

f Events

Jan 31	Mon	7:00 PM	ARES Meeting - Round Table Pizza, 2065 Occidental Rd., Santa Rosa. Training session on Written Radiogram Traffic. There will be an informational session followed by a workshop.
Feb 2	Wed	5:30 PM 7:30 PM	No-Host Dinner at Coco's, 1501 Farmers Lane, Santa Rosa SCRA Meeting, Luther Burbank Art & Garden Center, 2050 Yulupa Avenue, Santa Rosa
Feb 4	Fri	7:30 PM	Marin ARC Meeting, Alto Clubhouse, 27 Shell Road, Mill Valley
Feb 5	Sat	10:00 AM	Red Oak Victory ARC Meeting, Point Richmond
Feb 9	Wed	6:30 PM	SCRA Board of Directors Meeting
Feb 15	Tues	7:30 PM	Hamilton Wireless Assoc., Bldg 549, Hamilton Field, Novato
Feb 16	Wed	7:00 PM Wed 7:30 PM	REDXA Meeting, Carrow's, Petaluma Valley of the Moon ARC Meeting, McDougall Hall, Sonoma Developmental Center, Glen Ellen.

Sonoma County Radio Amateurs, Inc.

P. O. Box 116
Santa Rosa, CA 95402-0116

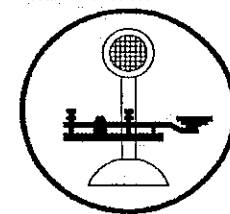
RETURN SERVICE REQUESTED

Time Sensitive Material - Please Deliver Promptly

Expires: 03/01/2005

John Breckenridge II
574 Wild Oak Dr
Windsor CA 95492

WB6FRZ

Club Station
W6LFIJ

Short Skip

newsletter of the

Sonoma County Radio Amateurs, Inc.

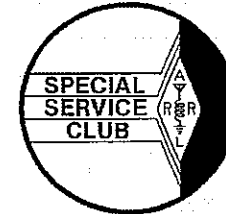
P. O. Box 116, Santa Rosa, CA 95402-0116

(707) 579-9608

<http://www.sonomacountyradioamateurs.com>

Repeaters

146.985- • 146.73- • 224.48- • 441.375+

Repeater Station
W6SON

Volume 30 Number 2

February 2005



President's Column

by
John Felton KE5RI
SCRA President

Greetings, All!

I can say without hesitation that our January meeting was an outstanding success. We had an excellent turnout and the level of participation was terrific. Our "brainstorming" session yielded more than one hundred ideas and suggestions. In fact the list was so overwhelming that we are still working on categorizing and prioritizing each item. As of this writing, your board has scheduled a special meeting to analyze and evaluate each and every idea. Our goal is to consolidate the list to make it more manageable. We will report back to you at the earliest possible date.

In the days following the meeting I received a number of calls and messages. All were positive in nature and expressed support of our stated goal to move forward and make 2005 a year of fun and progress.

Now to answer the question you are all thinking. What is the program for the next meeting? Well, I am pleased answer that question. The speaker for our February meeting will be our past president, Brian Torr, N6IYY. Brian will discuss and demonstrate Spectrum Analyzers. As you probably know, Brian has worked for HP for many years and has offered to share his knowledge with us. [See note below] Be prepared to move into another world. We are all used to dealing with the time domain. Maybe because we LIVE in the Time Domain. Brian will lead us into the Frequency Domain. Now I have a question for you. Since Time is

(continued on page 3)

FCC CHAIRMAN
MICHAEL K. POWELL
ANNOUNCES HIS RESIGNATION

FCC Chairman Michael K. Powell announced that he'll step down, effective "sometime in March." Powell's resignation comes just one day after President George W. Bush's inauguration for a second term in the White House. Nominated by former President Bill Clinton, Powell--whose father is Secretary of State Colin Powell--joined the FCC in 1997. He became its chairman two days after President Bush was sworn in for his first term in 2001. ARRL CEO David Sumner, K1ZZ, called Powell's performance "a deep disappointment" after some initial optimism. While the League is not unhappy about Powell's departure--especially given his unabashed cheerleading on behalf of the FCC's broadband over power line (BPL) initiative--there's also concern about whom President Bush might call upon to replace him.

"It's no secret that we thought Chairman Powell was going entirely in the wrong direction on BPL and

(continued on page 8)

DUES ARE DUE!

