County Administration Bldg.
11th and I Streets
Downtown Modesto, CA.
Lower Level Conference Room

Thank You

Many of you noticed the appearence of the June newsletter was sharp and crisp. Thanks to Tim, WB6UJD, we were able to run the proofs off on his laser printer which resulted in the professional looking newsletter. Tim has offered (and we quickly accepted) to run the proofs off each month so we will be able to continue producing a sharp looking newsletter. Thanks again Tim.

'Rules' *From Page 7*

used to call in an order to a cafe or pizza shop? **NO!**

8. *Can the autopatch be used to call an electronics store to inquire about electronic needs for an Amateur station?* **NO!**

9. *Can an autopatch be used to relay scores and descriptions of plays at a sporting event?* **NO!**

10. *Can the autopatch be used to make airline, bus or train reservations?* **NO!**

11. *Can the autopatch be used to cancel an appointment with a dentist, doctor or attorney? (Personal appointment)* ***NO!***

12. *Can the autopatch be used to contact a licensed health care provider in an emergency?* **NO!**

13. *Can you use the autopatch to call a tow truck for yourself or someone that broken down along the road?*

NO! *(Qualified to non-emergency situation). It's OK if its an emergency i.e. removal from a hazardous location such as in the roadway.*

14. *Can an autopatch be used to call the weather station for a weather report.* **YES!** *(Qualified for use by the Amateur only and not to be rebroadcast for the general public. Remember patches can not be used for broadcasting.*

15. Can an autopatch be used to call the golf course and reserve a green for a round of golf. **NO!**

Please remember when calling 911 you will reach the Stanislaus County Communication Center in Modesto. If you are reporting an accident or traffic related problem, ask for the "CHP". The dispatcher will transfer you by speed call to the CHP dispatcher that is located in Stockton.

Editor's Notes

By Bob Pinheiro, WA6ZLO

Congratulations to Dave, KJ6DL and Judy, KC6MEI, who tied the knot earlier this month. Congratulation to Cal Purviance, K6BII, who has been appointed to the 1991 Stanislaus County Grand Jury.

• James Haas, WT8Q, of Athens, Ohio, has pleaded guilty in U.S. District Court in Alexandria, Virginia to felony charges that he transmitted false distress calls over a Virginia county police radio frequency after using an unauthorized credit card to purchase the radio equipment.

The FCC, FBI and local Virginia police used electronic tracking equipment to locate the source of the calls. Haas had purchased the radio equipment in Vienna, Virginia just the day before. Officials were initially led to Haas when a phone call related to false-emergency transmissions over police radio frequencies throughout Kentucky and Ohio was traced to Haas's home.

The FBI was trailing Haas on the evening of April 5th when the simulated officer-in-distress call was made. Haas was in the Washington, DC area to attend the Greater Baltimore Hamboree and Computer Fest. He was arrested in his van in Sterling, Virginia, while still transmitting with a hand-held. A cassette tape marked "siren" containing various emergency vehicle sounds was confiscated from his vehicle. FBI agents also found a list of local police and fire department frequencies.

Under a negotiated plea bargain arrangement, Haas cannot be charged in any similar incidents that took place in Virginia's eastern district. The U.S. Attorney's office did say, however, that Haas made a similar call a yea ago claiming he was an officer under fire during a highway chase. At that time, fourteen state and local law enforcement agencies searched for an officer that thought was critically wounded in the line of duty after Haas allegedly transmitted message over the police radio system. He ended the broadcast by saying, "I'm down." The transmissions sounded very authentic and may have been enhanced with sound effects.

Haas, 39, an Ohio high school teacher, ham club advisor and volunteer examiner, is still under investigation for placing other false distress calls in Ohio and Kentucky. He also faces revocation of his Extra Class operator license and a maximum of 15 years in prison and a $500,000 fine.

• Coming soon are a wave of new computer "appliance" outlets called super-stores that will sell the best selling PC's at rock-bottom prices. The Computer Superstore Bandwagon is indeed off and running. The concept will help name brands- especially Apple, IBM and Compaq who are losing market share to the clones- to increase their sales and distribution.

CompUSA, BizMart and Compute City already have big expansion plans. Dallas-based Soft Warehouse recently changed its name to CompUSA. They will soon be nationwide. CompUSA has already signed up Apple and IBM is next. Traditional computer re-sellers aren't happy that the big names are going the discount route. The say they won't be able to compete. Not to be outdone, Tandy (Radio Shack) has announced that they too will open a chain of Computer City SuperCenters that will offer the four best selling personal computers: IBM, Apple, Compaq and Tandy...as well as other name-brand computers.

Speaking of computers, prices of CD-ROM drives are dropping fast. The average price has been in the $700 class, but Tandy now has a new $399.95 CD-ROM drive. They can store unbelievable amounts of data (to 1,000 MB), but access time is slow; about 400 to 800 milliseconds.

