

SIERRA FOOTHILLS AMATEUR RADIO CLUB

A SPECIAL SERVICE CLUB ASSOCIATED WITH THE AMERICAN RADIO RELAY LEAGUE

APRIL 1995

NEWSLETTER

AMATEUR RADIO NEWS SINCE 1958

VOLUME 36 NUMBER 3

P.O. BOX 3262 Auburn, CA 95604

News Editor: Matthew Diridoni - KC6RUO

AT THE KEY OF S.F.A.R.C.

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632-4084

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885-1677

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WA6ULL
Bob Boeckman
983-2776

W6SUP
Bob Metke
783-7610

W3PMP
Bob Greenslade
624-5234

CLUB NETS:

ALL WELCOME TO CHECK IN

Wednesdays 7:30 PM 10M
On/Close to 28.415 MHz

Thursdays 7:30 PM 2M / 220
K6ARR & Club Repeater
145.430 (-600, PL 94.8) or
223.860 (-1.6 MHz)

CLUB MEETINGS: Second Fri.
each month, 7:30 PM Auburn
Fire Dept. 226 Sacramento St.
Auburn, CA.

BOARD OF DIRECTORS MEET
Check Event Calendar For Dates
7:00 - 7:45 PM, Roseville City
Main Library, 225 Taylor St.

CLUB BREAKFAST

Last Saturday of the month
(Except in December), 8:00 AM
to 9:00 AM, Susie's Country Cafe
in Roseville Hwy 80 & Riverside Av.

Thurs Night Net Controller:
Dick Lund - WA6HYO 885-3190

1995 CALENDAR OF EVENTS

Apr 14	Club Meeting
Apr 24	Board Meeting
May 12	Club Meeting
May 22	Board Meeting
Jun 9	Club Meeting
Jun 24 & 25	Field Days!!
Jun 26	Board Meeting
Jul 1	Community Event - Rocklin Jubilee Parade
Jul 14	Club Meeting
Jul 24	Board Meeting
Aug 11	Club Meeting
Aug 26	Club Picnic
Aug 28	Board Meeting
Sep 8	Club Meeting
Sep 25	Board Meeting
Oct 13	White Elephant Sale
Oct 23	Board meeting
Oct 31	Community Event Halloween Patrol, City of Rocklin
Nov 10	Club Meeting
Nov 27	Board Meeting
Dec 8	Christmas Party
Dec 18	Board Meeting

YOUR SFARC NEWSLETTER PRINTED BY

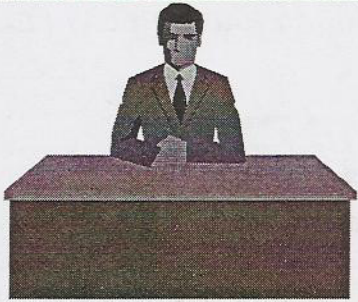
SNAPPY PRINTING

2280 Sierra Meadows Drive
Rocklin, California 95677

(916)-624-3371

Thanks Snappy!

Happy Easter



**FROM THE VICE-PRESIDENT'S DESK
MATTHEW DIRIDONI - KC6RUO**

Thank you Stan Harder, KH6GBX, for a most interesting presentation. If members have further questions for Mr. Harder about the Auxiliary Communications Service, Office of Emergency Services, he can be called at (916)-262-1603, or by packet, KH6GBX @ WA6NWE.#NOCAL.CA.

We still have no luck on finding a Field Day Coordinator. If you, or a group of members, are interested in filling this most important position, please call President Martha Vance at (916)-723-5488.

That's it for now, hope to see you all at the next meeting on April 14, 1995.

73's

M.B. Diridoni

Vice President



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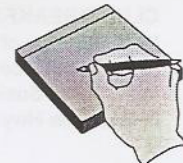
ADVERTISING?

**THIS SPACE COULD BE YOURS FOR A
VERY REASONABLE RATE.**

*If you would like to place an advertisement,
contact the SFARC Treasurer.*

Jim Venneman (916)-885-1677

THE VOLUNTEER EXAMINER REPORT



Bob Metke, W6SUP

For the month of March, the V.E. team tested 10 applicants and gave a total of 12 tests.