Yes, it's that time of year again. The SCRA dues for the 2005-2006 fiscal year are due. The dues are **\$24 per year for individual members** and **\$36 per year for a Family membership**. If you are a current SCRA member, a renewal envelope is included in the February issue of *Shortskip* to make it easy to send in your dues. Please take a couple of minutes and complete the membership information on the envelope flap so that we can update the roster. If the envelope is missing, please use the membership application on the inner last page. *Thanks!*

2005 Club Officials

President	John Felton	KE5RI	707 539-5831
Vice President	Kevin Alt	K6BSG	707 566-9016
Secretary	Rich Freitas	KE6SZA	707 578-9335
Treasurer	Jim Lee	KE6VGV	415 892-0317
Director	Bruce Donecker	N6CT	707 823-7969
Director	Bill Hillendahl	KH6GJV	707 544-4944
Past President	Brian Torr	N6IYY	707 575-5871

Activities Chairman
Public Service Chairman
Repeater Chairman

Greg Gordon	AC6VJ	707 523-7077
-------------	-------	--------------

Short Skip & Web Staff

Editor	Bill Hillendahl	KH6GJV	707 544-4944
Hank's Swap Shop	Jeff Basham	KK6JAB	707 542-3860
Web Master	Jeff Basham	KK6JAB	707 542-3860

Contacts

Antenna Ordinance/Legal	Lee Dibble	KE6EAQ	707 544-1675
Public Relations	Bill McCall	W6WDM	707 538-2844
Raffles			
Refreshments	Ted DeCroff	KB6PTA	707 542-4008
Volunteer Exam Liaison			
ARRL DXCC/WAS Mgr	Chuck Ternes	N6OJ	707 763-2528

SCRA Hotline707 579-9608

SCRA E-Mailscra@sonomacountyradioamateurs.com

SCRA Web Sitehttp://www.sonomacountyradioamateurs.com

Tuesday Night Net

Check in to the SCRA net each **Tuesday** evening on the **146.985-(PL 88.5)** repeater at **7:00 PM**. Announcements are made of upcoming SCRA and other amateur radio activities in the area and what is listed in Hank's Swap Shop. You will also hear the weekly *Amateur Radio Newsline* broadcast.

Short Skip Advertising Rates

Business Cards	\$ 12
1 st Quarter Column	\$ 13
Each Addn'l Quarter Column	\$ 4
Full page (one side)	\$ 35
Pre-printed inserts (each)	\$ 35

Guaranteed circulation of 150 per month!
For more information, contact the Editor.

HUNGRY BEFORE THE MEETING?

JOIN US FOR DINNER! We meet at Coco's restaurant, 1501 Farmers Lane (corner of Farmers & Hwy 12), Santa Rosa. People start showing up at 5:30 PM. No RSVP is required! See you there! (Except December!)

SONOMA COUNTY RADIO AMATEURS

NEXT MEETING
February 2nd
7:30 PM

Program:

Spectrum Analyzer Basics

By Brian Torr N6IYY
(see article)

CLUB MEETINGS

The club normally meets the first Wednesday of each month. This month's meeting will be at:

Luther Burbank Art & Garden Center
2050 Yulupa Avenue
Santa Rosa, CA

The meeting starts at 7:30 PM
ALL ARE WELCOME!

Please join us at our next meeting. Anyone interested in Amateur Radio may be eligible for membership. A membership application is included in this newsletter.

For more information, contact any SCRA officer, director or member.

CONTEST CORNER

by Kevin Alt, K6BSG

Hello testers. I hope that everyone is recovered from the holidays. February is a busy contest month with plenty of activity. I recommend the FYBO Field Day... On the serious side the ARRL DX contest is 19-20 February. Happy DX'ing!

- 5 Feb - FYBO (Freeze Your Butt Off) Winter QRP Field Day - CW, 160-10 meters. See: <http://www.azqrp.org/azqrp/FYBO2005.htm>.
- 5 Feb - Minnesota QSO Party - CW/Phone, 160-10 meters. See: www.w0aa.org.
- 5 Feb - Northern New York (NNY) QSO Party - all modes, 80 m-70 cm. See: www.oarc.us.
- 5-6 Feb - New Hampshire QSO Party - Phone/CW/Digital, 160-10 meters. See: www.wz1f.net/2005_NH_QSO_Party_Rules.doc.
- 5-6 Feb - Ten-Ten International Winter Phone QSO Party - 10 m only. See: www.ten-ten.org.
- 5-6 Feb - XE International RTTY Contest, 80-10 meters. See: www.fmre.org.mx.
- 5-6 Feb - Delaware QSO Party - CW/Phone/Digital/RTTY, 160-10 meters. See: www.fsarc.org.
- 5-6 Feb - Vermont QSO Party - CW/Phone/Digital, 160-10 meters. For more information: Davidca@wpgate1.ahs.state.vt.us.

CHARLES J. TARR

Attorney at Law

WAGVAC

REPRESENTING CONSUMERS AND SMALL BUSINESSES.
INJURED PEOPLE AND THOSE ACCUSED OF CRIME

411 RUSSELL AVENUE
SANTA ROSA, CALIFORNIA 95403
(707) 546-5858

Sonoma County Radio Amateurs, Inc.

