

# - The - READOUT

Vol. 10 No. 3 Mar. 1987

## MARCH 17TH MEETING NOTICE!

Remember the March 17th meeting of SARA will be held at the Acapulco Restaurant on McHenry Ave. in Modesto. Come early and have dinner or a drink and then enjoy the meeting in the banquet room at 730 pm.

**SARA**

**ACAPULCO**  
Mexican Restaurant & Cantina

**March Meeting**

E. Orangeburg	Acapulco
Roseburg	Modesto

1312 McHenry  
527-1350  
In front of Western Host Hotel

**730 pm**

## NOVICE ENHANCEMENT

On February 10, 1987, the FCC released the report and order in PR Docket 86-161, Novice Enhancement. The rules become effective at 0001 UTC local time on Friday, March 21, 1987. Specific rules changes are: (1.) Novices and Technicians may operate 28.1 through 28.5 MHz, using CW and digital modes from 28.1 to 28.3 MHz and CW, Digital and Voice modes from 28.3 to 28.5 MHz.

.... See Page 3 !

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

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READOUT is the official publication of the STANISLAUS AMATEUR RADIO ASSOCIATION INC. "SARA" P.O.Box 4601 Modesto, CA. 95352. Entered as bulk mail at the U.S. Post Office Modesto, CA. 95352

Contributions to READOUT are always welcome and may be submitted to the editor, Bob Pinheiro, W6SZLD at 1221 Mist Flower Ct. Modesto, CA. 95355. SARA owns and operates two F.M. repeaters. 145.39 MHz (-) located on Mt. Dso 22 miles SW of Modesto at an elevation of 3,370 feet. Our 220 MHz repeater operates of 223.68 MHz (-) and is also located on Mt. Dso at an elevation of 3,500 feet. Both repeaters are equipped with an autopatch for the use of SARA members. SARA owns and operates a packet digipeater also located on Mt. Dso at 3500 feet. Frequency is 145.01 MHz. SARA conducts an informational net on both repeaters each Thursday evening at 800 pm with the exception of holidays. SARA meets the third Tuesday of each month at the Stanislaus County Administration building at the 12th and H streets in downtown Modesto. Meetings begin at 730 pm. SARA is incorporated with the State of California. SARA is an affiliated club of the American Radio Relay League (ARRL) and Stanislaus County RACES. Dues are \$15.00 per annum, \$7.50 for students up to sophomore in college. Dues are pro-rated for newly joining members from the date they join. ARRL membership and DST renewals may be made through SARA with a \$2.00 commission retained by SARA.

**PRESIDENT**

Denny Dugal.....W6SP.....571-9046

**VICE PRESIDENT**

Bud Pelletier.....N6OCV.....823-0877

**SECRETARY**

Laverne Landeros.....KB6ECF.....576-5554

**TREASURER**

Bob Vreugdenhil.....N6OCS.....523-0141

**SARA MEETING**

**MARCH 17, 1987**

**SPECIAL DINNER**

**MEETING AT**

**ACAPULCO RESTAURANT**

**MEETING AT 730 PM.**

**COME EARLY FOR DIN-**

**NER OR COCKTAIL**

**AT 6 PM .**

**NEW FCC 610 FORM**

The FCC will release a newly modified Form 610 later this year. Currently, only 610 forms printed June 1984 or later can be accepted. Until the new forms are available, candidates should use the existing form.

**BUDGET  
COPY CENTER**

**1325 J STREET  
MODESTO, CA 95354  
TELEPHONE 529-5395**

**NOVICE ENHANCEMENT OK'ED EFFECTIVE MARCH 21**

(From front page)

Novice and Technician control operators are limited to 200 watts output in this band, but other licensees are not similarly limited. (2.) Novices may use up to 25 watts in the 222.10 through 223.91 MHz band with all authorized emissions. (3.) Novices may use up to 5 watts in the 1270 through 1295 MHz band, with all authorized emissions. (4.) No Amateur station at which the control operator or station licensee holds a Novice class operator license shall be in repeater, auxiliary or beacon operation. (5.) Two examiners will be required to administer future Novice exams, which shall consist of 30 questions. FCC form 610

will be revised to provide for certification by two VE's. (6.) Present Novice and Technician licensees are grandfathered into the new privileges. (7.) Element 3 is divided into two parts, 3A and 3B, with each examination to consist of 25 questions. Present Technician licensees will be given credit for having passed both elements. In the future, upgrades to Technician will only have to pass element 3A and future Technicians upgrading to General will have to pass both elements 1B, 13 wpm code and element 3B. The complete text of the new rules will appear in the April QST.