The Sierra Foothills Amateur Radio Club V.E. team continues to take time out of their personal family lives to help those wishing to get involved with amateur radio.

For more information on classes or testing dates, please feel free to call.

73's, Bob Metke - W6SUP

511 Oak Street

Roseville, CA. 95678

(916)-783-7610

WHAT IS PACKET RADIO?

Courtesy of America On Line BBS

Packet Radio is digital transmission method available for use on Amateur Radio. It provides 'error free' transmission and reception of messages (information/data/etc.) between two stations. This error free capability is a prime consideration ('error free' in this context does not mean that your 'typing or spelling' mistakes will be fixed, but that all transmitted 'data' will be received 100% intact, as sent). In fact, if the data cannot be delivered 100% intact, the sending is eventually aborted and the user is informed that there is no longer a 'connection' between the two stations.

The 'Packet' in 'packet radio' comes from the method of transmitting your information over the air. Your 'data' is broken up into packets (or blocks) that are transmitted. Each packet contains the sending and the receiving station callsigns and some optional 'routing' information. A packet can contain from 0 to 256 data (or information) bytes. The users normally do not need to be concerned with this 'packetizing' of their messages. Each packet is sent and then acknowledged by the receiver when received. If a packet is not received correctly, then it is automatically re-transmitted (up to a maximum number of times).

One of the more popular protocols used for Amateur Packet Radio is known as AX.25. This is very similar to the commercial X.25 standard. There is also a growing TCP/IP user base. If you are not network oriented, then the details of these protocols are not important to you as an operator of a packet radio station.

Be aware that most packet radio operation at this time is at 1200 baud. This will seem slow when compared to what it happening on networks, and on telephone BBS's....but what is gained is world wide access, for NO COST. Once you have your equipment, and your license, there are no fees (except for the electricity that your computer and other equipment use :-))

What kind of equipment do I need, and how do I use it with my computer?

Since you have a computer, you already own the most expensive part of an Amateur Radio Packet Radio station. The other piece of equipment that you need is the TNC (Terminal Node Controller). The TNC contains all the software and special hardware that you need. It actually contains the MODEM (to interface with your

radio) and (usually) a microprocessor with the packet software contained in EPROM. You interface your computer (or even a simple dumb ASCII terminal) with the TNC via serial RS-232. Use your favorite 'terminal emulation software' on your PC (the same software that you use with your telephone modem will probably work fine).

Most 'primary' packet radio operations occur (in the USA) on the two meter band. Check out the following frequencies (they may be different in your area, check with some local hams if you don't hear anything) even the typical 'police scanner' can be used to listen to these frequencies:

145.01, 145.03, 145.05, 145.07, 145.09 Mhz also, if the above are busy, many areas also use: 144.91, 144.03, 144.95, 144.97, 144.00 Mhz

Yes, this is with a 'standard' FM radio set for SIMPLEX transmitting. If there are packet radio transmissions you should hear a sound like:

BBBBbbbbbbrrrrraaaaaaappppppp

3) How much technical (hardware) proficiency is required to manage a packet radio system? (I have a general understanding of hardware, but am more comfortable programming.)

Well, if you can plug an RS-232 cable into a modem, and wire the TNC to your radio (most TNC's connect to the microphone plug of an FM rig, normally only needing Push To Talk, and Transmit Audio. Plus a connection to the speaker audio output from the FM receiver), then you have all the ability that you need. If you are not comfortable with wiring a microphone connector...I am sure that there are hams that would be glad to help you.

It really is very simple, and once it is done, there is virtually no maintenance. Just plug in your TNC in place of your microphone and external speaker jack, and you're on the air...to return to voice operation, plug in your microphone. If you like, build a simple switch box to allow easy changing between your TNC and voice operation. I don't recommend it, but some wire the TNC and Microphone in parallel, so that they don't need to change the plugs, or switch anything at all.

4) Just what's out there for me to access via packet radio? Here comes the interesting part....I believe that packet radio is still in its infancy...It seems like every day a new application for packet radio is announced...some are good ideas...others not.

