

----- HANK'S SWAP SHOP

Hank Davis, W6DTV 7822 Washington Ave. Sebastopol, CA 95472 Phone 823-7885 (Noncommercial ham ads are printed for free)

REALISTIC PRO 2005 scanner \$225. Steve N6RYA 823-5882.

YAESU FT-DX560 HF 160/10 tube xcvr \$125. HALLICRAFTERS S-108 BC/ham tube rx \$75. JOHNSON MATCHBOX with coupler, 275W, new in box \$150. Grant NH6GP 431-7706.

HEATHKIT keyer with built-in paddles \$25. MFJ 941 antenna tuner 80-10M with enhancements. Reed N6ZME 829-1001.

WANT: 200-R, an old receiving tube with a 4pin base. Jim WA2EWE 573-0277.

AMP SUPPLY LK450 RF amp, 1000W, 3.5-29 MHz, \$400. Joe K6UKB 526-7731.

GALAXY MARK 3 HF tube xcvr 80/10, pwr, spkr, phone patch, CW filter, wattmeter, extra tubes, man \$300. Steve KD6FYK 869-2257.

MFJ 941D antenna tuner 300W \$60. Ren AA6UY 984-8320.

SWAN MOBILE SWR METER, \$20.00. John W6CCY 823-1357

WANT: YEASU FV901R and Y0901 scope. Don KD6HQ 546-1217.

> Jim Pelmulder N6PTM

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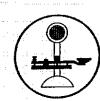
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JUNE 1992

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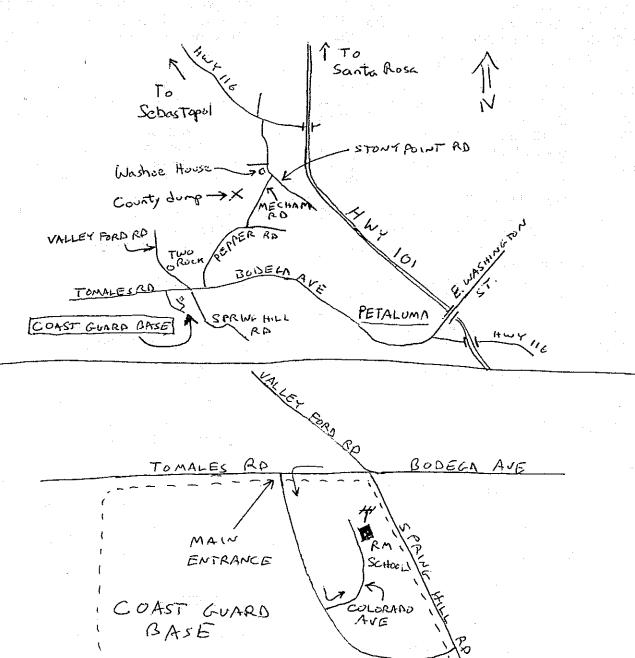
Sonoma County Radio Amateurs, Inc. Club Station

W6LFJ

P.O. Box 116 Santa Rosa, CA 95402 Repeater Station

WB6PVS VOL 17 #6

Map to the Field Day Site:



	OFFICERS FOR 19	92	
		N6VUC	584-3898
VICE PRESIDENT:		K6ZWB	542-6907
SECRETARY:	Alan Bloom	N1AL	538-7115
TREASURER:	John Gauger	KK6XT	829-2599
MEMBERS-AT-LARGE:	Bill Splaine	N6GHG	431-8636
		KC6WTE	575-9119
REPEATER CHAIRMAN:		WB6PER	526-2972
ACTIVITIES CHR:	Jim Pelmulder	N6PTM	823-7947
	SHORT SKIP STAFF: -		
EDITOR:	Alan Bloom		538-7115
1578 Los Alamos Rd	, Santa Rosa, CA 95	409 (d)	577-3981
CIRCULATION MGR:	Bill Splaine	N6GHG	
SWAP SHOP:	Hank Davis	W6DTV	823-7885

ARRL Liaison: Alan Bloom N1AL 538-7115 Ast. Director: Chuck Sabin N6DDK 795-2371 Badge Chair: Jim Pelmulder N6PTM 823-7947

Activities Committee:

Pub. Service: Kathy Mahan KC6UXJ823-4980 and Don KD6HQ and Rick N6RXA

Bill Splaine N6GHG 833-1873 QSL Mgr: N1AL 538-7115 TVI/RFI: Al Bloom WA8LLY 823-4544 Steve Lund Awards: Steve Lund WA8LLY 823-4544 **VEC Exams:**

N1AL WN6D W6DTV WB6FRZ N6OLD AA6RD K6UXO AA6YX

Education: John Breckenridge WB6FRZ 838-6398 N1AL KC6RHA KC6RHB KC7VS

KK6VY KF6WV K6XZ K6ZWB Refreshmnts at meetings: Bob Olsten WD6DPE

Shelly Sourek KD6AFZ Greeter at Meetings: Raffle at meetings: Membership lottery:

Phil Richardson WA6SEU Walt Burandt KC6RHB Gary Gouger KC6WTE

Club Flyer: Field Day:

Jim Pelmulder N6PTM

Repeater Control Op's:

WB6PER Jim 526-2972 N6PTM Jim 823-7947 WD6CKP Hoppy542-6750 N6VUC Merl 584-3898

SHORT SKIP ADVERTISING RATES:

Business cards: \$10

\$11 First 1/4 Column \$3 Additional 1/4 Columns (\$32 Full Page, 1 side)

Pre-printed inserts: \$32/sheet

Guaranteed circulation: 200/month AD DEADLINE: 10th of previous month

ARE YOU NOT AN SCRA MEMBER?

If so, then this is a complimentary copy. Our club is involved with almost every area of Amateur Radio: Repeaters (13/73), Field Day, license classes (Novice through Extra), volunteer exams, RACES, DX programs, packet radio, hidden xmtr hunts -- you name it.

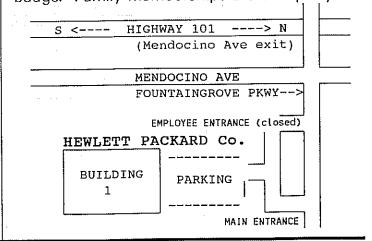
We invite you to attend our next monthly meeting (see below)or check into the Tuesday night SCARS net on the 146.13/73 repeater at 7PM. You will hear the latest Amateur Radio Newsline broadcasts, announcements of SCRA activities and a Swap Shop. If you would like to join SCRA, please refer to the dues listed below. Hope we can have an "eyeball" QSO with you at the next meeting! 73 ...