	NOVICE		TECH	
	CW	PHONE	CW	PHONE
<b>EFFECTIVE MARCH 21ST 1987</b>	220 222.10 223.91	222.10- 223.91	220- 225	220- 225
	10 28.1- 28.5	28.3 28.5	28.1- 28.5	28.3 28.5

Novices and Technicians are limited to 25 watts maximum in the 222.10 to 223.91 band and 5 watts maximum on frequencies from 1270 to 1295. Novice and Technicians may also operate digital forms of communications on frequencies allowing CW or voice privileges for their class of license.

# STATION LOG

ARRL  
affiliated club

The February 17, 1987 meeting of SARA called to order by President Denny, W66P at 735 pm followed by introduction of 21 members and guests present. The minutes of the previous meeting were read and approved. Treasurers report given by N60CS. Bank balance as of 2-10-87 \$1,951.02. Paid out- Pacific Bell \$18.79. Budget Copy \$44.84. Owens Printing \$48.74. Education committee \$181.91 to bring their balance to \$300.00. Income, \$30.00 from RF Concepts for a full page ad in the READOUT. Present balance as of 2-17-87 is \$1,946.99. KG6NZ reported on the fireworks fund raising effort. Startup costs will be about \$400. WD0FFX made a motion that the club commit to Red Devil Fireworks for a fireworks booth. Seconded by N60CV. Motion carried. WD0FFX, Phil, Educational Committee Chairman, reported the balance in the education fund is presently \$372.00. There are 16 signed up for the next SARA license class starting on 2-28-87. Phil also reported on VE exams coming up in Merced in early

May and June 6th for the next SARA sponsored session in Modesto. Report on Alpine County DXpedition by W66P and N6LSA. We will definitely be on the air during the weekend of August 22-23. There will be an organizational meeting later this month in Turlock. NV6S, club trustee, gave permission for the DXpedition to use the club station call, WD6EJF. Dottie, N6LRZ, will be in charge of locating a place to print QSL cards for the DXpedition. Break for refreshments. Raffle of \$7.00 won by VP Bud, N60CV. W66P reminded everyone that the March meeting of SARA will be at the Acapulco Restaurant on McHenry. Social hour at 6 pm followed by the regular meeting at 730 pm. Mitch and Steve Cosentino (W6KTK) have donated a case of Cosentino wine for the raffle at the March meeting. The CW contest is on and half over. NV6S says we need more hunters and more rabbits. W66P reported the hard copy needed for signa-

....See Page 15 !

## RUSSIAN WOODPECKER-OTH-B RADAR

In the December issue of the IEE Proceedings Part F, Communications, Radar and Signal Processing, an article by J. I. Glaser on "Fifty years of Bistatic and Multistatic Radar" presents some interesting information on the Russian 'Woodpecker' often heard on the ham bands. I thought readers would be interested in this subject since numerous questions have been asked about the 'Woodpecker'. "A system recently developed in the United States which employs bistatic operation is the AN/FPS-118 over-the-horizon backscatter (OTH-B) radar. This radar will be used to provide long-range early warning against bomber aircraft and cruise missiles approaching the continental United States. The separation between the transmit and receive sites allows use of a 100% duty factor waveform. The OTH-B, which operates in the 5-28 MHz wave band, uses an FM/CW waveform rather than pulses to eliminate high peak power components and to minimize radio frequency interference. The Soviet Union has a similar OTH-B radar, although information about this system is sketchy. The initial

evidence of Soviet OTH-B capability came to light in mid-1976. The first of these units, nicknamed the 'Kiev Buzzsaw' or 'Ivan the Terrible', was a 2 MW transmitter near Kiev augmented by a smaller receiving installation near the Black Sea town of Nikolayev. From these initial efforts, the Soviets have expanded their system into a fully functional high-frequency early-warning radar. Most of the information concerning the Russian 'Woodpecker', as it is now known because of its characteristic sound, has come from efforts of amateur radio operators throughout the world. There are currently three OTH-B systems in operation in the Soviet Union. The current Soviet OTH-B systems have increased power and operate in the 20-50 MW range. They utilize pulse modulation with a nominal pulse repetition frequency of 10/sec. The capabilities of these OTH-B systems are 1000 to 4000 km (with longer ranges possible through multihop transmission), 360

.....See Page 15 !