Please Print Clearly

Membership Application

New [] Renewal []

Name _____ Call Sign _____ License Class _____ Date _____

Address _____ Hm Phone _____ Wk Phone _____

City/State _____ Zip _____ E-Mail _____

ARRL Member? [] Yes [] No

Dues & Fees: (SCRA dues year is from 3/1 to 2/28)

Individual/Associate Member	\$ 24 (\$6.00/qtr)
Family Membership	\$ 36 (\$9.00/qtr)
Under 18 Membership	\$ 12 (\$3.00/qtr)
Badge	\$ 10

Badge Information

Call Sign _____

First Name _____

City _____

Payment Calculations: Make checks payable to SCRA

Dues - Full Year (3/1 to 2/28) \$ _____

Dues - Prorated _____ Qtrs. X \$ _____/qtr \$ _____

Badge \$ _____

Other - \$ _____

Donation \$ _____

Total \$ _____

Mail to: SCRA, P. O. Box 116, Santa Rosa, CA 95402

- 6 Feb - YL International QSO Party - CW/SSB, 160-10. See: www.qsl.net/yl-issb/.
- 6 Feb - North American Sprint - SSB, 80-20 meters. See: www.ncjweb.com.
- 6 Feb - QRP ARCI Winter Fireside SSB Sprint, 80-10 meters. See: <http://2hams.net/ARCI/index.htm>.
- 8 Feb - Spartan Sprint - CW, 80-10 meters. See: www.arsqrp.com.
- 12 Feb - Asia-Pacific Sprint - CW, 20 and 40 meters. See: <http://jsfc.org/apsprint/aprule.txt>.
- 12 Feb - FISTS CW Winter Sprint - CW, 80-10 meters. See: www.fists.org.
- 12-13 Feb - Louisiana QSO Party - CW/Phone, 160-10 meters. See: <http://laqso.w5yl.org>.
- 12-13 Feb - British Columbia QSO Challenge - CW/SSB/Digital, 160-6 meters. See: www.deltaamateurradio.com.
- 12-13 Feb - RSGB 1.8 MHz Contest - CW. See: www.rsgbhfcc.org.
- 12-13 Feb - 50th Anniversary Dutch PACC Contest - CW/SSB, 160-10 meters. See: www.dutchpacc.com.
- 12-13 Feb - OMISS QSO Party - SSB, 80-10 meters. See: www.omiss.net.
- 12-13 Feb - CQ World Wide RTTY WPX Contest, 80-10 meters. See: www.cq-amateur-radio.com.
- 13 Feb - North American Sprint - CW, 80-20 meters. See: www.ncjweb.com.
- 13-14 Feb - Classic Exchange - CW/Phone, 160-10 meters. See: <http://qsl.asti.net/CX>.
- 14-19 Feb - School Club Roundup - all modes, all bands except 30, 17, and 12 meters. See: <http://www.arrl.org/contests/announcements/scr.html>.
- 19-20 Feb - ARRL International DX Contest, CW, 160-10 meters. See: <http://www.arrl.org/contests/rules/2005/intldx.html>.
- 19-20 Feb - CQC Winter QSO Party - CW/Phone, 160-10 meters. See: www.cqc.org/.
- 26-27 Feb - CQ WW 160-meter SSB Contest. See: cq-amateur-radio.com/160%20Contest%20Rules%20200510272004.pdf.
- 26-27 Feb - UBA Contest - CW, 80-10 meters. See: www.uba.be.
- 26-27 Feb - REF French Contest - Phone, 80-10 meters. See: www.ref-union.org/concours/.
- 26-27 Feb - Mississippi QSO Party - CW/Digital/Phone, 80-10 meters. For more information: w5xx@vicksburg.com.
- 26-27 Feb - North American QSO Party - RTTY, 160-10 meters. See: www.ncjweb.com/naqprules.php.
- 26-27 Feb - 1st Annual US Virgin Islands QSO Party - CW/SSB/PSK/RTTY, 160-6 meters. See: www.atthehelm.com.
- 26-27 Feb - AM QSO Party- AM Phone, 80-20 meters. See: www.antiquewireless.org.
- 27 Feb - High Speed CW Contest - 80-10 meters. For more information: hsc-contest@dl3bzz.de.
- 27-28 Feb - North Carolina QSO Party - CW/Phone, 80-10 meters. See: www.w4nc.com.



ARES Comm Log

by Rich Freitas KF6SZA
Sonoma County District
Emergency Coordinator

Jeopardy

I believe most of you are familiar with the TV game show called "Jeopardy" and how it works.

ANSWER: Organized, trained, and disciplined personnel.
QUESTION: What is always in short supply in any incident?

Message ORIENTATION is rarely the problem in emergency communications; however, message DELIVERY is nearly ALWAYS the weakest aspect of any communications system. During ARRL's NTS tests in 2003, the failures were for message accuracy and delivery. If you would like to dig into the raw data of the test, you can check it out at:
<http://home.earthlink.net/~k7bfi/NTSSurvey.pdf>

Average accuracy for text was 85 percent with 17 percent being perfect. To me that seems pretty dismal. None of us will accept 85 percent accuracy on our paychecks, nor is such a standard acceptable to those agencies we seek to serve. Eighty percent of the sent messages were delivered with a median travel time of 35 hours and average travel time of 52 hours. In a time of global near-instantaneous communications, few of us will accept a 1 1/2 to 2-day delivery of even non-important messages. Think of the problems this would cause in a critical event where property and possibly lives are at stake.