Club Meetings:

7:30 PM, 1st Wednesday each month at the Hewlett Packard plant in Santa Rosa. Anyone interested in Amateur Radio is welcome.

NEXT MEETING: June 3, 1992 Program: Field Day 1992

DUES: \$12 per year, plus a one-time \$4.00 initiation fee. Dues are pro-rated \$1/month for new members who get an SCRA call/name badge. Family memberships are \$18 per year.



SUNNYVALE, CA 94086

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Bob Ferrero W6RJ President/Owner

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George, KDØRW, Mgr.

Earl, KE70A, Mgr

ATLANTA, GA 30340 6071 Buford Highway (404) 263-0700 (800) 444-7927 Mark, KJ4VO, Mor Doraville, 1 mi

WOODBRIDGE, VA 22191 14803 Build America Dr. (703) 643-1063 (800) 444-4799 Curtis, W84KZL, Mgr Exit 54, 1-95, South to US 1

SALEM, NH 03079 224 N. Broadway (603) 898-3750 18001 444 0047 Jim, K3010, Mgr. Exit 1, 1-93: 28 mi. No. of Bosto

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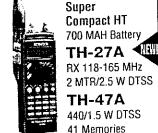
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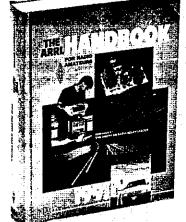
GOODIES FOR THE RADIO AMATEUR:

RAMSEY KITS:

- 2 Meter Synthesized FM Transceiver
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- All-mode HF receivers
- QRP CW Transmitters
- Etc...

ARRL BOOKS:

- ARRL Handbook
- License Manuals
- Antenna Books
- Etc...



POPULAR BRANDS:

- MFJ
- Ameco
- Larsen
- Antenna Specialists
- Sangean
- Etc...

NECESSITIES:

- Code keys
- Wire Antennas
- Surplus Electronics
- Tools, parts, Etc...

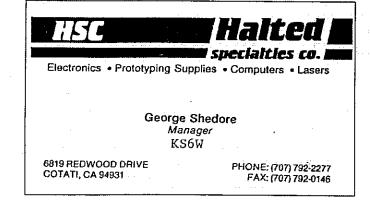
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We're Organized!

As everybody should know by now, Field Day is the weekend of June 27/28. The site: the Radioman School at the Two Rock Coast Guard base (talk-in on 146.73). We will have a picnic dinner Saturday night at 5 PM for all SCRA members and guests. Price is \$6 for steak, salad, chili w/beans, french bread and beverages. Even if you don't care to operate, come out and see what everyone is up to and soak up some followship.

We plan 7 transmitters this year: 2 CW, 2 phone, 1 packet, and 2 novice (CW and phone). We held a Field Day planning meeting on May 21 to decide on antennas and equipment. We still need a couple RV's or trailers to use for operating positions. (Tents get mighty cold at night out near the coast.) See N6PTM if you can help.

The club will sponsor a breakfast for operators and helpers on Sunday morning. We'll have ham, scrambled eggs, hot rolls and coffee.

TO SIGN UP:

If you would like to operate, or help out in other ways, here are the people to contact:

KK6XT will be CW manager, N6PTM phone manager, WB6FRZ Novice manager, and K6ZWB/N6VUC site managers. KC6PJW will handle the packet station and bonus points (solar power contacts, traffic handling, etc.) KK6WN, KK6VY and KC6UXM will prepare the food. KC6WTE is the Public Relations manager, and K6ZWB and N6VUC will head the setup/takedown committee.

CONDUCT ON THE BASE:

The Coast Guard was kind enough to allow us use of their facilities, subject to the following rules:

We may start setting up at 1600 Friday June 26, and should be out by 1400 Sunday June 28. We are not to extend any antennas or other equipment, park any vehicles, or allow people to enter the areas beyond the maintained grounds surrounding the building. Other than for operating positions, park only on the paved parking areas. Allow room for emergency vehicles to pass.

Strictly obey all posted speed limits. As a military facility, vehicles are subject to search at any time. At night, we must use the main gate on Tomales Rd. We are authorized to use the Mini-Mart and Deli on the base. Our Coast Guard liason is Lt. John Zantek WX3K.

We must protect the following Coast Guard frequencies from interference (MHz): 7.375*, 9.076, 11.0295*, 46.120, 46.280, 151.460, 154.025, 154.175, 154.280, 154.310, 155.100, 155.355, 155.835, 162.225, 164.300, 165.337, 175.237, 10525.0.

We should avoid the following frequencies to prevent harmonics falling on the above starred (*) channels: 3.688 and 3.677 MHz. This should not be a problem for the main CW stations as there is little contest activity above 3650 kHz. I suggest the Novice operators stay in the top half of the 80 meter novice band (above 3700 kHz).

International Marconi Day

By John Wallack W6TLK

W6TLK/IMD represented the Marshall Calif. Marconi receiving station for International Marconi Day, April 25, 1992. W6TLK/IMD was one of twenty stations throughout the world taking part in this special event.

1913 Marshall Station History

The Marshall station was built by the Marconi Wireless Company in 1913 to establish communications between the west coast and the Hawaiian Islands. Service began on September 24, 1913 with callsign KET. This made instant communications possible between California and Hawaii, as well as Japan, Europe and South America. The associated transmitter was located in Bolinas, Calif. The station used spark gap transmitters and an antenna six miles long!

In 1917 the Marshall station was taken over by the U.S. Navy and given callsign NWO. After World War I, the station was returned to the Marconi Company and again became KET. The Marconi Company was sold to RCA on March 27, 1920. The Marshall station peovided ship-to-shore communications covering the Pacific ocean which made ocean travel much safer. Under RCA, the marine service maintained the Marshall staion until 1939.

SCRAPS: SCRA Public Service

By Kathy Mahan KC6UXJ

Fast and Furious

were key words for Public Service events in April. With only 3 days notice, SCRA members came to the rescue for two unscheduled events on April 25, the Special Olympics and the March of Dimes Walk America.

Many thanks to those people who were so willing to volunteer at the last minute for the Sonoma County Special Olympics held at the Santa Rosa Junior College: Connie N6FYV, Nadine KC6WUI, Don N6DPE (hope we didn't get you up too early, Don) and Jack N6UYB. Directly across the field from the Special Olympics, approximately 400 people participated in a 10-mile walk for the March of Dimes. The hams who came to the rescue for this event were: Hank W6DTV, Sarah N6FAX, Ken N6GXI, Georgia N6GZU, Kelly KD6CJQ, James KD6GSF (who will be a pro at the age of 9), Wike KD6FBN and Kathy KC6UXJ.