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# W5YI REPORT....

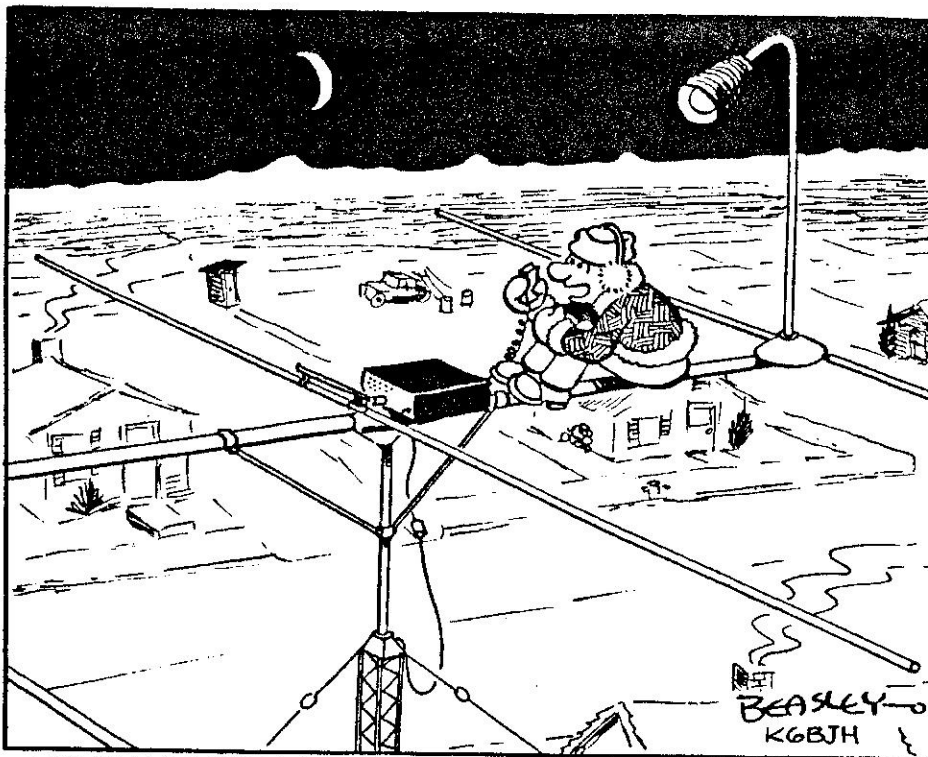
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>>> The FCC has authorized emission F83 for Amateur station transmitting on Amateur service frequencies 1240 MHz and above. F83 emission allows stations to transmit with two or more channels of analog voice information on a single frequency (stereo if you will). Authorization of F8E will enable Amateurs to experiment with an additional transmission mode and thus further advance Amateur radio technology. Moreover, it appears that no adverse effect upon existing Amateur communications would occur by permitting Amateur stations to transmit the additional emission, the FCC said.

>>> Regency Electronics, Inc. of Indianapolis has introduced a controversial new public information radio. The mobile receiver which looks similar to a radar detector plugs into a cigarette lighter and is preprogrammed with all state and local VHF/UHF police enforcement frequencies by state. Unlike scanners, the "Informant" eliminates the

hassle of having to look up frequencies and program them into a scanner. With a single touch to access the 2-letter state code, the receiver will scan only that state's police frequencies at the unbelievable rate of 50 channels per second using new "turboScan" technology! A digital display indicates the state being monitored and the type of transmission (state police, county or city). An instant weather feature also searches for the closest active bulletin frequency for the National Weather Service. The price of the "Informant" is \$369.95 list.