Here is a *simple* list that just highlights some of the available uses of Amateur Packet Radio.. I am SURE that I have forgotten something and left it off the list:

EMAIL: At this time we have 'world wide' email distribution. I personally have received email from a few continents, and from all over the USA. Of course, this is limited by the Amateur Radio rules/regs, so there can not be any commercial messages. This is possible with "store and forward" bulletin board systems (BBS) that automatically forward message from location to location until it reaches a destination BBS.

Bulletin boards (BBS), which are similar to telephone BBS and carry postings similar to the stuff on Usenet and other computer services and also often have archives of useful files (such as local ham license testing sites). These are usually the same systems that transport email which also makes it possible to post notices on BBS all over the country.

File transfers. Better at 56 Kbaud (as some hams are doing), but feasible at 1200 baud. This includes all types of files, not just ASCII text, so it is possible to transfer programs, graphics, etc. The capability for doing this is dependent on what type protocol in use and the amount of traffic on the frequency being used. On TCP/IP, you just start it and forget it, so you can do them overnight or at some other time when you don't care whether it takes a while.)

Local networks: Here in New England there is connectivity over most of the 6 states. From Derry, NH, for example, it is possible to 'connect' to other stations from the following areas consistently: Canada (Quebec), Vermont, New Hampshire, Maine, New York, Connecticut, Rhode Island. Of course, on HF there can be 'world wide' connectivity, depending on many factors.

DOSGATE: A system that allows you to execute programs remotely. A DOSGATE system may have many programs for you to use over the air. You don't need to download the programs to use them, you are actually running programs remotely. For example, my DOSGATE system has the following programs available for use by 'remote' packet users:

AUTOEXAM: take the latest Amateur Exams from Novice to Extra, used as a study guide, or to see if you are ready for the license exam.

SeeSats: Real time satellite tracking. Informs you of where the current OSCAR (and other) satellites are located.

AUTOCALL: Online Amateur Radio USA 'callsign' lookup database. Simply enter the callsign of any amateur radio operator in the USA and it will print out the name, address, license class and previous callsign (if any).

GAMES: Several 'adventure style' games that can be played online.

Repeater database: A database of many of the repeaters in the area.

DOSGATE allows those who don't have a computer to run programs via packet radio.

Databases. It is also possible to access databases without DOSGATE. There are several available in different parts of the country. You can remotely access callbook (address information), vessel tracking info, HAZMAT (hazardous materials). The DX Packet Cluster also provides a variety of DX information from its database.

PacketCluster-DX spotting: This is a specialized system that allows a couple hundred users to be 'connected' to the same system at one time. It is used by those Amateur operators who seek contacts with rare stations throughout the world. When any one user 'finds' a rare station on the air, he simply types the information (callsign, frequency and mode) into his terminal, and within a minute or so, everyone of the other users connected to the 'packet cluster' are informed of the rare station!!! So called "DXers" (people who love to hunt these rare stations) LOVE this system. These users can be spread over a wide area (our local packet cluster system has connectees from Maine to New York).

Gateways: Even though you may not own any HF or UHF equipment (many packet radio operators only use a simple 'hand-held' FM transceiver), you can gain access to other bands and operating modes by using a gateway. A gateway allows connectivity between two normally un-connectable communication technologies.

Public Service: Many packet stations are used to help out with sending messages during disasters. Amateur Radio operators help out whenever they can, and many Hams have their packet stations ready for portable operation to help when needed. There are many 'training' exercises during each year to help practice and test the 'readiness' of the emergency stations.

OSCAR Satellites: OSCAR stands for Orbital Satellites Carrying Amateur Radio. We have our OWN satellites in orbit that are dedicated for Amateur Radio use. There

are some satellites that are dedicated to packet radio (sometimes called "PACSATS"). Some of these are special, others are for 'store-and-forward' operations to help distribute 'packet traffic' around the world.

Station-Station: I almost forgot...many people just like 'chatting' with their neighbors....The could be people across the street...or in the next state... or half way around the world!