Any proposed backup communications system that compromises accuracy had better do such in the quest for blinding speed so the corrections can be received before the incorrect action can be initiated or completed. Manual communications systems require a human presence at each end of the circuit. This is the traditional voice Amateur Radio network and it requires a properly licensed, trained, and equipped Amateur Radio operator to both initiate and receive the message for delivery.

Two premises have been put forth regarding manual communications systems: one is that trained people are always in short supply, and the other is that the problem is always at the delivery end, not the origination point. In an incident, it is relatively easy to initiate the primary response and get a ham to the scene. Once there, they can usually initiate a message. Then the problem begins because, for them to actually move that message, there must be at least one other similarly equipped Amateur Radio operator at the

desired message destination. This problem exists with any manual communication system regardless of hardware, mode, frequency, or computer program being used.

One way to overcome the fundamental message delivery problem with all manual communications systems is to automate the delivery process; because of this I believe we will continue to see systems such as WinLink2000 (more about this topic in future articles) continue to be developed. Because of the long-proven systems and techniques employed, messages can be delivered to the intended recipient without extraordinary human intervention on the receiving end. Systems such as this only require "special" equipment, training, knowledge and licensing at one end of the message path: either originating or delivery. A licensed Amateur Radio operator need not be present within the Command Center in order for the emergency management employees to receive incident reports originated by Amateur Radio operators.

However, in order for these future systems to perform flawlessly, it requires perfect character-level accuracy for every message. Drop a single letter and the message goes to K6JAB instead of KK6JAB (sorry, Jeff). Whoops! Miss a letter or two on CW or RTTY or PSK31 and the message context can generally be understood. Such is not the case with automated systems. Despite nice front-end applications, the fundamental communications network on the back end is still a manual communications system. As such, it has the same inherent problems of all other manual systems: it requires skilled and very specialized labor and is prone to inaccuracy. There are many choices for manual communications systems; there are few proven choices for automated communications systems. As these new automated systems are developed and become available for emcomm purposes, I suggest we embrace them, learn them, and use them; they are the tools of the future.

We should never forget that Amateur Radio is a unique "hobby" in the aspect that Amateur Radio Operators are charged with a legal duty to society relating to emergency communications as stated in Part 97.1; we are specifically charged with the legally imposed duty or "fundamental purpose" of providing emergency communications.

The above article was partially taken from an email sent by Jerry Reimer, KK5CA

The ARES net meets on Mondays at 7:30 PM on the SCRA repeater on 146.985 MHz, - offset, 88.5 PL. You are invited to check in anytime.

Sonoma County Radio Amateurs, Inc.
Membership Meeting, January 5, 2005
MINUTES

- 1 Call to Order; Verification of Quorum - The meeting was called to order by President John Felton, KE5RI, at 7:38 pm at the Luther Burbank Arts and Garden Center.
- 2 Introductions
 - a Officers & Directors - President, John, KE5RI, welcomed the new Board of Directors, all members, and guests.
 - b Program Introduction - Brainstorming Session
 - c Visitors - There were a number of inactive past members and visitors.
 - d New Calls and Upgrades - None
- 3 Approval of Minutes - It was moved and seconded by Brian, N6IY, and Bob, WD6DPE, that the minutes as printed in Short Skip be approved. The motion passed.
- 4 Officer and Director Reports
 - a President - John, KE5RI, - Nothing to report.
 - b Vice President - Kevin, K6BSG, - Nothing to report.
 - c Secretary - Rich, KF6SZA, - Nothing to report.
 - d Treasurer - Jim, KE6VGV, - Nothing to report.
 - e Directors -
 - i Bruce, N6CT, - Nothing to report.
 - ii Bill, KH6GJV, - Nothing to report.
 - f Past President - Brian, N6IY, - Nothing to report.
- 5 Committee Reports
 - a ARES - Rich, KF6SZA, reported that there will be a face-to-face training session on written radiograms at the end of January; exact date, time and place to be announced on the ARES reflector.
 - b Mobile Comm Van - Greg, AC6VJ, reported that arrangements to paint the Comm Van are in progress.
 - c Activities - Position Open
 - d Newsletter - No report.
 - e Public Service - Position Open
 - f Repeater
 - i John, KE5RI, reported that the 146.73 repeater at Castle Rock is off. The 2 meter repeater on English Hill had low power due to a blown fuse and it is currently operating "barefoot". New antennas and feedlines are planned to be installed.
 - ii Net Control Volunteers: 2/1 - Dave, W6IBC; 2/8 - Craig, KG6THE; 2/15 - Brian, N6IY; 2/22 - John, KE5RI
- 6 Unfinished Business - None
- 7 New Business - There is a Board of Directors' retreat on January 15th.
- 8 Show and Tell
 - a We have a DB Products antenna for Castle Rock
 - b Cal Sites donated a 4-bay 70cm antenna
 - c We are looking for a 220 MHz antenna
- 9 Recess @ 8:05 pm
- 10 Call back to order @ 8:27 pm
- 11 John, KE5RI, led a brainstorming session to determine member ideas and suggestions for the future direction of SCRA. Bruce, N6CT, assisted.
- 12 Adjournment - It was moved and seconded by Ted, KB6PTA, and Michael, KC6UNA, that the meeting be adjourned at 9:30 pm. The motion passed.