>>> Tandy/Radio Shack is converting 90 of its Business Products Division Computer Centers to Retail Division operated Plus Computer Centers. The "Plus Centers" will carry all computer products but will not offer on site training, repair or outside sales capability. Tandy reported a 19% second quarter income climb which was linked to increasing its outside computer sales force to 1500.



I FINALLY GOT MY LINE LOSSES DOWN TO ZERO, BUT IT'S A LITTLE NIPPY HERE IN THE SHACK!

WORLD RADIO, March 1986

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## PREDICTING SOLAR CYCLE 22 MAXIMUM

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There is evidence that solar minimum may have passed. The time of minimum is important because it relates to the timing and size of the next solar cycle. The traditional definition of solar minimum is the time of lowest smoothed (averaged) sunspot numbers. The sunspot numbers have been well measured for over a dozen cycles (since 1848) and offer the longest

data base for predicting the size of the new solar cycle. Based on a mid-1986 solar minimum, the next cycle is predicted to peak in 1989. Another prediction has the minimum being reached during the third quarter of 1987 with a 120 maximum predicted smooth sunspot number for 1991.

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# ALCATRAZ ISLAND EXPEDITION

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Ever wondered what it would be like to participate in a DX-Pedition? How about one to Alcatraz Island in the middle of San Francisco Bay? On several occasions the Sacramento Amateur Radio Club has done just that. The most recent occasion on October 11th, 1986. Here's the story as told by WS6K as it appeared in their club newsletter Mike and Key.

"The group met at San Francisco's pier 41 at 730 am with a small mountain of gear. We boarded the boat shortly after 8:00 and were soon on the island. We were then told that the truck, which has hauled gear up the hill in the past, was not available. The gear went up-hill the hard way. Fortunately, Norm, K6FO, was bright enough to bring a small hand cart. Otherwise, the four heavy batteries would never have got up the hill. Antennas for 80, 40, and 15 were quickly strung up, Les's (WA6EQQ) "J" antenna for 2 meter packet was tied to the stairwell, the batteries were connected, switches were thrown and the

first contact made shortly after 10 am. The low band stations were greeted with mini pile-ups and the stations were worked as quickly as possible with a bit of rag-chewing thrown in. Once the packet controller was set up to send out a CQ every 10 minutes, there were more stations calling than we could handle. A count at the end of the afternoon showed 196 HF contacts plus an additional 28 on 2 meter packet. The tourists were amused by the group's costumes of prison-stripe Tee shirts and caps. Things wound down at 330 pm when antennas were dropped and the gear was hauled down the hill. We left at 440 pm on the last boat. Everyone agreed it was a great trip. Making the trip to "The Rock" this year were Scot, KB6CCG; Les, WA6EQQ; KI6FT; Norm, K6FO; Carl, WA6VLS; Art, WA6YZD; Howie, WA6TUJ; Jim, WS6K; Chris, KA6TAL from World Radio and her husband Tom." ...WS6K

...Thanks Mike and Key  
Newsletter, SARC.



## RUBBER DUCK EFFICIENCY

Just how efficient are the rubber duck antennas on modern day talkies. Not good at all, according to tests conducted recently. Using talkies in the two meters band, field strength measurements at various distances were converted into antenna efficiency taking into account the power output of the talkie. The conventional rubber ducky produced a reading that indicated an efficiency of only 7%. The AEA "Hot Rod" antenna exhibited an efficiency of about 57%.

.....de HR Report

## Alpine Co. DXpedition



Aug 22 & 23

## 220-222 TO LAND MOBILE?

On February 12, 1987 the FCC released a Notice of Proposed Rule Making, General Document 87-14, that proposes to allocate 220 to 222 MHz on an exclusive basis to the Land Mobile Service and 222 to 225 exclusively to the Amateur Service. According to the FCC, the 220 to 225 MHz band is underutilized and that the Land Mobile Service has needs that can be met in this region of the spectrum. Therefore, the Commission is proposing that the lower 2 megahertz be reallocated on a primary basis from the Amateur Service to the Land Mobile Service for both government and nongovernment operations. Comments on this proposal may be filed with the FCC on or before April 6, 1987. Reply comments maybe filed on or before April 21, 1987.

