

# POPULAR COMMUNICATIONS

JUNE 1995

## Cellphone Fraud Runs Wild!

*Also in this issue:*

- **The Global Reach of Trans World Radio**
- **Tesla: Did He Invent Radio?**
- **Scanner Groups & Clubs**
- **We Review: The Optoelectronics Scout**

U.S. \$3.50 Canada \$4.50



0 74851 33635 3

**Plus: CB, Ham, Nostalgia, Satellites,  
Pirate Radio, & More!**





Out of this world  
"The New Star"

Astonishing Performance  
AR 2700  
Wideband Scanner



The new AR 2700 from AOR is another break-through for general coverage scanners at an affordable price. It combines wide frequency coverage with many advanced features and options, including computer interface and voice recorder. **With this small marvel, you will never miss important calls and conversations through the use of the optional digital voice recorder.**

**Features:**

**Wide frequency range:** 500kHz to 1,300MHz with various step size, 5, 6.25, 9, 10, 12.5, 20, 25, 30, 50, & 100kHz (wide FM only).

**Auto Mode tuning:** Comprehensive band plan has been pre-programmed to simplify the operation. The AR 2700 will automatically select the appropriate mode and channel step.

**Great flexibility in programming,** for Scan and Search mode. Delay, Pause and Priority intervals can be set to a specific value. Program search, Manual search, Bank link, Delay, Pause, Pass, Scan, Bank delete, Priority are provided.

**High Capacity:** 500 channels into 1-banks and 1- search banks.

**Large Multi-Purpose backlit LCD,** including Battery indicator and sleep timer (automatic power off).

**Illuminated keypad and beep:** The keypad is illuminated with user selectable light On/Off, The keypad also features a beep On/Off or selected musical notes.

**Optional Digital Voice Recording:** 20 seconds of digitized recorded conversation and playback through the use of the RU-2700 option.

**Computer control port** may be connected via an optional adaptor to a computer for remote control of the AR 2700.

For details, specifications, make one of the important call that you have **EVER MADE. Call your favorite dealer or contact:**



**Electronic Distributors**  
325 Mill St. Vienna, Va. 22180  
703-938-8105 • FAX 703-938-4525

**EXCLUSIVE DISTRIBUTOR THROUGHOUT THE U.S., CANADA, AND SOUTH AMERICA.**

Actual size: 2 1/2 x 1 1/2 x 6 5/8  
Weight: 0.7lbs, with battery  
**AOR, LTD.**

2-6-4 Misuji, Taito-Ku,  
Tokyo 111 Japan (c) 1995 AOR, LTD.  
Licensed under US. Pat. 4,270,217

# EEB TO REDUCE INVENTORY

## THE BOSS SAYS HE WANTS INVENTORY REDUCED...NOW!

VIENNA, VA - The first area identified as "Over Stocked" is our Returns, Demos, Trade-Ins, and Last Year's New models. No matter how hard we try, there will always be returned items for various reasons, "Changed my mind", "It's not what I expected", "It's too complex", "I got 2 for Xmas." 80% of returns are like new in their original box, some never opened. All like-new returns become "B" stock and are sold at a discount. EEB never sells returns as new...Ever wonder what our competition does with those "FREE TRIAL" returns?

### SONY ICF SW7600G

SONY's hot selling receiver now at an unbeatable price!!



- AM/FM/SW/SSB/CW Digital list \$249.95 EEB \$199.95 NOW \$169.95 (AC adpt. AC-E60HG \$24.95)

At time of purchase ask for a FREE Radio Stand and KOSS Headset (No Dealers Please)

**B - STOCK.** Here's what's in B stock at this writing, include all accessories, full factory warranty. (Subject to prior sale.) B-Stocks are not factory repacks, but New Returns.