Sonoma County Radio Amateurs, Inc.
Board of Directors Meeting, January 12, 2005
MINUTES

- Board Members Present: John Felton, KE5RI; Kevin Alt, K6BSG; Jim Lee, KE6VGV; Rich Freitas, KF6SZA; Bruce Donecker, N6CT; Bill Hillendahl, KH6GJV; Brian Torr, N6IY
- Guests Present: Greg Gordon, AC6VJ; Pat Coyle, KG6JSL
- 1 Call to Order; Verification of Quorum - The meeting was called to order by President John Felton, KE5RI, at 6:58 pm. The meeting was held at Marie Callendar's, 2460 Mendocino Avenue, Santa Rosa. A quorum was present in that all seven voting board members were present.
 - 2 Approval of Minutes - It was moved by Kevin, K6BSG, that the minutes of the 12/8/2004 meeting as printed in Short Skip be approved. The motion passed.
 - 3 Officer and Director Reports
 - a President - John, KE5RI, reminded board members of the planned retreat on Saturday, January 15, 2005, at 11:00 am..
 - b Vice President - Kevin, K6BSG, - Nothing to report.
 - c Secretary - Rich, KF6SZA, - Nothing to report.

- d Treasurer - Jim, KE6VGV, reported that the club had \$2900 in the checking account, \$4900 in the savings account, and \$844 to deposit.
- e Directors -
 - i Bruce, N6CT, - Nothing to report.
 - ii Bill, KH6GJV, commended everyone on the preceding membership meeting. He passed out copies of an existing handout stating the club purpose. The list of new hams from ARRL is again available. There was discussion regarding the difficulties of getting meeting notices published in the Press Democrat.
- f Past President - Brian, N6IY, reported that a letter of thanks for their donation was sent to the cycling club. He also mentioned that the bill for the Christmas Party has not yet been presented.
- 4 Committee Reports
 - a ARES - Rich, KF6SZA, reported that there will be a face-to-face training session on Written Radiogram Traffic on Monday, January 31, 2005, at Round Table Pizza, 2065 Occidental Road.
 - b Mobile Comm Van - Greg, AC6VJ, reported that the Comm Van would be taken to Opperman's Trucking the next day to assess painting requirements. Graphics designs will be forthcoming. There was general discussion as to what is left to be done on the vehicle.
 - c Activities - Position Open - Potential ideas discussed included 1) a trip to Sacramento to IMAX and the Train Museum; 2) a trip to HRO, the USS Hornet, and/or the Red Oak Victory ship; 3) a tour of the KPH Marconi station.
 - d Newsletter - The deadline for next publication is the coming weekend. Bill also informed the Board that, due to other priorities, the February issue of Short Skip would be his last.
 - e PublicService - Position Open - Brian, N6IY, has contacted John Mullen for a list of public service contacts.
 - f VE Liaison - Brian, N6IY, reported that he has obtained the VE materials from John Mullen. There was discussion regarding potential sites for future VE sessions.
 - g Repeater -
 - i Greg, AC6VJ, reported that he will step down as chairman due to his work schedule. He currently has two backup radios for every club radio. We still need to build storage shelving at Lee Dibble's home.
 - ii SCRA vs NARCC Update - Pat, KG6JSL, presented a proposed letter to be sent to NARCC.
- 5 Unfinished Business - Greg suggested a synopsis of local club happenings be mentioned on the weekly net.
- 6 New Business -
 - a Bank Account signature cards need to be changed.
 - b Jim, KE6VGV, will bring FY2004 information to the retreat.
 - c Bill, KH6GJV, made a motion that the annual membership dues be maintained at \$24.00. The motion passed.
 - d The WAS card checker has moved. Bill, KH6GJV, made a motion that Chuck, N6OJ, be nominated for the position. The motion passed.
- 7 Adjournment - It was moved by Kevin, K6BSJ, that the meeting be adjourned at 8:06 pm. The motion passed.

If you are not getting the ARRL San Francisco Section news by e-mail and you are an ARRL member, be sure to subscribe under your Members Only information or go to <http://www.arrrl.org/sections/?sect=SF> or <http://www.pdarrrl.org/sfsec/>

HSC Web Specials!

The items below can be found in the "Specials" area of our on-line shopping pages at www.halted.com...check them out and use our secure site to place your order for the holidays!