"100 Bottles of Wine" ???

The SCRA hams are just having too much fun, because on may 2nd, 21 more people volunteered to help with communications for the annual "Wine Country Century." Due to the heat and length of the event, it kept everyone busy from 6:30 AM to 6 PM.

Many thanks to the following people and especially to those who worked more than their scheduled time: R. L. Caron KK6GP, Marie KI6QY, Bob N6RMW, Betty AG6C, Phil N6OOA, Bill N6GHG, Georgia N6GZU, Frank N6LAJ, Phil N6KZS, Hoppy WD6CKP, Doug KC6RHA, Clarence W6IZR, Cal KI6NY, Judy KD6GSY, Ken N6GXI, Gary KC6WTE, Rudy N6KLU, Wilbur N6MGY, Rick N6RXA and Kathy KC6UXJ. Special thanks to Richard KC6RDH for working the entire event.

On the same day as the Wine Country Century, another fellow ham was helping out at Two Rock with the Marin Radio Amateur Club for the American Diabetes Assn. bike ride. Thanks to Bill KD6IJU.

UPCOMING EVENTS:

June 7 Vineman Int'l Mineature

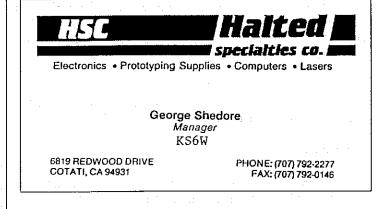
June 13 American endurance (equestrian) ride

June 14 Coddingtown Lions Biathalon

June 20 The famous "Terrible Two"

If you are interested in volunteering for any of these events, please contact Kathy KC6UXJ at 823-4980 (eves) or 433-2758 (days).

Public Service is an excellent vehicle for you new hams to meet other radio amaterus, enhance your communication skills, and share in the fun.



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STEVE BASHAM Manager (707) 527-6000 (800) 675-7557 than I am, which means I have to tell him the callsign. I can keep my concentration much better doing everything myself.

- Please write legibly. Any contacts we can't make out must be deleted.
- Use pen only. Pencils get dull and smudge.
- Don't write over letters. If you make a mistake, cross it out and start over.
- Keep a "dupe sheet". Illegible Callsigns in the log are often legible on the dupe sheet.

Don't forget to sign the log and indicate which contacts are yours. This is an FCC requirement, and helps us know whom to give credit to in the *Short Skip* article.

DUPE SHEETS:

SHORT SKIP

The duplicate-QSO check-sheet is a list of all callsigns worked on that band, arranged in order so you can quickly see if a station has already been worked. The sheet is divided into 11 sections, one for each US call area and DX. Each section is divided into 26 blocks, one for each letter of the alphabet. Callsigns are sorted by SUFFIX, not prefix. For example, "N1AL" goes in the "1" section, "A" block (not the "N" block). Enter COMPLETE CALLSIGNS, not just the suffixes. Don't try to sort calls into alphabetical order within blocks—just write 'em down as they come.

Last year, there was one section of the 20 meter log where the operator did not use the dupe sheet. Of 57 QSO's, 14 couldn't be counted because they were duplicates or illegible. This also caused at least 4 later duplicates by another operator. 57 QSO's in 2 hours, 20 minutes would have been a fair rate, but 39 QSO's doesn't look as good.

1992 FIELD DAY:

Field Day is at the Two Rock Coast Guard base (see map). Antenna set-up is Friday afternoon/evening (June 26) starting at 4 PM. The operating period is from 11 AM Saturday June 27 to 11 AM Sunday June 28. Come to the June club meeting for more details.

We plan to have two Novice/Technician stations again this year; everybody who wants to operate should have the opportunity. Don't be intimidated if you are new at this — everybody once had to do it for the first time, and mistakes are not grounds for capital punishment! CQ FD CQ FD ... •

Portion of a dupe sheet:

EXCHANGE = "W6LFJ 5A S									
	1A	1B	1C	1D	1E	1F			
	W1AW								
	NIAL	٠.							
1	WA1ABC	·							
1									
	2A	2B	2C	2D	2E	2F			
			WB2CDE	-nininn					
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			KC2CAA						
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Portion of a log sheet:

DATE/TIME	CALLSIGN	EXCHANGE RECEIVED
JUNE 22	ET Communication	
1952	W1AW	9D CT
1953	WB2CDE	1A WNY
1955	N1AL	2B SF
1956	WA1ABC	6Å EMA
1959	AG2C	4A NNJ
2001	KC2CAA	2A ENY
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Field Day Operating

by Alan BLoom N1AL

Field Day is different things to different people. It's a picnic. It's a campout. It's a social occasion. It's an emergency exercise. And finally, it's a contest.

The object of a contest is to contact as many stations as possible in a set period of time. For Field Day, this is the 24 hours between 11 AM Saturday and 11 AM Sunday. There are no extra points for contacting rare stations: For FD, a California contact counts the same as one from Tahiti. Phone QSO's count 1 point each, CW contacts count 2.

You can work the same station once on each band. CW and phone count as separate bands. Our novice station, WA6XXX, is considered spearately. So, for example, we can work the same station 3 times on 40 meters -- Once on CW and once on phone signing W6LFJ, and once in the Novice bands signing the novice call.

THE EXCHANGE:

A valid contact consists of an exchange of callsigns and "the exchange." For Field Day, the exchange is the entry class and the ARRL section. Our class is 5A (5 transmitters, club station), and the section is SF (San Francisco).

CALL CQ:

There are two ways of making contacts on Field Day -- calling CQ or answering other stations' CQ's. Calling CQ is easier, since you don't have to be bothered tuning the radio, so it's a good method for for inexperienced op's.

The first key to success in calling CQ is to find a good spot. You want to be down near the bottom of the band segment where all the action is, so people can find you. You also want to find a spot that is clear of interference. Unfortunately, these two requirements are contradictory, so you just have to find the best compromise. On the higher bands, there may be a loud station on frequency that you can't hear because of the skip zone. If you aren't having much success and you can hear a lot of stations going back to someone you can't hear, you might consider moving to a less-congested spot.