- |                               |          |
|-------------------------------|----------|
| BEARCAT • BC2500XLT (New)     | \$299.95 |
| GRUNDIG • YB400               | \$165.00 |
| • SAT700                      | \$349.00 |
| JRC • NRD 535                 | \$1099   |
| • NRD535DB                    | \$1499   |
| KENWOOD • R5000               | \$999.00 |
| SONY • ICFSW55                | \$315.00 |
| • ICFSW77                     | \$415.00 |
| • ICFSW7600G                  | \$155.00 |
| • ICFSW100                    | \$316.00 |
| SANGEAN • ATS808              | \$122.00 |
| LOWE • HF225                  | \$699.00 |
| AOR • AR3000A (No Cell Block) | \$1049   |
| • AR3000A (No Cellular)       | \$979.00 |
| • AR8000 (No Cellular)        | \$579.00 |
| • AR3030                      | \$729.00 |
| ICOM • R71A                   | \$999.00 |
| GE • 7-2887 SUPERADIO         | \$49.00  |

**DEMO SALES.** At EEB, all radios and scanners are on display so you can try before you buy. Demos are sold when new products are introduced, some times we have more than 1 of each. Each carry a factory warranty.

- |                                   |          |
|-----------------------------------|----------|
| • R71A (Have 2)                   | \$849.95 |
| • R72A                            | \$650.00 |
| • BC2500XLT (No Cell restore)     | \$299.00 |
| • BC200XLT (Cell restorable)      | \$199.00 |
| • BCT2                            | \$99.95  |
| • KENWOOD R2000 w/ VC10 VHF Conv. | \$399.00 |

**SPECIALS.** From time to time we end up with a special situation that doesn't fit the above category

• **WJHF1000** This unit was a trade-in & is in mint condition, recently returned from WJ factory with all the latest up grades and is as good as new.

SAVE \$1000 Only \$2750

• **SONY IPS 360** GPS Portables. These are factory repacks. 100% like new with all accessories and Sony warranty. We sold a bunch at \$599, now save 50%.

While they last \$249.95

• **UNIVERSAL M900** CW/RTTY/TOR, FAX decoder, brand new, way below our cost. list \$599.. Only one unit \$299.00

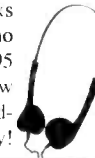
**NEW ITEMS.** EEB is always on the search for items of interest for our customers. We evaluate these items for performance and value.

• **FM2700** Active Scanner Antenna. Original for the FM Band, now engineered to cover 88 to 900MHz with up to 12 dB gain. Low profile for home or office book shelves. Rotates 90° for best signal. Out put 6' coax cable w/ BNC. Power +12VDC, AC Adapter included.

Compare at \$39.95 \$19.95



• **KOSS KX-2** STEREO Headset, works with portables w/stereo output and mono on the rest. Hi quality mini size list \$29.95 While they last \$9.99. FREE w/ any new receiver or scanner during this sale, Ending June 30 or until stock is gone...Hurry!



• **10114C Dust Cover** Clear Front window 11 x 10 x 4 inch. Fits AR3030, ICOM R72/R7100, LOWE HF225, BC9000 size and a whole lot more.

Compare at \$9.95 Special \$4.99

**USED.** Trade-Ins are our largest source of used equipment. Some new returns showing dings or scratches we call USED, all have a 90 day EEB warranty.

- |                              |          |
|------------------------------|----------|
| • PANASONIC RFB65 (Have 2)   | \$175.00 |
| • SONY ICF7600D (US ICF2002) | \$165.00 |
| • REALISTIC PRO44            | \$95.00  |
| • BEARCAT BCT2               | \$85.95  |

### Speaker by SPARKOMATIC

A well known Japanese Co. 3" spk up to 5 watts 8' cord w/mini plug, tilt adjust, mount w/ 2 screws. At this price buy 1 for each radio/scanner. They look great 4 or 5 in a row...limited Supply. Compare at \$14.99

Special \$5.99 or 5 for \$25.



No one beats our prices & service. We always have low prices, CALL!

AOR	JRC	SANGEAN
BEARCAT	SONY	KENWOOD
COBRA	LOWE	UNIDEN
GRUNDIG	ICOM	REALISTIC
PANASONIC	DRAKE	YAESU

We'll match or beat any advertised price!

### OPTO SCOUT 40

will take you places you only dreamed of

It's more than a counter, Receives & records 400 frequencies into memory, up to 250 repeat hit stored, discrete freq. collector. Tunes R7100 or PRO2006 w/ DS546, instantly for monitoring, PC Software to download to your PC.