I am sure that I have missed something...maybe others can fill in the gaps here. You asked about potential...as I stated at the beginning, we are just getting started!!! Many people are just finding out about packet radio. I believe that the only limitation is our imagination!! We could have a world wide network (we do currently have a 'slow-speed' world wide network) in the near future...It just takes a little imagination...

5) How much will a packet radio set-up cost me? How COST EFFECTIVE is packet radio?

Well, if you own the PC already...TNC's can be purchased from about \$120.00 on up. There are a few for less money, and several that provide for operating on many digital modes besides packet radio (i.e.: the Kantronix KAM will provide for: PACKET (HF:300 baud/VHF:1200 baud), AMTOR, RTTY, ASCII, NAVTEX, WEFAX, CW (morse code),...).

If you already own an Amateur FM transceiver (or an HF SSB transceiver) then you have all the equipment needed. If not, a two meter FM rig can be purchased for: used: from \$100-250.00, new: from \$300.00 on up.

Cost effective....Hmmm, well first be aware that Amateur Radio cannot be used for any commercial or business purposes...But where else can one get hours (years) of 'enjoyment' and service out of \$450.00 (\$350 for a radio and \$100 for a TNC, assuming you already have the computer or terminal). Note: This stuff can be contagious....be forewarned :-)) !!

6) What legal issues do I need to consider regarding packet radio? Do I need a license?

Yes, you need a Valid Amateur Radio License. There is Packet radio activity on the Novice bands. But if you want access to the 'mainstream' of packet radio, you will want at least a Technician Class Amateur Radio License.

There are a few books, etc...but I have found that most assume that you already know about Amateur Radio.

SFARC SECRETARY REPORT

By Jerri Metke - K6GKR

SFARC REGULAR MEETING FEBRUARY 10

The meeting was called to order by our President, Martha Vance, KA6WUW. Introductions were made.

The Vice President, Matt Diridoni introduced our Guest Speaker, Nancy Hartwell Young of the Rocklin Police Department. Mrs. Hartwell Young spoke to the group about personal safety, home security.

Bob Metke, W6SUP gave the V.E. report, Jettie Hill, W6RFF gave the ARRL report and an update on the vanity call signs, and the Secretary gave the sunshine report

President Martha Vance announced she has 2 volunteers to work the snack bar. Thank you Irene Greenslade XYL of W3PMP, and Muriel Morris, xyl WA6FSO.

SFARC REGULAR MEETING MARCH 10

The meeting was called to order by our president, Martha Vance, KA6WUW. Introductions were made.

Our Vice President, Matt Diridoni introduced our guest speaker, Stan Harder, KH6GBX, Assistant Chief, State Governors Office of Emergency Services. Stan was a very interesting and informative speaker.

Jerri Metke gave a sunshine report. The ARRL report was given by W6RFF. Mr. Hill discussed vanity call and club call signs.

The meeting was adjourned.

Respectfully Submitted,
Jerri Metke, K6GKR

FRENCH FRY FOX HUNTING

By Jim Reed, KD3S

Courtesy of Amateur Radio Newsletter Editors Bulletin

I've been goofy about fox hunting - whether hunter or hunttee - since before they invented sunspots. I was once in a club that ran a fox hunt every Sunday, rain or shine - on 10 meters.

They started with transmitters hidden in bushes, but soon progressed to the ridiculous and the sublime. Consider "mag mounting" a transmitter to the side of a bus. The guy who did that was forbidden from ever again hiding the transmitter.

Another member got his brother - muscle-bound, six feet two - to park in a car with the transmitter and snarl at anyone who approached.

One incident sticks in my mind as sneaky even by that club's standards. A technically adept brother a transmitter only an inch or two on a side - the first transistorized transmitter I'd seen that would fit inside a bag of French fries.

He concealed the antenna by threading it through a long fry that stuck out of the package. He selected me to talk into the transmitter, so I enlisted an actor friend to provide me with a disguise. After an hour of preparation, I took a seat in a local fast food emporium.

Soon the hunters appeared outside. They circled the restaurant for some time, aiming their directional loops this way and that. Finally one of them got up the nerve to bring his equipment inside.