SARA V.E. EXAM

JUNE 6, 1987

COUNTY CENTER 3

OAKDALE ROAD, MODESTO

CONTACT PERSON, BILL,

WA6OHP, 209-239-9486



# Editor's WA6ZLO Notes

Don't forget this month's meeting will be held at the Acapulco Restaurant on McHenry Ave. in Modesto. If you are not sure how to get there look at the map on the front page. +++ Welcome to several new members of SARA. Tom Walker of Hilmar, N7EDZ. Tom is a retired air traffic controller first licensed in 1981. Vorus Stillwell, WA6LJB, of Modesto. Vorus is retired and recently moved here from Hemet. He was first licensed in 1958. And welcome the following graduates of the most recent SARA license class who in addition to earning their tickets also earned a free membership in SARA for 1987. Bonnie Hartz, (WDQ-FXX's wife), got her Technician license. She is WDQ-HHB first licensed as a Novice in 1976. Bonnie is a loan processor. Catherine Longwell of Modesto, Novice.

John McGaughey of Manteca, Novice. John is a student. Cliff Kachline of Modesto, Novice. He is retired. Roy Watson, KBENKI, Technician. Charles Lettin of Keyes, Novice. With these additions our membership stands at 138 as of February 22. +++ Gene, KI6DC, got a note on his door recently from Dan Von Jenef, N3ELB. Dan advised that he was in town for a visit from his home in Maryland. Dan's company is AAI located in Hunt Valley, Maryland where he is a missiles and robotics technician. +++ Bruce, NK6C, reports that it's taking the FCC approximately 25 days to process a license renewal. +++ Telemobile Inc. has introduced an ear microphone accessory for use with all of their handhelds. The EAR MIKE fits like a hearing aid into the operator's ear to receive and transmit through the ear canal. Sounds from the minute voice vibration present in the ear canal activate the transducer for clear transmission without background noise. The transducer is also able to act as a conventional ear phone receiver. The operator can function hands free and in high noise areas by wearing an earmuff accessory and an arm mount strap for

work in airport operations or security police work in congested areas. It is also designed for use with gas and smoke masks used with their particular handhelds. No mention of whether or not this device will work on our type of talkies. +++ Several members are getting excited about the planned DX-pedition to Alpine County in August. A completely equipped motor home has been lined up to provide comfort and operating quarters. Gary, KJ6Q, in Vacaville plans to provide his motorhome for the event. Larry, WD6CMI, is in charge of the event and if you would like to participate and have some fun, get in touch with Larry at 667-8363 in Turlock. There is much to do and your help would be appreciated. +++ "Adam" was the first judge. He was the first man to try anyone!" +++ Nothing new to report on the Jack Ravenscroft interference conviction in Canada. His lawyer is waiting for a transcript of his trial which is needed to prepare his appeal. +++ The W6ZFN-2 digipeater at Little Rock (near Lancaster) is now operational and has opened a new path to Nevada, Arizona and Utah. Some Wyoming packet stations have been seen on this path. W6AIE-1 digipeater and its mailbox

have been shut down indefinitely due to one person's abuse of it. As reported last month, the W6AMT digipeater at San Jose is now using Net/Rom (Layer 4) firmware which speeds up the transmission of data when using several digipeaters. In tests from Los Angeles to San Francisco the time was reduced by 80% percent. +++ Condolences to Lynn and Pat Windus on the passing of Pat's mother, Mildred Hartzell on February 5. She was 90 years old. By the way, Lynn (KB6DXX) is doing just fine on his recovery from his recent heart attack. That's it for this month. 73, Bob, W6ZLO.

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## CLONE CRUSHER

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IBM's 8086-based \$1,200 CC (for "Clone Crusher" instead of PC) is reportedly having severe production problems and will not be introduced until at least April. IBM ended 1986 with a 27% decline in earnings, one of its poorest performances ever. AT&T is also hurting. They have reduced their PC's by as much as 32% due to a changing market. IBM chopped 12,000 employees and AT&T eliminated 30,000 jobs to compete with leaner companies.

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# THE AMERICAN RADIO RELAY LEAGUE, INC.