Limited Time

Offer...Save \$50 Special \$399.95

- NEW DRAKE R8A -

Improved R8 - 440 memories, separate mode/ BW access improved Dynamic Range.

Trade-in your "old" R8.

Call for quote.

list \$1099 EEB \$1079

DRAKE SW8 effective 1 May '95

list \$699 EEB \$679.95

### EEB's NEW BBS!!!

Log-In & Check it Out. Place Orders, More! 703 • 938 • 3781

### TRADE - INS

We'll take trade-ins 6 months, 6 years or 60 years old. Call and let us know what you want to trade...Turn that unwanted gear into NEW.

95 Catalog...FREE  
96 Pages, SWL,  
Scanners, Antennas,  
Books, Lots more.

FREE in the U.S., 3rd class  
(4 weeks). \$2 1st class (1 week).  
\$2 Can/Mex. \$5 elsewhere.



ELECTRONIC EQUIPMENT BANK  
323 MILL Street NE  
Vienna, VA 22180

\*We accept VISA/MasterCard/American Express/Discover

ORDERS: 800-368-3270  
Local Tech: 703-938-3350  
FAX: 703-938-6911

\*We ship via UPS, Federal Express and Mail

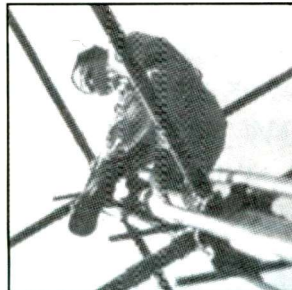
- Sorry, no COD's
- Free Catalog in USA
- Prices Subject to change
- Prices do not include freight
- Returns subject to restock fee up to 20%



# POPULAR COMMUNICATIONS

JUNE 1995

VOLUME 13, NUMBER 10



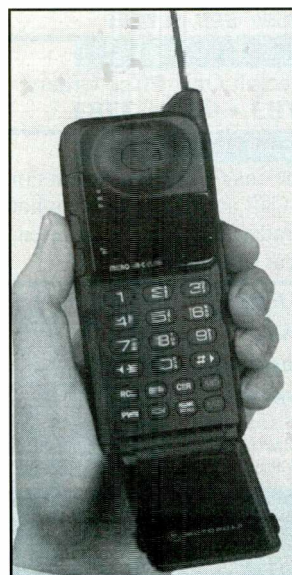
20



28



48



8

## FEATURES

### Cellular Fraud Runs Wild! 8

Find out how crooks are ringing up a costly nightmare for cellphone owners!

By Harold Ort, N2RLL

### The Global Reach of Trans World Radio 11

Transmitting sites worldwide bring shortwave stations to your shack!

By Gerry L. Dexter

### Tuning In On Yesterday 20

Reflect on the nostalgia of radio history.

By Alice Brannigan

### POP'COMM Reviews: 24

The Optoelectronics frequency 'Scout.'

By POP'COMM Staff

### Books You'll Like 26

Hoaxes and Scams, two Licensing and Certification Exam references, CQ products, and more.

By R.L. Slattery

### Nikola Tesla 28

Controversy still follows the inventor of our A.C. power system and some say radio.

By John W. Wagner

## COLUMNS

Listening Post.....	30
Clandestine Communique.....	34
Scanning VHF/UHF.....	36
Telephones Enroute.....	38
You Should Know.....	42
How I Got Started.....	46
Pirates Den.....	47
Emergency.....	48
New Products.....	50
Broadcast DXing.....	52
Satellite View.....	57
The Ham Column.....	61
Communications Confidential.....	62
Handi-Chat.....	74
CB Scene.....	77
Washington Pulse.....	80

## DEPARTMENTS

Beaming In.....	5
Mailbag.....	6
World Band Tuning Tips.....	44
Communications Shop.....	84

**This month's cover:** With cellular phone fraud on the rise, action is being taken to curb the crime. Pictured are members of Bell Atlantic's Mobile Fraud unit monitoring system at Bedminster, NJ. Photo by Larry Mulvehill, WB2ZPI.