Instantly, the manager rushed out and asked if they were the bomb squad. After convincing him they were only deranged, they searched the dining area. They were on their way back outside, when they passed near me - just as a little girl at the next table shouted, "Daddy, why is that man talking to his French fries?"

From the May 1994 Indiana County (Penn.) ARA "The Sine of the Times" Sheldon Davis, W3FVU, Editor - who credits Maryland Radio Center

YOU HAVE FOUND ME, MY SON

Courtesy of Amateur Radio Newsletter Editors Bulletin

Not so long ago, a young man, walking barefoot along the beach, felt his toes strike something hard. He dug up a crescent-shaped object and, when he scraped off the sand, saw that it was an ancient oil lamp.

As he rubbed it clean, an immense cloud issued forth, then solidified into an apparition in the form of an Arabic-looking woman.

"You have found me, my son, and freed me from the lamp. As the Mother of all Genies, I will grant you one great wish, whatever it may be. Now be quick and tell me your wish."

"Oh, great Mother Genie, I have but one wish, and it is that there be peace in the Middle East."

"My son, of all the requests you might have made, that one I cannot grant, as there has been war in the Middle East since time began, and war will continue there for another 1,000 years."

The ham pulled a map from his pocket. He pointed to the countries of the Middle East and again pleaded that she grant his wish of peace for that troubled crossroads of the world.

But she shook her head. "It is impossible to grant peace in the Middle East, but I will allow you another wish, which I surely will grant."

Disappointed, the ham thought for a moment. Then, brightening, he said, "Well, Mother Genie, I'm a ham radio operator. I wish I had a house on a hilltop, a ham station filled with top-of-the-line DXing equipment, three one-hundred-twenty-foot towers, and high-performance antennas for all bands mounted atop these towers."

The Mother of all Genies reached out her hand. "Let me see that damn map!"

Stanislaus ARC (Modesto, CA.) "The Readout" - Bob Pinheiro, WA6ZLO - News Editor.

FOR SALE

REALISTIC PRO-2023 VHF/UHF/AIR 20 CHANNEL DIRECT ENTRY PROGRAMMABLE DESK SCANNER

Includes original owners manual, indoor antenna, and
back lit LCD display.

\$75.00/Or Best Offer

AND

Antenna Specialist ASP-1450 2 meter mobile antenna

3db Gain / 150 Watts with cable and complete
installation hardware, owners manual.

Brand New - Unopened package

\$25.00/Or Best Offer

Contact Matt Diridoni - KC6RUO
(916)-487-1969

THE BREAKFAST CLUB

March 25, 1995

Another great turnout and great time at the club breakfast. For those that haven't attended one, you should really give it a try.

Attending were Fred Veffredo - KE6EET and his wife Naomi, Bob Metke - W6SUP, Jerri Metke - K6GKR, Bob Greenslade - W3PMP and his wife Irene, Dorris Durmond, Ed Ahlstrom - KD6GSZ, Carl Crump - WA6VLS, Lewis Tuttle - KE6MFL, Walt Loose - WD6EQQ and his wife Mildred, Lowell Morris - WA6FSO, and his wife Muriel, Martha Vance - KA6WUW, Roger Hedegeph N7EUQ and his wife Linda, Greg Huttala - KC6LOE, and Janet Huttala, KC6LIX, and of course, me, Matt Diridoni, KC6RUO and my son, Shane.

For those of you that haven't joined us for breakfast, come join us on the last Saturday of the month at Susie's Country Oaks Cafe, Cirby Way and Riverside Ave in Roseville (Just off Interstate 80) 8:00 am to 9:00 am. Somebody is usually monitoring the repeater if you need additional help with directions.

SPECS REHAB

"Mobility Specialists"

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THE NEW SNACK BAR CREW

President Martha Vance announced she has 2 volunteers to work the snack bar.

Irene Greenslade XYL of W3PMP, and Muriel Morris, xyl WA6FSO are the new snack bar volunteers at the club meeting

Thank you Irene and Muriel !!!

S.F.A.R.C. SCHOOL INFORMATION

By Lewis Tuttle - KE6MFL

Dave Jenkins is starting a 6 week no code class at the Roseville Library, 225 Taylor St. on Monday, April 3, 1995 at 7:00 PM to 9:00 PM. This 6 week class is free, book not included.