How long should the CQ be? And how long do you wait for a reply before giving up and calling CQ again? You'll learn this from experience. When things are slow, you might give a fairly long CQ: "CQ Field Day, CQ Field Day, this is W6LFJ Whiskey Six Lima Foxtrot Juliet, go ahead" and wait several seconds for a reply. When you have a good "run" going, you want to waste as little time as possible: "CQ Field Day, W6LFJ" <other station's reply> "W1XYZ 5 Alpha, San Francisco" <his exchange> "Roger, QRZ W6LFJ" etc.

HUNT & POUNCE:

Unless you are running a kilowatt into a big antenna, you'll usually get a higher QSO/hour rate by answering other stations' CQ's. The technique is to start at one end of the band (I start at the low end, but it doesn't matter) and slowly tune up the band looking for CQ's. Take the time to try to copy EVERY station you hear -- don't skip over crowded areas figuring you'll catch them on the next sweep.

Pay attention to propagation. It may not be worthwhile to call weak east coast stations in early evening when atmospheric absorption is still high here on the west coast.

To save time, log the other station's callsign as soon as he starts to reply. Enter the exchange as he sends it (don't recopy). Start tuning as soon as he QSL's (no need to listen to his next CQ.) You can fill out the dupe sheet while tuning for the next contact.

If a station comes back to someone else, it is usually worthwhile waiting to call him again, rather than tuning for another station. But if he doesn't reply even though nobody else was calling, don't waste your time. Remember, there are no extra points for "rare" ones.

If things get slow, you might flip the receiver bandswitch and check out another band. But don't flitter from band to band -- you lose precious minutes every time you do this.

LOGGING:

Most FD stations use two people per station: an operator and a logger. The logger fills out the log and dupe sheets. However, I like to do my own logging. During a contest, there almost always are several stations in the passband of the receiver at one time. The logger often is listening to a different station

and as satisfied assets

VEC Exam

by Steve Lund WA8LLY

WHEN: June 2, 1992 (Tuesday)
Written exams: 7:15 PM
Code exams: 7:15 PM

WHERE: Emergency Operations Center (EOC)

600 Administration Drive, Room 108C, Santa Rosa, CA 95403. This is next to the Sheriff's Office at the County Administration Center. The EOC is directly across from the new jail. The exams are given in the same room previously used for SCRA meetings. Talk-in frequency is 146.73 MHz.

PRE-REGISTRATION DEADLINE: None, walk-in only.

DETAILS: All exam levels, Novice through Extra. There is no fee for the Novice exam. The fee for other exams is \$5.40.

ON EXAM DAY bring the following:

- Your ORIGINAL signed license and a photocopy of it
- Your ORIGINAL CSCE, if you have one.
- A photo ID (Calif drivers license preferred)
- 2 pencils (soft lead type)
- Pen
- Calculator (optional) If programmable, the memory must be erased.
- A check for \$5.40 made out to ARRL-VEC (please, no cash)

If you are taking a CW exam and have a favorite set of headphones with 1/4-inch plug (stereo OK), please bring them. Otherwise, you must copy the code from a speaker, and the room acoustics are poor.

The VE contact person is:

Steve Lund WA8LLY 10180 Mill Station Rd. Sebastopol, CA 95472-9655 (707) 823-4544 (after 7:30 PM)

RENEW YOUR ARRL MEMBERSHIP THROUGH THE CLUB AND THE CLUB GETS TO KEEP \$2 (no expense to you). Make out your check to SCRA, and send it with your ARRL renewal form to SCRA, PO Box 116, Santa Rosa, CA.

Field Day Meeting - Novice and Technician Station(s)

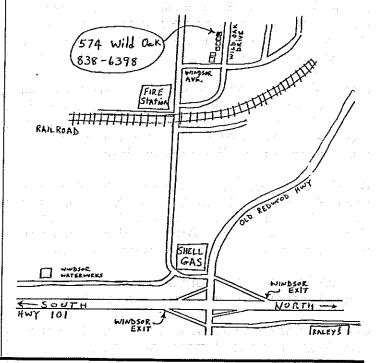
by John Breckenridge WB6FRZ

Field day is fast approaching (June 27-28), and we need to have a major planning meeting to organize the Novice/Technician effort.

All participants in the Novice/Technician station(s) for the Field Day event please meet at my house in Windsor on Saturday, June 6 at 1:00 PM. In a nutshell, we need to discuss the following:

- 1. When and where the event will happen.
- How many Novices/Technicians will be participating.
- 3. How many stations we need.
- 4. What bands and modes we will use.
- What equipment, shelter, tools, etc. we need and who will bring what.
- 6. What the physical layout of stations and antennas will look like.
- 7. What call sign will be used.
- 8. How to make and log contacts.
- 9. My role in the contest.
- 10. Notes from last Field Day's experiences.
- 11. Anything else you can think of.

Please start thinking about the equipment and other items you have available and write them down before the meeting.



JUNE 1992

SCRA MINUTES

May 6, 1992



SONOMA COUNTY RADIO AMATEURS, INC.

The meeting was called to order by President Merlyn Pfeiff N6VUC at 7:32 PM. Other present: Vice President Rick Reiner K6ZWB, Secretary Al Bloom N1AL, Treasurer John Gauger KK6XT, Activities Chairman Jim Pelmulder N6PTM, Repeater Chairman Jim Rutherford WB6PER, and Members-at-Large Bill Splaine N6GHG and Gary Gouger KC6WTE.

VISITORS: Shelly KD6AFZ introduced 10 visitors.

UPGRADES & NEW CALLS since last month include Jerry KD6HYC, KC6PJW to General (and wife to Novice), KC6WTE to General, KC7VS to Extra, WA6SEU to Extra and KC6UXI to General.

The MINUTES were approved as published in last month's *Short Skip*. m/s N6KZS/KC6PJW

The TREASURERS REPORT was also so approved. m/s WX3K/W6TLK

ATTENDANCE tonight was 80, down from last month. (Summer slump starting?)

PUBLIC SERVICE: Kathy KC6UXJ went over 4 events worked in April, including the March of Dimes WalkAmerica and Special Olympics on the same day, and the Wine Country Century last Saturday. 4 more events are up in June.

EDUCATION: John WB6FRZ's Novice class has two more sessions to go. The exam is May 22. Jeff KC6VS's General class has 4 more evenings before his students will be ready to take the VE exams on June 2.

ARRL: SF Section Manager John Wallack W6TLK presented our Special Service Club renewal. The Pacific Division Convention is October in Concord. ARES in Humboldt Co. performed very well in the recent earthquake.

The W6TLK/IMD Marconi special event station made 1200 QSO's with continuous pileups.