Fujitsu FPG-310 Color Pen Plotter GPIO (IEEE-488) interface Boxed, w/ manual, cord, 90-day warranty HSC# 19131	Computer Power Supply, ATX, 145W HSC# 18350
Rechargeable 12VDC Battery 40 AH, lead/acid, Yuasa NPX-150R HSC# 18917	Network card, ISA bus, 10-Base T HSC# 18943
Server Cabinet, ATX rack mount, with Power Supply, White color HSC# 80541 New Price!	Computer Speakers, powered HSC# 18662
Battery charger, NiMH HSC# 19151	Game-pad, Microsoft "Sidewinder" HSC# 80486
SCSI Controller, Initio, PCI Bus HSC# 18218 New Price!	Compact AC inverter for the car, 100W HSC# 19021 New Price!
SCSI Controller, Adaptec 1505, ISA Bus HSC# 17995 New Price!	Motherboard, 486DX4 AT HSC# 18529 New Price!
Mouse, 2-button HSC# 18731	Motherboard, Baby AT, 486VLB HSC# 19003
Mouse, w/ numeric keypad HSC# 80530	Multimeter, analog, VOM HSC# 18260
Scrolling mouse, translucent body HSC# 18829	Multimeter, DMM, with transistor check HSC# 80370
Computer Power Supply, ATX 200W, "Mini-Tower"-style HSC# 18665 New Price!	Multimeter, DMM, tilt-up display, nice! HSC# 80504
	Computer Joystick, "FX2000" HSC# 18772 New Price!
	Tower Chassis, 7-Bay "RAID" HSC# 80544

Disk Drive Deals!

- Seagate ST15150H 4.3 GB "Barracuda" SCSI
 - 7200 RPM, 8.09.0 ms avg. seek time
 - 21 Hds, 11 Disks, 3.711 Cyl.
 - Standard 50-pin SCSI
 - 3.5" size, half-height (1.5" tall)
 - Reliable, 90-day warranty
- HSC# 18412 \$32.50**
- Seagate ST1917WC, Ultra-SCSI Wide ASAZ
 - Formatted capacity: 9.1GB
 - Spindle speed: 7200 RPM
 - 3.5" size, half-height (1.5" tall)
 - 80-124 mbds/sec internal transfer rate
 - Average Access (read/write): 9.7-10.7 ms
- HSC# 18753 \$39.95**
- Special... buy this drive & get a 50-pin (HSCA23700) or 68-pin (HSCA23720) Adapter for \$10.00! Normally a \$20 - 30 value!

PCMCIA Goodies!

- EPSON Epmem PCMCIA interface card
 - Both 10Base2 and 10BaseT cables included
 - Compatible with notebooks/PCs with Type II slots
 - Hot card insertion and removal - no power down
 - No jumpers or switches - Two LED status lights
 - New, boxed, diskette & manual, 90-day warranty
- HSC# 19125 \$9.95**
- Intel "PRO100" PCMCIA Network Adaptor Card
 - MBLA1600 LAN card supports 10BaseT/100BaseTX
 - For PC Card Type II sockets, 32KB packet buffer
 - Full duplex support (10Mbps networks only)
 - Ethernet Specs: IEEE 802.3 & 802.3u spec
 - With RJ45 cable, OEM packed, 90-day warranty
- HSC# 19190 \$39.50**
- Epson/Adaptec APM608 PCMCIA SCSI Card
 - Up to 2 MB/sec PC Card bus rate
 - New, OEM pack with DB25 cable, 90-day warranty
- HSC# 19160 \$49.50**

VHS Video To Go!



- "Videotronics" Model No. VHS-105 player deck
- Dual power option! - 110VAC or 12VDC
- Perfect for entertaining the kids in the van!
- Many other uses... home, business, camping...
- Standard NTSC VHS format, full front-panel controls, soft-touch buttons with LEDs
- Remote control sensor on front panel - remote NOT included... may work with generic remotes?
- Renewed from working service, 90-day HSC warranty

HSC# 19048 \$19.95!

VHS for even less!



- Magnavox Model No. VTR100AT01 video player
- Standard "F" type connectors for inline connection
- Four panel switch selects Ch. 3 or Ch. 4 output
- HCA packs for line level video/audio connect
- Pulled from working service. Units have slight markings from removed infrared transmittal element covering front panel infrared detector. Remote NOT included.
- For 110VAC, 60Hz operation
- Renewed from working service, 90-day HSC warranty

HSC# 19152 \$17.50!

External CD-R/W!



- Hewlett-Packard Model 7200 Series CD-R/W
- Use just like a floppy! Shares printer port!
- Drag & drop up to 650MB on a single CD!
- 2X write on CD-R/W, up to 6X read on CD-R
- 1X RW: 150KB/sec, 2X RW: 300KB/sec
- 6X Read: 800KB/sec - drivers avail. at HP website
- EIDE (ATAPI) interface w/MMC, front tray load
- 74 min. on 120min disk, 21 min. with 80min disk
- Power supply not included (pinout provided)
- Refurbished, 90-day HSC warranty

HSC# 19036 \$49.50

Lab Bench Supply!

- Model No. AEEC-350, 0-50VDC @ 3 Amp
- 110VAC, 60Hz - 150VA -- small footprint!
- Dual digital meters for voltage and current
- Short-circuit protected, grounded - 1-e cord
- New, IEC power cord, manual, 90-day warranty

HSC# 80606 \$139.00

Variable Transformers!