The required text is Gordon West's no code technician manual. The book is available at most radio stores in the area.

For more information, please feel free to call me at (916)-771-2336



TRANSMITTER RABBIT HUNT

The Sierra Foothills Amateur Radio Club, In Cooperation with the Volunteer Examiner Program, is sponsoring a transmitter hunt.

WHEN?

April 29, 1995 at 9:30 AM

LOCATION?

Meet at Royer Park in Roseville off Park Dr.
near Veterans Hall

Directions:

FROM I-80, TAKE THE WEST OFF RAMP TO DOUGLAS BLVD. TURN
RIGHT ON JUDAH ST, RIGHT ON OAK ST, PAST THE FIRE STATION,
AND RIGHT ON LINCOLN ST.

PARK DRIVE IS THE VERY FIRST RIGHT AFTER YOU CROSS THE
BRIDGE OVER DRY CREEK.

INFORMATION:

The transmitter will be hidden in a public place, within the city limits of Roseville.

This event is open to Sierra Foothills Amateur Radio Club members only.

PRIZE:

First Prize - \$20.00

Second Prize - \$10.00

Third Prize - \$5.00

ENTRY COST:

FREE FREE FREE

HSC Electronic Supply

Serving
Silicon Valley
since 1964!

...brings you a potpourri of high-tech goodies for the techno-tinkerer!
For thirty years we have been your source for Silicon Valley exotica!

Large-scale LCD

- From HP laptop computer (model unknown)
- Epson part number of ECM-A0234
- 7" x 9.25" display area
- 16 pin header on .1" centers
- Factory new in antistatic bags

HSC# 15016 **\$24.95**



Handy Power Supplies

- A) Switching power supply rated at 5VDC, 3A. Measures 2.75 x 3.25 x 5.25". IEC receptacle for universal (100 - 250VAC, 47 - 63 Hz) input. IEC cord not included. 6" output cord with DIN plug. New in box. HSC# 14996 **\$5.95**



- B) Linear supply rated at 12VDC @ 1200 mA. Input is strapped for 240 VAC input, use as is with 110VAC for lower voltage output, or re-strap it for 110VAC use at 12VDC. Measures 2.5 x 4 x 6.5". IEC cord not included. HSC# 14980 **\$5.95**

- C) Standard 6 IEC power cord for use with above supplies. Also, colors & styles, used. HSC# 15119 **\$3.99**

- D) Multi-output linear supply rated at 5VDC @ 600mA, +12VDC @ 250mA, -12VDC @ 250mA, 110VAC input, measures 2.5" x 3" x 4.75". generous 4" AC input cord, 5-pin DIN output cord. HSC# 15137 **\$14.95**

- E) Same as "D" above, only 5VDC @ 500mA, +12VDC @ 1A. HSC# 15130 **\$9.95**

VGA to RGB Cable

- Ten foot cable
- High-density 15-pin D-sub (VGA type) connector at one end
- 5 BNC Connectors at the other end: Red, Green, Blue, Horizontal and Vertical synch.
- Perfect for those high-res CAD monitors

HSC# 14963 **\$14.95**

Rechargeable Battery

- 4 "D" Cell-size - 4 8VDC 3500 MAH/5hr NiCd
- Sturdy steel case with mounting ears, pin jacks
- Charge regulation circuitry, .5 A Fuse
- Case size 9" x 4.25" x 2.25" (batteries can be unplugged and removed if desired)
- Unused, 1992 date codes (still good)

HSC# 15057 **\$4.95**

Macintosh Scanner #1

- B&W Hand Scanner, SCSI Interface
- 100 to 400 dpi
- 4.134 inch scan path
- "MacScan" software
- New in box
- 90-day warranty
- Requires Mac Classic, SE, LC, SE/30 or II family, 1 MB



HSC# 14809 **\$49.95**

Computer Speakers

- External speakers by Libtec, model CS-550
- Use with any sound card or personal stereo system
- 4 watt amplifiers (requires 2 C-cables per side)
- Magnetically shielded enclosures
- "Enhanced bass-response cabinet"
- 3" speakers, 40 - 16000 Hz
- Bass-boost and treble-boost switches
- Factory returns, should be OK.