WX3K's packet system still has its HF port at Two Rock, but the 2 meter gear has returned to Rohnert Park. We will soon go to a 9600 baud backbone, and maybe later to 56 kbaud from Sonoma Mountain to San Jose. The WX3K BBS has reports on emergency activity in the earthquakes.)

K6ZWB just finished reading 200 Meters and Down, Clinton B. Desoto's excellent history of Amateur Radio. Rick will pass it along: as each member reads it, s/he should sign it and pass it along.

CDF/VIP will participate in MAD, a Multi-Agency Drill this Saturday May 9 in Healdsburg, according to K6GEV.

ARMED FORCES DAY is on May 16. WX3K says the Coast Guard base will have open house, and we are invited.

W6DTV notes that the Valley of the Moon gave 56 VE tests at their session last week. Hank also described the abortive baloon ATV launch recently. Also, members should remember to clean up the meeting room before we leave.

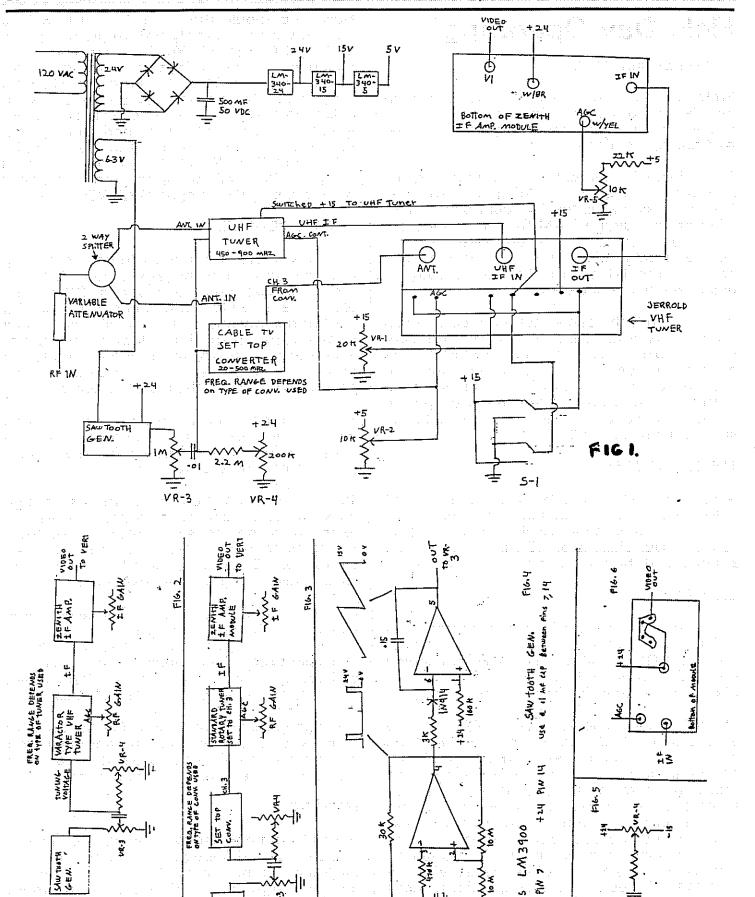
CLASSES: KC7VS asked how many would be interested in Technician, General, Advanced or Extra classes. The Extra got the most interest.

The PROGRAM was a short talk by County OES Director Dan Nicholas. We were shown a video of a recent TV-50 "Sonoma County in the 90's" program. In an interview, Mr. Nicholas highly praised Amateur Radio. He stated that he doesn't know why we are called "amateurs" as we preform a service the County could not do without. As part of the TV program, outgoing Chief RACES Radio Officer Jim Rutherford WB6PER gave a tour of the new comm trailer.

Mr. Nicholas thanked Jim for his 6 years of enthusiastic service as RO. He mentioned that Jim recently was honored a gold resolution by the County Board of Supervisors. He then presented Jim with a burl clock/plaque as a token of appreciation.

Jim noted that one work best characterizes the last 6 years: "Support" — from the members and from the OES. And especially from his wife Susan N6IRJ.

The member lottery was son by Bill WD6DXW. Meeting adj. 9:13 PM. m/s N6GHG/KA6CRG Respectfully submitted Al Bloom N1AL, Sec. •



JUNE 1992

SHORT SKIP

20-900 MHz Spectrum Analyzer

by Phil Gaul KC6BSI

The VHF and UHF tuners in Fig 1 are out of a Jerrold TV remote control, model TRC-82-4. These are standard electronic (varactor) tuners found in many TV's. In a varactor tuner, the frequency can be changed by varying the tuning, or control, voltage. I used a cable TV-type converter because it tunes continuously from 20-550 MHz with no bandswitching.

Converters can be easily found at flea markets. Most varactor tuners should work, with frequency range depending on type of tuner used. Some tuners have a large bypass capacitor on the tuning voltage input which will have to be removed. No matter what tuner you use, the basic plan will be the same — a sawtooth generator sweeps the varactor tuner through its range, and the IF output from the tuner feeds the IF amp.

The IF amp module measures about 6" by 3". It is from a Zenith TV chassis #25DC56, and is used in may older color sets. Most IF modules should work as long as you can narrow the bandwidth and control the IF AGC voltage. The IF amp must have a video detector, since the video output is fed to the oscilloscope vertical input. You may need to reverse the video detector diode to get the correct polarity. I have had good luck with old Zenith modules. Some Zenith IF amps will have a layout like in Fig 6.

IF bandwidth is critical for proper operation of the analyzer. Bandwidth should be as narrow as possible, around 300 kHz. To adjust the IF amp, connect the analyzer to an antenna or cable TV system, and adjust each coil for the narrowest response with highest amplitude.

However, tuning alone is not enough -- I have found that poor or even no RF grounding or shielding of the IF input connector will narrow the bandwidth. If the module is to be located inside a metal chassis, mount it on plastic spacers. Power, ground and AGC connections should be made through choke coils. A better way to deal with this problem is to use some sort of bandpass filter that will work within the 42-45 MHz IF frequency. I have not been able to find one around here yet.

A sawtooth generator must be built (Fig 4), but it is easy to make and uses common parts. It is used to sweep the varactor tuners through their frequency ranges and to trigger the horizontal sweep on the oscilloscope. The pulse signal on pin 4, or the ramp signal on pin 5 can be used for triggering. Connect the output on pin 5 to the scope horizontal input. The only purpose for the 6.3 VAC is to line lock the generator to 60 Hz. You may need to vary the 470K resistor a little to get it to lock.

The power supply is very basic. It uses LM340-type 24V, 15V and 5V regulators.