- One of the most useful instruments on your bench!
- Always wanted one, but they were too expensive?
- Two sizes to choose from, now they're affordable!
- Both new in box, made in China
- Model AEEC-500VR
- 0 - 120 VAC output, 500 VA
- Measures 6.5" x 9" x 7" tall
- Features meter, illuminated switch, line cord, fuse

HSC# 80474 \$45.00

- Our most popular model!
- Model AEEC-200VR
- 0 - 120 VAC output, 200VA
- Measures 6" x 10" x 8.5"
- Features meter, illuminated switch, line cord, fuse

HSC# 80461 \$95.00

Solder Pots!

- Finally... we found a source for solder pots! New, 90-day HSC warranty, very handy for the workbench!
- AEEC-10P - handy compact desktop unit
- 110VAC, 110 Watts - perfect for small jobs
- Adjustable lamp, levels - 300 to 430 deg. C
- Bath dimensions: 36mm dia x 30mm deep

HSC# 80610 \$32.00

HSC Electronic Supply

Toll Free (Orders Only) 1-800-4 HALTED (1-800-442-5833)

World Wide Web: <http://www.halted.com>

3500 Ryder St.
Santa Clara, CA 95051 408-732-1573

4837 Amber Ln.
Sacramento, CA 95841 916-338-2545

5681 Redwood Dr.
Rohnert Park, CA 94928 707-585-7344



For over 35 years, HSC has been your best source for high-tech goodies from Silicon Valley! Haven't visited us yet? You owe it to yourself to come see our constantly-changing, mind-boggling array of electronic parts, equipment, computers, and scientific gear! Find out why knowledgeable engineers, technicians and hobbyists make HSC their first stop for all their techno-shopping needs!

Terms: Some quantities limited; all items are subject to prior sale. Minimum order: \$10.00 plus shipping. Orders under \$20.00 subject to \$2.00 handling fee, in addition to shipping. All orders shipped FOB Santa Clara, CA (this means you pay freight!) by UPS Surface (no P.O. Boxes) unless otherwise specified, in which case prevailing carrier rate plus \$5.00 handling fee may apply. Prepaid orders that don't include shipping charges will be shipped freight COD. There is a \$6.00 UPS charge added to shipping charges for COD shipments. If you have questions about your order, please call Customer Service at (408) 732-1854 M-F 9AM to 5PM PST.

ANAHEIM, CA
(Near Disneyland)
933 N. Euclid St., 92801
(714) 533-7373
(800) 854-6046
Janet, KL7MF, Mgr.
anaheim@hamradio.com

BURBANK, CA
2416 W. Victory Bl., 91506
(818) 842-1706
(800) 854-6046
Eric, KA6HIT, Mgr.
Victory Blvd. at Buena Vista
1 mi. west I-5
burbank@hamradio.com

OAKLAND, CA
2210 Livingston St., 94606
(510) 534-5757
(800) 854-6046
Mark, W17YU, Mgr.
I-880 at 23rd Ave. ramp
oakland@hamradio.com

SAN DIEGO, CA
5375 Kearny Villa Rd., 92123
(958) 560-4900
(800) 854-6046
Tom, KMEK, Mgr.
Hwy. 163 & Claremont Mesa
sandiego@hamradio.com

SUNNYVALE, CA
510 Lawrence Exp. #102
94085
(408) 736-9496
(800) 854-6046
Howard, KE6PWH, Mgr.
So. from Hwy. 101
sunnyvale@hamradio.com

NEW CASTLE, DE
(Near Philadelphia)
1509 N. Dupont Hwy., 19720
(302) 322-7092
(800) 644-4476
Jim, KA3LL, Mgr.
RT.13 1/4 N., So. I-295
newcastle@hamradio.com

PORTLAND, OR
11705 S.W. Pacific Hwy.,
97223
(503) 598-0555
(800) 854-6046
Leon, N7IX, Mgr.
Tigard-99W exit
from Hwy. 5 & 217
portland@hamradio.com

DENVER, CO
8400 E. 14th Ave. #9, 80231
(303) 745-7373
(800) 444-9476
Joe, KD0GA, Mgr.
John, N5EHP, Mgr.
denver@hamradio.com

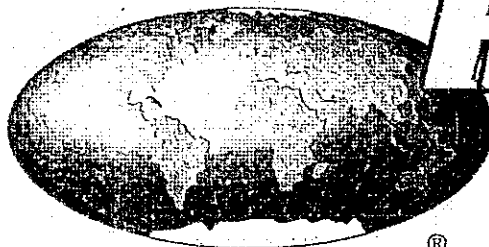
PHOENIX, AZ
1939 W. Dunlap Ave., 85021
(602) 242-3515
(800) 444-9476
Gary, N7GJ, Mgr.
1 mi. east of I-17
phoenix@hamradio.com