HSC# 14977 **\$9.95**

Network Cable Special

- Dual Workstation Installation Kit
- Two high-quality 10' RG-58 coax BNC cables
- Two BNC Tee's
- Two BNC 50Ω terminators
- One BNC coupler
- Enough to cable two Thin-net workstations to the wall-plate distribution point

HSC# 14957 **\$9.95**

Computer Parts Specials!

- A. Eight-bit VGA/EGA Video Display Cards
 ♦ 256K VRAM, non-upgradeable, may be used
 HSC# 15089 **\$19.95**
- B. Internal 2400 BPS Modem by Everex
 ♦ New card, no software, cables or book
 HSC# 15101 **\$14.95**
- C. Mini-Lower Power Supply, 145 Watts, Used, 30 day war.
 ♦ 6" motherboard leads, 18" switch leads
 HSC# 14730 **\$14.95**

External Floppy Drive

- 5.25" half-height 360K floppy drive, beige face
- Sturdy beige enclosure with power supply
- IEC Power cord, 37-pin D cable included
- Case size 6" x 2.25" x 12.5" (great for mounting other external drives, i.e. CD-ROM, etc.)
- New in box, with manual
- 90-day warranty

HSC# 15138 **\$24.95**

Transaction Terminal

- Used VintFone Trans 240 terminals
- Vacuum-fluorescent alphanumeric 16-character readout
- 12-key keypad ♦ Z80 proc. ♦ CMOS program EPROM
- Mag-stripe read-head (may have been disconnected)
- Communicates over an RS-485 line
- Needs 8.5 VAC adaptor
- Quantity discounts available

HSC# 14844 **\$19.95**



Modem Madness!

- Hyundai external 2400 bps modem
- New in box with kinko cable, manual, power adaptor
- CCITT V.21/V.22/V.22bis compatible
- UNIP Case 5 compatible
- 8" x 1.25" x 8.5" compact size
- RS-232C serial interface
- Communication Software included

HSC# 15179 **\$17.50**

Unusual...Bifilar Wire

- Two color-coded enameled conductors bonded together
- Used for winding RF matching transformers and other exotic induced-voltage applications
- 0.08 millimeters in diameter (looks like the size of a hair!)
- Can be pulled apart (cautiously) and solvent-stripped for solder connection.
- 720 meters on a roll - Thinnest wire pair we've seen!

HSC# 14376 **\$7.95**

Laser Diode

- Toshiba TOLD-0200
- 3 to 4 mW at only 75 - 100mA of current
- 670nm wavelength (visible red)
- Brand new prime
- Uncontrolled, needs current regulation
- Application sheet with suggested circuit supplied

HSC# 15163 **\$17.95**

Aerial Dogfight Game

- Lucasfilm's "Their Finest Hour - The Battle of Britain"
- Historically accurate depiction of key WW II battle
- "Fly" as Spitfires, Stucs or one of six other fighter planes
- Realistic looking cockpit instrument panel on screen.
- Instruction book has 46 page history of the war with period photographs, campaign maps, profiles and quotes
- Turn on a "cockpit camera" to record your battle
- IBM/DOS, EGA/VGA, AdLib compatible.

HSC# 14854 **\$9.95**

Cool! Peltier Devices

- Up to 65° C temperature differential (needs heatsink)
- Electronic cooling elements use 3 - 12VDC
- One side gets cold while the other gets hot
- With specification sheet.

HSC# 80121 1.17" square **\$20.00**

HSC# 80122 1.56" square **\$29.95**



Network in Windows

- Genuine Microsoft Windows for Workgroups Add-on
- Requires Windows 3.1
- Includes Microsoft Mail, Microsoft Schedule +
- Share files, printers with a click of the mouse!
- Connects to Microsoft LAN Manager, Novell Netware
- New in box, adds one workstation

HSC# 15134 **\$12.50**

CD-ROM Starter Kit!