The RF is fed through a variable attenuator to a 2-way splitter, then to the inputs of the UHF tuner and the cable converter.

The bandswitch, S-1, is shown in the VHF position. The RF gain, VR-2, controls the AGC voltage on the Jerrold UHF and VHF tuners. VR-3 is a sweep width control. It determines the spectrum width or range you want to see. VR-4 is the center frequency control. It sets the center of the frequency range. VR-5 controls the gain of the IF amp.

Some tuners and converters will need a negative tuning voltage to go as low as 20 MHz (Fig 5). Normally tuners will only go as low as 40 MHz with zero tuning voltage.

A simpler way to do this if you don't want UHF is to get an old cable TV set-top converter that has varactor tuning and connect a standard rotary TV tuner to the converter's output as in Fig 3. If you have a varactor or electronic VHF tuner, then follow Fig 2. Some tuners need a negative supply voltage. These also require a negative voltage on VF-4.

The analyzer can be built small enough to fit inside some of the older oscilloscopes. I used an RCA WO-91A.

Law Offices of CHARLES J. TARR AND ASSOCIATES WA6VAG

> CHARLES J. TARR Attornoy at Law

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AAOBV WBODKT		? MCLAUGHLIN		323 ASUELO WAY	SANTA ROSA	CA	95401	573-0277	.2
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		MELVIN GROW		6324 STONE BRIDGE RD	SANTA ROSA	CA	95409	538-3384	0
WOSUP		DALE CAMPBELL AL BLOOM		PO BOX 727	GUALALA	CA	95445	884-3000	
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KA1NVR	FULL	NORMA KERWIN		PO BOX 1309	FORESTVILLE	CA	95436	887-7843	2
W2EBG	FULL	GENE: JOHNSON		2437 WIDGEON CT	SANTA ROSA			578-3104	
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VP2ML		CHOD HARRIS		3201 FRANZ VALLEY RD				526-2198	
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KB6AAD	FULL	HOWARD: GLANDON :		118 VALLEY LAKES	SANTA ROSA	- CA	95409	539-6098	. 0
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KK6BK	FULL	S LEWIS NEWTON		4620 ROCK MEADOW PLACE	SANTA ROSA	CA	95405	538-1370	0
W6BNB:	FULL	BOB SHRADER		11911 BARNETT VALLEY RD	SEBASTOPOL	CA	95472	823-9122	
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KC6BS0		SUZENNE CONNELLY		5850 ANDERSON RD	FORRESTVILLE	CA	95436	887-7950	2
KD6BUW		MEGAN LINNEHAN		11275 BARNETT VALLEY RD	SEBASTOPOL	CA	95472	829-0973	2
K6BWX	FULL	DICK®MADDUX	A	2435 MURDOCK DR	SANTA ROSA	CA	95404	578-8825	. 0
KA6BYX	FULL	JAMES HOBART	:	2053 HUMBOLT ST	SANTA ROSA		95404	546-3225	
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W6CPE -		DONALD E. DICKEY		7635 MANDOLIN WAY	ROHNERT PARK	CA	94928	795-1269	
KA6CRG	FULL	HOWARD TRITES JR	***	625 TRUMBULL AVE 255 WIKIUP MEADOWS	NOVATO	CA	94947	415-892-5	
KC6CYE		DAVID WELSH	· 5.	255 WIKIUP MEADOUS	SANTA POSA	^A	95403	544-7579	0
KC6CYG		ROBERT H FERGUSON		RADO CILADAT AD	PETALUMA		94952		-
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				1320 DUGWUUD DRIVE	SANTA ROSA	UA	95403	544-7943	
KB6DJG		DAVE ELMORE		1727 LAGUNA RD	SANTA ROSA				
KA6DJY		JOHN KOBOLD		2433 APPLETREE DR	SANTA ROSA	CA	95401	544-5330	2
WD6DPE		BOB OLISTEN	100	3723 ARIZONA DR	SANTA ROSA	CA	95405	546-5593	0.
W6DTV I	FÜLL	HENRY DAVIS	٠.	7822 WASHINGTON AV	SEBASTOPOL		95472		
WD6DXW I	FULL	BILL THOMAS			SEBASTOPOL		95472	823-9429	
K6EAN		BOB BENDT		18 TERRACE DR	COTATI		94931	792-1525	
WB6EKV		BOB SONES		4810 ROCKRIDGE LANE					0
					SANTA ROSA		95404	546-3873	0
N6FAX		SARAH DAVIS		7822 WASHINGTON AV	SEBASTOPOL		95472	823-7885	- 2
KD6FBN I		PAUL V WEICHEL		5575 CORBETT CIRCLE	SANTA ROSA	CA	95403	571-1782	0
KB6FHT I		ANNE FIGUHR			CALISTOGA	CA	94515	942-5883	2
KC6FKX*I	FULL	LAUREL MEYER		5929 VAN KEPPEL RD	FORESTVILLE		95436	887-2555	5
W86FRZ I		JOHN BRECKENRIDGE		574 WILD OAK DR	WINDSOR		95492	838-6398	ő
KD6FYK		STEVE WHITELAW		16660 CENTER WAY					
KD6GAD I					GUERNEVILLE		95446	869-2257	0
		MICHAEL BRITT		76 BROOKWOOD AVE	SANTA ROSA		95404	539-4030	. 0
KD6GAF F		DAVID S. GRIFFIN		227 JUANITA CT.	SANTA ROSA		95401	579-4498	. 0
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KD6GCM F		JOHN MERCER		3057 CLAREMONT DR	SANTA ROSA		95405	545-7421	0
KD6GCN F		JAMES HOYLE		405-C NORTH ST	HEALDSBURG	CA	95448	431-1175	0
N6GDC F	FULL	ROBERT B DE HAAN		140 SPRAUER RD	PETALUMA			6 763-7218	ō
K6GEV F		ROBERT N. SCOLNICK		900 LIBERTY ROAD	PETALUMA		94952		0
NH6GF F		GRANT W. CANFIELD		1950 WEST DRY CREEK RD				762-8874	_
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		BILL SPLAINE		1360 FOOTHILL DR	HEALDSBURG		95448	431-8636	0
KB6GIU F		CURTIS BRAUCHER	. '	7319 WOODSIDE DR	STOCKTON	CA	95207	209-477-32	279 0
KA6GJO F	FULL	JOHN SCHAPPELL	(5044 DONNA COURT	ROHNERT PARK		94928	585-2549	0
KH6GJV F	FULL	BILL HILLENDAHL		PO BOX 4151	SANTA ROSA		95402	539-2791	ŏ.