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## SECTION MANAGER

SAN JOAQUIN VALLEY

Charles P. McConnell W6DPD

Credit for written examination elements passed (PR Docket 86-63) went into effect on February 13, 1987. The Office of Management and Budget approved the necessary changes to the FCC 610 Form. The July 1985 version of the form with an OMB expiration date of 3/31/88 will remain in use until revised forms are available.

The FCC has issued PRB-3 which is a request for comments on a proposal inquiring if call signs could be issued by the private sector. Under the proposal the FCC would issue one 2x3 callsign from the NA-NZ prefix block for each new licensee regardless of license class. All other callsigns would then be available through a Special Call Sign Coordinator (SCSC) who would assign one or more supplemental call signs at the request of the licensee. The Amateur could use either call sign for identification purposes. The SCSC would be allowed to recover administrative costs but not make a profit. Comments on PRB-3 are due on or before April 23, 1987 and reply comments on or before May 22, 1987.

The FCC had denied the request of ARRL for the stay of the effective date of Docket 85-196 which transferred maintenance of the Amateur question pools from the FCC to the VECs. The VECs have agreed to maintain existing exam questions until January 30, 1988, and they will cooperate in developing a common question pool. ARRL still had a Petition for Reconsideration of this matter on file.

ARRL has filed comments in opposition to FCC Docket 86 337, regarding Automatic Transmitter Identification Systems (ATIS). This Docket would require the installation of such a system at time of manufacture. This would identify each transmitter each time it transmits.

The ARRL BOD voted to proceed with plans for the Museum and Visitors Center by authorizing a fund raising effort. The complete minutes of the meeting are in the March 1987 QST.

FCC has dismissed the ARRL Petition to release the 17 meter band, 18.068 through 18.168 MHz, to U.S. Amateurs.

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## AMATEUR CALL SIGNS

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As of February 1, 1987 the following call signs had been issued in the sixth call district. Extra-AA-6AI. Advanced-KI6OT. General-Tech, N6OTB. Novice-KB6PXJ. Group A (2x1) calls in the 4th and 6th call districts are gone. Calls from the AA and AK series are now being issued in these two districts. It is taking about two months to get the call assigned once you upgrade.

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## NEW 800 SERVICE COMING

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Look for MCI and U.S. Sprint to introduce "800" service shortly. Up to now, only AT&T offered inbound WATS service. MCI will offer 800 service next month followed by U.S. Sprint. MCI will cost less than AT&T, and Sprint's 800 service will be priced under MCI! Not to be outdone, AT&T is readying their "Readyline" which enables small business to connect 800 service to their existing phone line! Eliminated will be high installation charges.

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## AMATEUR RADIO EXAMS

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Date Call-sign and Telephone of Contact Person.  
Test Fee \$4.35.

Mar 1 Chico KE6EP  
(916) 893-5208.  
Mar 7 Visalia W6MUV  
(209) 627-5346.  
Mar 7 Cupertino AE6Z  
(408) 243-8349.  
Mar 14 Jackson KE6NS  
(209) 296-4771. Los  
Altos Hills W6NLG (408)  
255-9000.  
Mar 29 Santa Cruz  
W6NLG (408) 255-9000.  
Apr 4 Auburn NR6N  
(916) 722-3598.  
Cupertino AE6Z (408)  
243-8349.  
Apr 5 Pleasant Hill  
WX6A (415) 932-0491.  
Apr 11 South S.F. W06F  
(415) 755-5784, Los  
Altos Hills W6NLG  
(408) 255-9000.  
Apr 18 Reno, NV K7HRW  
(702) 972-3933.  
May 2 Fresno W6DPD  
(209) 431-2038.  
May 3 Chico KE6EP  
(916) 893-5208.  
May 9 Los Altos  
Hills W6NLG (408) 255-  
9000.  
May 16 Sacramento  
WA6RPB (916) 483-3293.  
Jun 6 Modesto WA6QHP,  
(209) 239-9486. Eureka

# Your Invitation

Several complimentary issues of READOUT were mailed this month. If you are not a member of SARA and received a copy of READOUT, we hope you enjoy it and will accept this invitation to join SARA. You will enjoy meeting new friends and the many activities of the club each year. Your membership brings with it the club's monthly newsletter, READOUT and use of the autopatch facilities.