- Sony CDU-515 Internal CD-ROM Drive (uses addins)
- Pulled from defective multimedia enclosures (drive OK)
- Single-speed half-height drive, Sony 40-pin interface
- Front speaker/speaker jack, rear audio connection
- New controller card, cable included (no software, caddy)
- 90-day warranty

HSC# 15191 **\$49.95**

Multimedia Woofer!

- 60-watt air-suspension speaker with built-in crossover
- Mediatek Model 670-0020, used with CDPC system
- 6" speaker, 30 - 300 Hz freq. response, 40 Watts RMS
- Handsome black styling with removable black grille
- 9" x 7" x 17" cabinet, 1/4" phone plug input (cable incl.)
- New in box, 90-day warranty

HSC# 15178 **\$27.50**

Laser Pen times two!

- Solid state laser diode
- 4mW at 650 - 680 nm (visible red) wavelength
- Uses two AAAA cells (included)
- One year warranty
- A. Brushed Aluminum Case

HSC# 1515-0006 **\$49.95**

B. High-Tech Aluminum Case, with "Blink" mode

HSC# 1515-0007 **\$49.95**



12VDC Mega-power!

- LI Research Super-Mite switching power supply
- Provides 12 VDC @ 84 Amps!
- Model #SM11.2/115
- Switching supply, so don't run without a load!
- 115 VAC input, 2000 VA, has 5" fan
- Used, 30-day warranty (void if run without 50% load)

HSC# 15185 **\$89.95**

Back-up Tape Drive

- Colorado Memory Systems "Jumbo" model drive
- 120 Megabyte external tape-backup unit
- Requires software (we don't have it, sorry!)
- Interfaces like a floppy drive (37-pin connector on back)
- 6.75" x 2.5" x 10" case with power supply, no IEC cord
- 90-day warranty

HSC# 15171 **\$59.95**

HPIB Cable

- Genuine Hewlett Packard (#922220R)
- HPIB/GPIB Interface cable, 1' long
- Has dual stackable 24-conductor at each end
- Fully shielded, rugged metal hoods

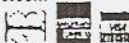
HSC# 14803 **\$12.50**



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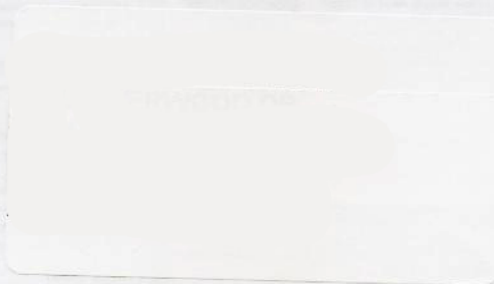
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Sierra Foothills Amateur Radio Club
P.O. Box 3262
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TO:



SIERRA FOOTHILLS AMATEUR RADIO CLUB MEMBERSHIP APPLICATION

Membership is valid from the date received until December 31 of that same year. Memberships received during the year will be pro-rated.
MEMBER DUES: \$17.00, ASSOCIATE DUES: \$7.00. NOTE: SEE APPLICATION BELOW FOR ARRL MEMBERSHIP
MAIL APPLICATION TO: SFARC TREASURER, P.O. Box 3262, AUBURN, CA. 95604

MEMBER NAME _____ CALL _____ Class _____
Last Name First MI

ADDRESS: _____
Numbers Street Name City State Zip Code

TELEPHONE NUMBER _____

DATE: _____ Member: \$17.00 Associate: \$7.00 Repeater Donation \$ _____

Auto Patch Donation: \$ _____ Club Patch: \$2.00 TOTAL _____

ARRL APPLICATION FORM - ARRL CLUB NUMBER _____ DATE _____

Renewing your ARRL membership through the club costs no more, and earns the club money for each membership renewal.
Make check payable to SFARC and return to club Treasurer, P.O. Box 3262, Auburn, CA. 95604

Name: _____ Call _____ Class _____

Address: _____ State _____ Zip _____

Regular Member: \$30.00 Yearly ** Special Under 17 Yrs or over 65 Yrs, \$24.00

Member type and Number: R _____ Sp _____ Life time _____ TOTAL _____