SHORT SKIP

SHORT SKIP

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	KD6GSY		JUDY CORNILS	3638 SHELTER CREEK DR	NAPA	CA	94558	255-8554	2
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	W6GYY			20747 TEMELEC DR	SONOMA	CA	95476	938-1559	0.
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	KD6HY		IRMA OSBORNE	25005 RIDGE RD	WILLITS	CA	95490	459-3980	: 2
84	KD6HYC	FULL	JERRY RICKSECKER	25005 RIDGE RD 509 KELLER ST.	PETALUMA	CA	94952	763-2069	. 0
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	NOINC			2543 TUSCAN DR				575-8780	
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	KA6JLP		WILLIAM KIKER	1575 TIMBER HILL RD	NOVATO SANTA ROSA	CA:	95401	823-5652	
	KI6KE			400 TWIN LAKES CIRCLE	SANTA ROSA			538-2857	0
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		FULL	HARVEY J. LAWRENCE	521 TERESA CT	SEBASTOPOL		95472	829-2350	
	N6KZS		PHILIP COPENHAVER	2311 MAHER DR. #5			95405		Ó
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			DALE C. VAWTER	1350 GASPAR: CT	ROHNERT PARK	CA:	94928	584-4670	
	KC6MYG		CATHY MC CLENDON	2543 TUSCAN DR	SANTA ROSA	. CA	95405	575-8780	
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117	KC60CD	FIRE	ANGELA CIDICKEY	7635 MANDOLIN DAY	DURNEDT DVDA	CA-	96070	795-1269	2
118	N6OH .	FULL	WALT BRUUN	PO BOX 283 1257 BERTHA LANE 115 SUMMER WHEAT RD 333 E. ROBLES AVE 8105 B ST.	PETALUMA	CA ·	94953	763-0476	0
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	KC6PDA	FULL	PAUL DANA	9684 OCONNELL RD 46 VALLEJO ST	PETALLIMA	CA	94952	762-1461	0
125	WB6PER -	EULL .	JIM RUTHEREORD	PO BOX 222	KENUOOD	CA	95452	526-2972	ž
126	KC6PJV	FULL	JEFF YOUNG	18246 NEELEY RD 7249 ROXANNE LN 6724 PETALUMA HILL RD	GUERNEVILLE	CA:	95446		0
127	KC6PJW	FULL	JIM ANDREWS	7249 ROXANNE LN	ROHNERT PARK	CA	94928	795-2163	
128	N6PLQ	FULL	BOB DAMON	6724 PETALUMA HILL RD	PENNGROVE	CA	94951	795-3038	0
	KB6PTA	FULL	TED L. DeCROFF	1044 MERCED AVE 2801 GRAVENSTEIN HWY NO	SANTA ROSA		95407	542-4008	0
	N6PTM : WA6PXW	FULL	FOANY DETTLING	PO BOX 962	PETALUMA		95472	823-7947	. :::0 .
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135	KC6RDH	FULL	RICHARD POLFUS	2075 DUTTON AVE	SANTA ROSA	CA	95407	528-0272	·· 0 ·
136	KC6REK	FULL	BRIAN D JOHNSON	2075 DUTTON AVE 2337 DONAHUE AVE 2617 OLSEN RD: 1139 GUAYMAS ST 111 KAY COURT 4529 TAYLOR AVE 130 PAULSEN LANE 6369 SANTA CLARA CT	SANTA ROSA	CA :	95401	575-4352	0
137	KB6REP	FULL .	SCOTT ALLEN	261/ OLSEN RD	SEBASTOPOL	CA	95472	823-4287	
120	MADIE:	1475 14 14 14 14 14 14 14 14 14 14 14 14 14 1	DOUGLAS CARTER	111 KAY COURT	CLOVERDALE	CA S	754U1 554.25	528-9116	0
170	KCEBK2 -	FULL	MARK WALSH	4529 TAYLOR AVE	SANTA POSA	LA (75467 ····	894-4787 : 585-1764	
141	WB6RLA	FULL	KEN PARKER	130 PAULSEN LANE	PETALUMA	CA	94952	778-0758	.u .1
142	KC6RLB	FULL	MARK D HALVERSON	6369 SANTA CLARA CT	ROHNERT PARK	CA	74928	586-0335	0
143	N6RMW	FULL	BOB PHILLIPS	1508 PLUMERIA DR	SANTA ROSA	CA S	95403	542-5209	0
144	KF6RS	FULL	RAYMOND P. HEIL	197 GILBERT DRIVE	SANTA ROSA	CA	95405	528-3332	· 0
145	NORVN	FULL	LELAND W KINARD	6369 SANTA CLARA CT 1508 PLUMERIA DR 197 GILBERT DRIVE 885 GRANT AVE 1372 MIRAMONTE PL	PETALUMA	CA S	74952 74038	763-3597	0
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	4/7		F132.5		11/0 0 1/5 07	CAUTA DOCA	CA	95407	545-2010	
٠.		N6RXY			1140 OLIVE ST	SANTA ROSA				0
			FULL	STEVE BECK	5643 VERNI RD	SEBASTOPOL		95472	823-5882	
			FULL		126 SANDALWOOD CT	SANTA ROSA		95401	526-9507	0
		WA6SEU		PHIL RICHARDSON	3613 CYPRESS WAY	SANTA ROSA		95405	527-0935	0
	4 - 1 -	KC6SOT		and the second s	6818 AVENIDA CALA	ROHNERT PARK			795-5228	0
	152	KB6SQY	FULL	BRAD SILVA	PO BOX 5305	SANTA ROSA	CA	95402	584-0533	0
	153	K6SRD	FULL	LOWELL LUX	4567 BRIGHTON DR	SANTA ROSA	CA	95403	546-7099	0
	154	Nosrh	FULL	DON CONNELLY		FORRESTVILLE-	CA	95436	887-7950	1
	155	KC6SSB	FULL	MICHAEL L BRYANT	2625 FIR PARK WAY	SANTA ROSA	CA	95404	526-7609	1
	156	KC6SSC	FULL	TYLER M BRYANT	2625 FIR PARK WAY	SANTA ROSA	CA	95404	526-7609	2