• If you are waiting for new or upgraded licenses from the FCC, the turnaround time is about 7 to 9 weeks.

Amateur Radio call signs issued as of June 1, 1991: EXTRA-AB6DC. ADVANCED-KM6BX GENERAL-TECHNICIAN & NOVICE KC6VVV.

• If you are looking for an excuse to go to Reno, here it is. The Reno Hamfest will be held August 3, 1991. The Foothill Flea Market is held the 2nd Saturday of each month March through September at Foothill College in Los Altos, CA.

• It appears the new codeless Technician license is a success. The first such license was issued on March 12, 1991 and since then the number of new Tech's has skyrocketed by more than ten times the previous monthly average. That's it for this month. 73, Bob

Six Meters

The Band Amateurs Are Afraid To Operate On

By Ike Kerschner, N3IK

Now that SARA has a six-meter repeater, this would be a good time to talk a bit about the band and hopefully put to rest the persistent feeling that six-meter is almost useless because of it potential to tear-up (RFI) TV channel 2. The six meter band is 4 Mhz wide from 50.0 to 54.0 MHz. 50.0 to 50.100 MHz is set aside for CW only and the rest is designated for CW, RTTY, data, MCW, test, phone and image.

Any discussion on the subject of radio frequency interference (RFI) should be prefaced with the clear understanding that all cases of RFI involve two things: the *source* of the interference and the victim of the interference. For a complete RFI cure, the interference must be suppressed at the source, and the victim (the receiver or stereo equipment, or whatever) should be protected, or modified, in such a way as to reject interference.

Ike Kerschner, N3IK, puts six meters into perspective with this article that appeared in Monitoring Times in June 1991. Ike writes that six meters has been given some pretty bad press over the years, due mainly to the old channel two TVI problem that plagued six meter operators. For many years it was difficult to operated this band in an area where TV channel two was active, due to the proximity of six meters to that particular TV channel. Fundamental overload was the greatest problem, especially in the fringe areas!

Even in those days of yore it was not possible to cure the problem, but it sure was tough! Today cable TV makes the problem pretty much a thing of the past.

On VHF we run into a problem called "Shadow Effect." This is due, as the name implies, to a blocking of the signal by hills or buildings; As we go higher in frequency, cars and trucks as well as individual trees and wires also will interfere. As you can imagine this can be a very annoying problem at some frequencies.

Six meters is the least affected VHF band by this condition, making it a good band for long range (30 + miles) simplex operation.

Under normal conditions two base stations running low power (5-25 watts) can expect good reliable communications cover a range of fifty miles or so with simple antennas. Going to a decent Yagi or quad antenna of three elements or more will increase that reliable range up to two hundred miles (assuming stations do not have a major mountain between them, of course).

When conditions are good (that is, when sunspot numbers are high), communication with stations half-way around the earth is easily possible to an average station (ten to one hundred watts and a beam antenna of at least three elements operating on SSB). Even during periods of low sunspot numbers there will be frequent openings on six meters of over 1500 miles due to a variety of propagation conditions such as sporadic E. Consequently, six meters is a very interesting band, and one that has largely been ignored by the Amateur community due to largely undeserved bad press.

Most gear on six meters will run less than one hundred watts, though thee are as always higher power stations (they do indeed to better). Commercial gear for SSB, CW and AM is manufactured by ICOM, Kenwood and Yaesu. All work well, and it is only a matter of deciding which you want. Most of the rigs are also capable of FM operation, which is very popular on six. Prices are fairly high averaging somewhere in the thousand dollar neighborhood.

It is of course possible to purchase used gear at a ham fest, or to build your own gear from scratch. For the most part home built gear is usually CW or AM. However, it's not beyond the expertise to the average Amateur to build a SSB station if he is willing to invest the time and money.

As far as I know, there is no manufacturer building strictly FM rigs for six meters. If FM be your main choice, this I suggest calling your local two way radio service center and asking to purchase used commercial equipment. Many service stations will sell gear as is or repair it and place it on frequency for you.

Of course, if you choose the ready-to-go option it is going to cost a few bucks ($200 up). If you can obtain a unit in good condition that was working when taken out of service, it is normally only a matter of putting it on frequency and aligning it. Get a service manual before your buy, though, to see what you are getting into.

If you lack experience in the field, have a friend who knows what is going on help you get it going. Most commercial rigs will put out 50 to 100 watts and will be of excellent quality. I suggest you avoid General Electric gear built in the 50's and

See "Six Meters' page 11

...'Six Meters' *from page 10*

60's and labeled TPL: they are a nightmare of cables that are difficult to keep in repair.