## EDITORIAL STAFF

Tom Kneitel, K2AES/KNY2AB, Editor  
Deena Marie Amato, Associate Editor

## CONTRIBUTING EDITORS

Gerry L. Dexter, Shortwave Broadcast  
Gordon West, WB6NOA, Emergency  
Don Schimmel, Utility Communications  
Edward Teach, Alternative Radio  
Harold A. Ort, Jr., SWL Conf. Coord.  
Chuck Gysi, N2DUP, Scanners  
Tim Kridel, AM/FM Broadcasts  
William D. Mauldin, WG4R, Thoughts & Ideas  
Donald E. Dickerson, N9CUE, Satellites  
Brian Battles, WS10, Amateur Radio  
Joe Carr, K4IPV, Antennas  
Ted Lisle, KD4EXK, Handi-Chat Editor  
Jock Elliott, SSB-734, CB Communications

## BUSINESS STAFF

Richard A. Ross, K2MGA, Publisher  
Donald R. Allen, N9ALK, Advertising Mgr.  
Emily Kreutz, Sales Assistant  
John Dorr, K1AR, General Manager  
Frank V. Fuzia, Controller  
Simon Schatzmann, Circulation Director  
Catherine Ross, Circulation Manager  
Melissa Nitschke, Operations Manager  
Carol Licata, Data Processing  
Denise Pyne, Customer Service

## PRODUCTION STAFF

Elizabeth Ryan, Art Director  
Barbara Terzo, Associate Art Director  
Susan Oliveri, Assistant Art Director  
Edmond Pesonen, Electronic Comp. Mgr.  
Dorothy Kehrwieler, Production Manager  
Emily Kreutz, Assistant Production Manager  
Pat Le Blanc, Phototypographer  
Hal Keith, Technical Illustrator  
Larry Mulvehill, WB2ZPI, Photographer



CQ Communications, Inc.  
76 North Broadway  
Hicksville, NY 11801-2953 USA

## A publication of

Offices: 76 North Broadway, Hicksville, NY 11801.  
Telephone (516) 681-2922. FAX (516) 681-2926. Popular Communications (ISSN-073-3315) is published monthly by CQ Communications, Inc. Second class postage paid at Hicksville, NY and additional offices. Subscription prices (payable in U.S. dollars): Domestic—one year \$22.95, two years \$41.00, three years \$60.00. Canada/Mexico—one year \$32.95, two years \$61.00, three years \$96.00. Foreign—one year \$34.95, two years \$65.00, three years \$96.00. Foreign Air Mail—one year \$82.95, two years \$161.00, three years \$240.00.

U.S. Government Agencies: Subscriptions to Popular Communications are available to agencies of the United States government, including military services, only on a cash with order basis. Requests for quotations, bids, contracts, etc. will be refused and will not be returned or processed.

Entire contents copyright © 1995 by CQ Communications, Inc. Popular Communications assumes no responsibility for unsolicited manuscripts, photographs, or drawings. Allow six weeks for change of address or delivery of first issue.

Printed in the United States of America.  
Postmaster: Please send change of address to Popular Communications, 76 North Broadway, Hicksville, NY 11801.



# QUALITY COMMUNICATIONS EQUIPMENT SINCE 1942

## AMATEUR RADIO EQUIPMENT

KENWOOD

YAESU

ICOM

JRC

SR STANDARD

AEA

ALINCO



Universal has been selling the finest in new and used amateur radio equipment since 1942 and is an authorized sales and service center for all major lines.

## COMMUNICATIONS RECEIVERS

YAESU

KENWOOD

JRC

DRAKE

LOWE

ICOM



Universal Radio carries an excellent selection of new and used communications receivers. JRC NRD-535D shown.