Please use the handy membership application below to apply for membership. If you would like more information on SARA please write to the Club at post office box 4601 Modesto, CA. 95352.

## Join In **DUES** Pay

January .....	\$15.00
February .....	\$13.75
March.....	\$12.50
April .....	\$11.25
May.....	\$10.00
June.....	\$ 8.75
July.....	\$ 7.50
August.....	\$ 6.25
September .....	\$ 5.00
October.....	\$ 3.75
November.....	\$ 2.50
December.....	\$ 1.25

# Membership

## MEMBERSHIP APPLICATION

Name \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_ MEMBER OF APRIL? \_\_\_\_\_

City \_\_\_\_\_ Home Phone \_\_\_\_\_

Bus. Address \_\_\_\_\_ Bus. Phone \_\_\_\_\_

Occupation \_\_\_\_\_ Date of Birth \_\_\_\_\_

Class of License \_\_\_\_\_ Year First Licensed \_\_\_\_\_

Entered Rosier ( )

Entered Mail List ( )

Membership year (19 )

Welcome/Autopatch letter sent: ( )

Treasurer ( )

**FOR OFFICIAL USE ONLY:**

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## DESCRAMBLER LAWSUIT

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General Instrument Co. has filed two lawsuits against two Phoenix firms that allegedly manufacture and sell illegal computer chips that enable all scrambled satellite delivered programming to be received by backyard dish owners. General filed the suits against Picture Perfect Engineering and Miller Enterprises charging that the chips they provided defeat their VideoCipher II technology. The chips are commonly known as "Muska-teen" (one for all and all for one) chips. The installation of the PROM chip in the place of the one in the original descrambler allows all programming to be received while paying for just one service. General estimated that over 1,500 illegal VideoCipher II descramblers are now in use. The suits were filed in early January.

WA6ZLD is the Editor of The READOUT. If you are on Packet, you can leave information or stories in his mailbox on the W6-FGC-2 BBS at Twain Harte. Frequency is 145.05 MHz.

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## SARA FEBRUARY MINUTES

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(From Page 4)

tures to change the bylaws regarding family membership will not be ready until the next meeting. VP, Bud, DCV, volunteered to be the new program chairman. Meeting adjourned at 9:15 pm. Respectfully submitted by SARA Secretary, LaVerne, KB6ECF.

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## RUSSIAN WOODPECKER

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(From Page 5)

degree azimuth coverage, 2 km range resolution, 19 to 20 km absolute range accuracy, 1 degree azimuth angle resolution and 1/10 Hz Doppler resolution."

...de Barry WA4VZQ  
Eastman Chemicals  
Division Research  
Kingsport, TN

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## HEATH TNC CLOSEOUT SALE

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The Heath Company advises that they have special closeout prices on their Packet Terminal Control/TNC Status Indicator/HF filter system. Kit was \$299.95, now \$129.95 on first come /first served basis. Another system special is on the RTTY Interface kit. Originally \$249.95, now \$179.95.

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# CALENDAR

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Mar.	17,	1987...	SARA Monthly Meeting 730 p.m.
			Acapulco Restarant.
April	21,	1987...	SARA Monthly Meeting 730 p.m.
May	1-2-3,	1987...	Fresno HamFest
May	19,	1987...	SARA Monthly Meeting 730 p.m.
June	16,	1987...	SARA Monthly Meeting 730 p.m.
July	21,	1987...	SARA Monthly Meeting 730 p.m.
Aug.	18,	1987...	SARA Monthly Meeting 730 p.m.
Aug.	22-23,	1987...	DXpediton to Alpine County
Sept.	9-11,	1987...	ARRL National Convention in Portland, Oregon
Sept.	15,	1987...	SARA Monthly Meeting 730 p.m.
Oct.	20,	1987...	SARA Monthly Meeting 730 p.m.
Nov.	17,	1987...	SARA Monthly Meeting 730 p.m.

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

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ADDRESS CORRECTION REQUESTED  
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**Stanislaus Amateur Radio Association, Inc.**  
**P.O. Box 4601 Modesto, Ca 95352**