Most stations run four element Yagi or quad antennas on CW, SSB, or AM; on FM simple quarterwave ground planes or J poles are very popular and do an excellent job. A six meter quarterwave antenna is only 5 feet long (halfwave is 10 feet, or about the size of a TV channel 2 antenna). It's relatively easy to get a good antenna up for this band, and an inexpensive TV rotor will easily turn up to a five element Yagi.

Amateurs are allowed to run all transmission modes on six meters that are legal on the lower bands. The most popular modes are SSB, FM, Packet, AM and CW. There are some RTTY stations on the band, but only a small number, and while I have never heard nor see any, I understand some stations are on SSTV too.

So, come on all you new Techs, get on six meters and join the fun.

--Thanks 'Monitoring Times' for this story from their June 1991 issue.

SARA Fund Raiser Successful

Karen Rabelos Lucky Winner

A one dollar ticket paid off handsomely for Mrs. Karen Rabelos of Waterford who won the SARA fund raising raffle on June 30, 1991. The winning ticket was number 101656 and was sold to her by her husband, Thomas, KC6VWN, a new member of our club.

The drawing for the winner was held at our President's home. The ticket was pulled from the barrel by Mrs. Lucille Borns, (our President's wife) and was witnessed by KJ6DL, N6SAE, KJ6DL and KC6MEI. Mrs. Rabelos opted to take the $500 cash instead of the television set. Congratulations to Mrs. Rabelos.

Our treasurer, Al, N6SAE, sold more tickets than anyone else. Here's the honor roll:

1. ***N6SAE, Al 130***
2. ***KJ6YZ, Oliver 80***
3. ***KA6CXR,Ed 70***
4. ***NV6S, LeRoy 60***
5. ***N6YHZ,David 60***
6. ***KC6TFE,Tim 60***
7. ***KC6VWN, Thomas .. 40***
8. ***KB5FB, Jim 34***
9. ***KC6TVE, Robert 30***
10. ***WBØZZR, Barbara .. 30***
11. ***WA6KOI, Tony 30***
12. ***N6XMA, Ed 20***
13. ***KC6VWO, Bill 20***
14. ***KC6QMU, Nick 20***
15. ***KC6TBK, Sandy 20***
16. ***N6LSA,Tom 20***

The final figures on how much we made can be found in the *SARA* minutes on page 3. Thanks to all of you, especially the honor roll, for helping to make this another successful fund raiser.

What to do if you are accused of causing RFI

1) Check your log. Were you operating at that time? (A station log, although no longer required by the FCC, is very useful in interference situations.

2) Check your nonamateur equipment. If your are not interfering with your own TV set, chances are the problem lies with your neighbor's receiver and not your transmitter.

3) Solicit the cooperation of your neighbor in testing to determine the exact cause of the interference.

4) Check with your local radio club for a TVI committee or other assistance.

5) Request RFI assistance from the manufacture of the home-entertainment device.

6) Purchase a copy of 'Radio Frequency Interference' booklet published by the ARRL. ($5.00)

7) If the fault is in your transmitting equipment, refer to the RFI booklet mentioned and the equipment manufacturer or other technical assistance for advice.

8) Be prompt, courteous and helpful; Amateur radio's reputation is at stake, as well as your own.

9) For further assistance, contact your ARRL Section Manager (SM) list on page 8 of QST magazine.

-Source, Radio Frequency Interference booklet, published by the American Radio Relay League.

SARA RFI Committee

Dan Cron, W6SBE..... 521-2032
LeRoy Campbell, NV6S..523-4727

Calendar

Aug. 20, 1991	SARA Monthly Meeting	.730 pm
Sept. 7, 1991	SARA Monthly Meeting	.730 pm
Nov. 16, 1991	VE Testing in Sonora	.900 am
Nov. 19, 1991	SARA Monthly Meeting	.730 pm
Dec.7,1991	VE Testing in Modesto	.900 am
Dec. 17, 1991	SARA Monthly Meeting	.730 pm

SARA meets the third Tuesday of each month (except holidays) at the Stanislaus County Administration Building at 12th and H Streets in downtown Modesto. The meetings are held in the lower-level conference room starting at 730 pm. Visitors and interested parties are most welcome.

SARA is an ARRL Affiliated Club and is affiliated with Stanislaus County and the City of Modesto RACES.

The club owns and operates three FM repeaters using the club station call of WD6EJF. Frequencies are 145.39 MHz, 224.14 MHz & 440.225 MHz. The club's digipeater, WD6EJF-1, operates on 145.79 MHz. All repeaters and the digipeater are located on Mt. Oso, 18 miles SW of Modesto at an elevation of 3400 feet in the Coast Range mountains. *SARA* conducts informational nets each Thursday evening at 8 pm on the 2M and 220 repeaters.

Stanislaus Amateur Radio Association, Inc.
P.O . Box 4601
Modesto, CA. 95352

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The Next SARA Meeting is August 20, 1991 at 730 pm & You're Invited!