## RTTY AND FAX DECODERS

### ◆ Universal M-8000 Decoder



The professional-grade M-8000 was designed primarily for the military, commercial and diplomatic user, but can be used by the hobbyist who requires maximum intercept capability. The color VGA output includes a spectral display and simulated tuning scope. Modes currently include: CW, Baudot, FAX, SITOR, ARQ-M2 & M4, ARQ-E /E3, ARQ6-90, ARQ-S, SWED-ARQ, FEC-A, FEC-S, ASCII, Packet, Pactor, Piccolo, VFT, ACARS, POCSAG and GOLAY. Too many features to list here. Monitor and printer optional. \$1349.00 (+\$10)

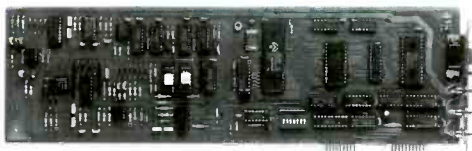
### ◆ Universal M-400 Reader



The self-contained Universal M-400 is a sophisticated decoder and tone reader offering exceptional capabilities. The SWL can decode: Baudot, SITOR A and B, FEC-A, ASCII and SWED-ARQ. Weather FAX can also be decoded to the printer port. The VHF-UHF listener can copy the ACARS VHF aviation teletype

mode plus GOLAY, POCSAG and SUPER POCSAG digital pager modes. Even off-the-air decoding of DTMF, CTCSS and DCS. Big two-line, 20 character LCD and parallel printer port. The M-400 runs from 12 VDC or with the supplied AC adapter. No computer or monitor is required. Made in the U.S.A. \$399.95 (+\$6)

### ◆ Universal M-1200 Decoder Card



Turn your PC into a powerful intercept device! Reception modes include: CW, Baudot RTTY, SITOR, FEC-A, ARQ-M2, ARQ-E/E3, FAX and ARQ6-90 plus ASCII and Packet. VHF

enthusiasts can copy PL, DCS, the ACARS aviation mode, POCSAG and GOLAY. Operation is easy through on-screen menus, status indicators and help windows. Requires PC with VGA monitor. Made in the U.S.A. \$399.95 (+\$5)

## ★ FREE 100 PAGE SWL - HAM CATALOG ★

Universal offers an informative catalog covering everything for the shortwave, amateur and scanner enthusiasts. With prices, photos and full descriptions. This comprehensive publication is FREE by bookrate, or for \$2 by first class mail. Request it today!

## COMMERCIAL RECEIVERS



WJ

The Watkins-Johnson HF-1000 is the ultimate receiver! Advanced D.S.P. technology, 58 bandwidths, 1 Hz display. Under \$4000. Please contact us to receive a spec. sheet.

## PORTABLE RECEIVERS

ICOM

SONY

GRUNDIG

SANGEAN



Universal offers over 40 portable receivers from \$50 to over \$500. Our free catalog fully describes & prices all models.

## COMMUNICATIONS BOOKS

### ● Passport To Worldband Radio 1995 By L. Magne

Graphic presentation of all shortwave broadcast stations. Equipment reviews, too. A must have book. \$17.95 (+\$2)

### ● World Radio TV Handbook 1995

All shortwave broadcast stations organized by country with schedules, addresses, power, etc. \$24.95 (+\$2)

### ● Worldwide Aeronautical Frequency Dir. By R. Evans

The definitive guide to commercial and military, HF and VHF/UHF aero communications including ACARS. Brand new Second Edition. 260 pages. \$19.95 (+\$2)

### ● Shortwave Receivers Past & Present By F. Osterman

Your guide to over 200 receivers with new and used values, specifications and features. Photos for most. \$8.95 (+\$2)

### ● Comprehensive Guide to Military Mon. By Douglass

Covers equipment, SW and VHF/UHF frequencies, identifiers, playbook, bases and black projects. \$19.95 (+\$2)

### ● Discover DXing! By J. Zondlo

An introduction to DXing AM, FM and TV. \$4.95 (+\$2)

### ● The World Below 500 KiloHertz By P. Carron

An introduction to the world of longwave DX. \$4.95 (+\$2)

☛ Be sure to include \$2 per title for shipping.

Prices and specifications are subject to change. Returns are subject to a 15% restocking fee.



**Showroom Hours**  
 Mon.-Fri. 10:00 - 5:30  
 Thursday 10:00 - 8:00  
 Saturday 10:00 - 3:00

universal  
radio inc.