		KC6SSE		MICHAEL DRANGINIS	601 BUENA VISTA DR	SANTA ROSA		95404	523-4373	· · · ō
		KC6SSF		DAVID S JACKSON		SANTA ROSA		95404	584-1386	Ö
		KC6SXN		SHIRLEY WALLACK	PO BOX 1115	KENWOOD		95452	833-1873	2
		K6TCD		BILL MEYER	6516 MEADOWGREEN PL	SANTA ROSA		95409	539-1489	0 .
		ка6тнв		BOB DAWSON	225 DECKER ST			95401	:	
						SANTA ROSA			542-4885	0
		W6TLK		JOHN WALLACK		KENWOOD		95452	833-1873	m <u>1</u>
		W86TMM		LINDA PARKER	130 PAULSEN LANE	PETALUMA		94952	778-0758	2
		NATMV		BARBARA BOWMAN	1395 EASTMAN LN	PETALUMA		94952	763-3547	
		WB6TMY		TRACY REESE	PO BOX 4694	SANTA ROSA		95402	527-8124	0
		WB6TSO		JOE AJAX	179 PRICE WAY	FOLSOM		95630	916-983 3	460 0
	167	WB6UAZ	FULL	KATHI BOYETT	1326 DOGWOOD DRIVE	SANTA ROSA	CA	95403	544-7943	2
	168	KB6UCM	FULL	HAROLD BALDWIN	1459 JAHN DR #2	SANTA ROSA	CA	95401	i i., .:	0
	169	KB6U0J	FULL	TOM HITCHCOCK	3411 SIDNEY SQUARE	SANTA ROSA		95405	544-0911	0
		KC6URO		AARON GAUGER	1627 FURLONG RD	SEBASTOPOL		95472	829-2599	2
		KB6UWY		RALPH HYDE	1803 AUSTIN WAY	SANTA ROSA		95404	528-0726	Õ
		KC6UXI		RICK MAHAN	540 LIVE OAK AVE	SEBASTOPOL		95472	823-4980	1
		KC6UX1		KATHY MAHAN		SEBASTOPOL		95472		
		KC6UXM							823-4980	
						WINDSOR		95492	838-0622	1
		K6UX0		KENNETH H KERWIN II	PO BOX 1309	FORESTVILLE		95436	887-7843	. 1
		NGUYB		JACK FOSTER	PO BOX 11745	SANTA ROSA		95406	576-9002	0
		WA6VAG		CHARLES J TARR	418 B ST - FOURTH FLOOR	SANTA ROSA	CA	95401	546-5858	0.
•		KCQA11		LARRY L ROBERTS	929 HUDIS	ROHNERT PARK	CA	94928	584-5030	0
	179	N6VUC	FULL	MERLYN PFEIFF	118 FRANCIS CIR.	ROHNERT PARK	CA	94928	584-3898	0
	180	W6VXI	FULL	BUREN EAGLE	309 CORONADO DR	PETALUMA	CA	94954	762-8776	0
	181	KE6WL	FULL	BRIAN KOTZIAN	2601 MCBRIDE #4	SANTA ROSA	CA	95403	528-3004	
	182	WB6WL _J	FULL	ROGER J SHERRON JR		SANTA ROSA		95404	579-4083	. 0
	183	KK6WN.		CHARLES J. CARNIGLIA		SANTA ROSA		95402	578-5832	0
		KC6WSD		SHAUNA LUEDERS	207 STOKES CT	PETALUMA		94954	778-6944	ž
		KC6WSL				PETALUMA		94954	778-6944	1
		KC6WTE		GARY GOUGER		SANTA ROSA:		95405	575-9119	0
		KC6WTG	1	RON CARVER	PO BOX 783			95402		· · · · · · · · · · · · · · · · · · ·
		KC6WTJ				SANTA ROSA			ED4	1
						SANTA ROSA		95407	526-5314	0
		KC6WUG				SANTAROSA			538-3693	0
		KC6WUI		NADINE SHARROCK		SANTA ROSA		95404	528-3601	0.4
				BUD BARTLETT		PETALUMA	CA	94952	763-2119	0
				JOHN K GAUGER	1627 FURLONG RD	SEBASTOPOL		95472	829-2599	1
		K6XZ	FULL	ROBERT CRAIG	5519 EL ENCANTO CIRCLE	SANTA ROSA	CA	95409	539-1693	# 1. 0 .: . 1
:	194	WG6Y	FULL	WARREN WALKER	PO BOX 22	LAKEPORT	CA	95453	263-0400	
	195	N6YEU :	Fill	EDED 1 EONI	9627 WESTSIDE RD	HEALDSBURG	ĊA	95448	431-8202	0
	196	N6YIG	FULL	CLIFF REIN				95409	75. 3232	0
		WA6YTW	FULL	BOB E DAVIS	305 EAST SPAIN ST.	SANTA ROSA SONOMA		95476	938-2033	Ö
		KC6YUT	FULL		POB: 614	GLEN ELLEN		95442	996-1681	2
		KC6YUU	FUL 1	WILLIAM E PALMER	21853 RUDNDALE DD	GLEN ELLEN SONOMA			078-2120	0
		KC6YUV						95476	938-2120	
		AA6YX		DAVE NEW	7775 DAVIDOD 1444	GLEN ELLEN		95442	996-1681	1
				DAVE NEW	4325 BAYWOOD WAY	DACKAMENIU .			916-484-1	
	202	KC6YXQ	FULL	JOE H SENFT ::	510 WOODCHUCK CT	SANIA KOSA		95401	578-5824	0
	203	KK6YZ	TULL	DAVE LINNEHAN	11275 BARNETT VALLEY RD			95472	829-0973	1
	204	K6ZIV	rULL.	LARRY MULLINIX	8507 VICKY LANE	SEBASTOPOL		95472	823-8447	0 .
		KC6ZJX	FULL	TOM KEHRLEIN	50 GILBERT WAY	COTATI	CA	94931	664-0209	0 .
		N6ZME	FULL	REED WHITE SHEP JENKS ROBERT R. WRIGHT M.D.	PO BOX 1001	SEBASTOPOL	CÄ	95472	829-1001	0
	207	NH6ZY	FULL :	SHEP JENKS	4650 PETRIFIED FOREST	CALISTOGA	CA	94515	942-9553	0
	208	WB7CNJ	FULL 1	ROBERT R. WRIGHT M.D.	673 JEANMARIE DR	SANTA ROSA		95403	571-8262	Ō.
	209	KA7NZO	FULL I	LEE SNYDER	19415 REDWOOD DR			95462	865 - 1269	ŏ
		KC7VS				ROHNERT PARK			584-3610	0
		WA8LLY		STEVE LUND		the state of the s		95444	823-4544	0
		K9ASL		WILLIAM R. CLABO		ROHNERT PARK	CA	0/,028	795-2525	0
			1777 1 . '	The second secon				74720		11 7 .
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