ATLANTA, GA
6071 Buford Hwy., 30340
(770) 263-0700
(800) 444-7927
Mark, KJ4VO, Mgr.
Doraville, 1 mi. no. of I-285
atlanta@hamradio.com

WOODBRIIDGE, VA
(Near Washington D.C.)
14803 Build America Dr. 22191
(703) 643-1063
(800) 444-4799
Steve, N4SR, Mgr.
Exit 151, I-95, So. to US 1
woodbridge@hamradio.com

SALEM, NH
(Near Boston)
224 N. Broadway, 03079
(603) 898-3750
(800) 444-0047
Chuck, N1UC, Mgr.
salem@hamradio.com
Exit 1, I-93,
22 mi. No. of Boston

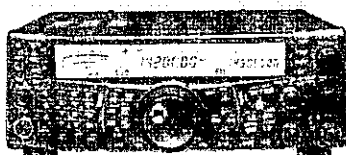
12 STORE BUYING POWER



HAM RADIO OUTLET

WORLDWIDE DISTRIBUTION

KENWOOD



TS-2000 HF/VHF/UHF TCVR

- 100W HF, 6M, 2M • 50W 70CM
- 19W 1.2 GHz w/optional UT-20 module
- IF Stage DSP • Built-in TNC, DX packet cluster
- Backlit Front Key Panel

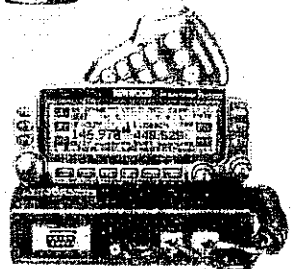
Low Intro Price!



TH-D7A(G) 2M/440

- 2M/440 Dual Band
- Built-in 1200/9600 Baud TNC
- APRS Compatible
- DX Packet Cluster Monitor
- 200 Memos, CTCSS
- VC-III Messaging Control

Low Pricing!



TM-D700A 2M/440 Dualband

- 50W VHF 35W UHF • Opt. Voice Synthesizer
- Receives 118-1300 mHz (cell blocked)
- Remote Head Inst. only (kit included)
- 200 Memories • Built in 1200/9600 baud TNC
- Advanced APRS Features
- Dx Packet Cluster
- Tone Scan • GPS/VC-H1/PC Ports

**COAST TO COAST
FREE SHIPPING**
UPS - Most Items Over \$100



Quick Deliveries From
The Store Nearest To You!

YAESU



VX-7R

- 50/2M/220/440 HT
- Wideband RX
- 900 Memories
- SW TX (300mw 226Mhz)
- Li-Ion Battery
- Fully Submersible to 3 ft.
- Built-in CTCSS/DCS
- Internet WIRE compatible

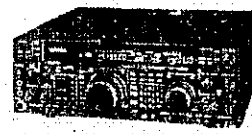
Great Price!



FT-100D HF/6M/2M/70CM Trans.

- Compact Transceiver w/detachable front panel
- Rx 100kHz to 970mHz (cell blocked)
- Tx 100W 160-6M, 50W 2M, 20W 70CM
- Built-in DSP, Vox, CW keyer
- 200 Memories

Low Pricing!



FT-1000MP MKV HF Trans.

- Enhanced Digital Signal Processing
- Dual RX
- Collins SSB filter built-in
- 200W, External power supply

Low Pricing!

OAKLAND, CA

2210 Livingston St., 94606
(510) 534-5757
(800) 854-6046
Mark, W17YN, Mgr.
I-880 at 23rd Ave. ramp
oakland@hamradio.com

SUNNYVALE, CA

510 Lawrence Exp. #102
94085
(408) 736-9496
(800) 854-6046
Howard, KE6PWH, Mgr.
So. from Hwy. 101
sunnyvale@hamradio.com



IC-706MKIIG HF/VHF Transceiver

- All mode HF/6M/2M/70CM
- 100W HF/6M, 50W/2M, 20W/440 MHz
- AF-DSP • Plug and Play Filters • No Soldering
- Easy-to-Navigate menus

Low Pricing!



IC-756 PRO II All mode Transceiver

- 160-6M @ 100W • Enhanced Rx performance
- 32 bit IF DSP • SSB/CW Synchronous tuning
- Enhanced 5 inch color TFT w/spectrum scope
- Selectable IF filter shapes for SSB & CW
- Multiple DSP controlled AGC loops
- Advanced CW functions
- 101 alphanumeric memories

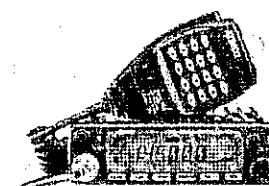
The Ultimate Radio!



DJ-196T 2M/HT

- 5 Watt out
- 40 memories
- Alphanumeric display
- CTCSS + DCS built in
- "S" meter
- Auto Dialer

Low Pricing!



DR-135TP 2M mobile

- 50 Watt out • Alpha numeric display
- 100 mems • Built-in TNC 1200 & 9600 Baud
- Front Panel GPS in • Rear DB-9 port
- CTCSS/DCS Encode/Decode built in

Low Pricing!