Universal Radio, Inc.  
 6830 Americana Pkwy.  
 Reynoldsburg, Ohio  
 43068-4113 U.S.A.

☎ 800 431-3939 Orders & Prices  
 ☎ 614 866-4267 Information  
 ☎ 614 866-2339 Facsimile



# SCANBLASTER™

**BLAST** your way through the Frequency Spectrum

Featuring the SCOUT and the OPTOSCAN456

901		
9200 MHz		
9250 MHz	Police	12:59:22
4875 MHz	Sheriff's Office	12:56:02
7750 MHz	Marina	12:55:32
0500 MHz	University	12:50:35
8000 MHz	Airport	12:50:14
9750 MHz	Local Government	12:49:58
3700 MHz	Fire Rescue	12:49:57
3700 MHz	Hwy Patrol	12:49:55
8625 MHz	Local Police	12:49:53
5875 MHz	Hardware Store	12:49:52
5375 MHz	Hardware Store	12:49:48

STOP	LOCKOUT	EDIT	RESET
LOG	TMP L/O	OPTIONS	HELP
STORE		BAND	
CLOSE	NEW		



- Each **SCANBLASTER™** series includes in the accessory set:
- **CX12A** Computer Interface
  - **N100** FM Notch Filter
  - **BLP-70** Low Pass Filter
  - **BHP-800** High Pass Filter
  - **DB32** UHF/VHF Mini Antenna
  - **RD27** 27 MHz Antenna
  - **RD440** 440 MHz Antenna
  - **RD800** 800 MHz Antenna
  - **Spectrum** CD-ROM FCC Database
  - **Utility Disk** SCOUT Download Program
  - **AC100** Rapid Charge Adaptor
  - **Cable/Adaptor** SCOUT Reaction Tune Pat/Penc.
  - **CC30** Carry Case for SCOUT
- 3 YEAR EXTENDED WARRANTY**

**SCANBLASTER™ I**  
Includes:  
SCOUT Pat/Pend  
OPTOSCAN456  
Accessory Set  
**\$999**  
*(Save \$328)*

**SCANBLASTER™ II**  
Includes:  
SCOUT Pat/Pend  
Accessory Set  
**\$849**  
*(Save \$179)*

**SCANBLASTER™ III**  
Includes:  
OPTOSCAN456  
Accessory Set  
**\$699**  
*(Save \$179)*

**SCANBLASTER™ UPGRADE**  
Accessory Set Only  
**\$459**  
*(Save \$120)*

# OPTOELECTRONICS®

**ORDER LINE**  
800-327-5912  
TEL: 305-771-2050  
FAX: 305-771-2052

5821 NE 14th Avenue • Ft. Lauderdale, FL 33334 • Contact Factory for shipping prices. Visa, Master Card, & C.O.D. (cash or money order only)  
• OPTOSCAN-56 software featured, SCANSSTAR COMMPL™ Software also available from: PROBE, SCANCAT, SCANNERWEAR,™ and RADIO MGR.  
All prices and specifications are subject to change without notice or obligation



# BEAMING IN

BY TOM KNEITEL, K2AES

AN EDITORIAL

## The Spirit of Communications

You thought I was the basic hobbyist. The standard stuff: a few radios, a shoebox filled with QSL cards, and lots of tales about the DX stations I could have positively identified except for bursts of static. Well, yes, these things are true about me. But I also number among my accomplishments a few unusual communications experiments. It had been years since they crossed my mind. The other day I received an e-mail flash from Stephen Coker, of Muskoka, Ontario, Canada, who reminded me.

Steve said he's read my stuff for many years, and recalled that in the November, '70 issue of *Electronics Illustrated*, I had written a feature called *The Long Night of Uncle Tom*. It was a story about experiments with Ouija Board communications. Steve was hoping I'd now write some more about this.

Steve's request brought back to me when EI was in the process of doing a series of stories about various forms of communications. I had a beard, and was writing an off-the-wall column for them, so EI considered me the natural choice for writing their odd stories. That's why the editor handed me a Ouija Board, and the assignment to put together a feature about Ouija Board communications with "the other side." I thought he was kidding. He said he didn't expect me to mount a serious scientific exploration of the topic, but he did really want the story.

The XYL and I fooled around with the board on and off for a few months. We had results that were at times disappointing, often humorous, and sometimes very intriguing. We honestly didn't know what to make of the large number of apparent two-way contacts we had made. I delayed writing the story, and began hoping the editor had forgotten about the assignment. Not so. Eventually he began pressing me to submit my manuscript.

Thereupon, I assembled my notebooks and tapes relating to my Ouija-band contacts, and began writing. I excerpted sections of several Ouija transcripts and worked them into a narrative about my experiences. Would the magazine run this? Yes, they published it without changing a word. I wondered if I'd have any career left after my story hit the newsstands.

Was I surprised! That one story generated more mail for me than anything else I had ever written for EI, including the popular column I had written for them for many years. I was deluged with Ouija Board transcripts from readers, and letters beseeching me to make contact, on their behalf, with specific departed persons.

A professor at The University of Chicago invited me to lecture his class about my experiences, then offer my opinions regarding such communications. No less than

*(Continued on page 83)*



*"The XYL and I fooled around with the board on and off for a few months..."*

## Talkin's No Fun Without A Jo Gunn!

4 + 4 STAR

UPS  
SHIPPABLE



Other Models & Sizes  
Available in 10 or 11 Meters



Call or send \$2.00 for Complete  
Catalog and Pricing of Antennas.



Route 1 - Box 32C, Hwy. 82  
Ethelsville, AL 35461  
(205) 658-2229  
FAX: (205) 658-2259  
Hours: 9 am - 5 pm (CST)  
Monday - Friday

DEALER INQUIRIES, PLEASE CALL

## SURVEILLANCE

### FM TRANSMITTERS MINI (KITS)

- 3-VOLT FM XMTR, up to 300 ft. indoors, 1500 ft. outdoors
- PHONE XMTR, range to 500 ft., uses phone-line power
- Sound-Activated XMTR, range to 500 ft.
- 2-STAGE XMTR, 9-Volt, very powerful

All above require simple soldering at 2 to 4 places.  
\$29.95\*\*

**TELE CALL FORWARDER.** Transfers incoming calls. \$99.00\*

**CALLER ID.** Registers incoming number. \$99.00\*

**TEL REGISTER WITH PRINTER.** Records dialed number, duration, and prints record. \$169.00\*

**TEL REGISTER W/O PRINTER.** Records dialed number & time. 16-digit display. \$99.00\*

**12-HOUR LONG-PLAY RECORDER.** Modified Panasonic. Records 6 hrs. on each side of 120 tape (supplied). Compatible with VOX and Tel Rec Adapter. \$119.00\*

**VOX VOICE-ACTIVATED SWITCH.** Makes recorder self-activating with voices or other sounds. \$28.50\*\*

**TELE RECORDING ADAPTER.** Records incoming and outgoing calls. \$28.50\*

**TELEPHONE SCRAMBLERS.** Over 4,000 separate codes. \$199.00\*

**VOICE CHANGER.** Changes man's voice to lady's and vice versa. \$49.00\*\*

For Shipping & Handling add \*\$5.00 and \*\*\$2.00 per item. Colo. residents add sales tax. Mail Order, VISA, M/C, COD's o.k. Inquire for dealer prices. Free catalog.

**MUCH, MUCH MORE — OUR 25TH YEAR!**

TOLL FREE 1-800-926-2488

A.M.C. SALES, INC.

193 Vaquero Dr., Boulder, CO 80303

Tel: (303) 499-5405, Fax: (303) 494-4924

Mon.-Fri. 8 a.m.-5 p.m. Mtn. Time

CIRCLE 50 ON READER SERVICE CARD

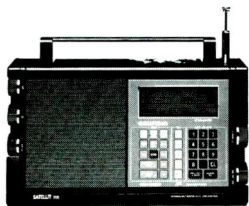
# GILFER KNOWS GRUNDIG!

## GRUNDIG Yacht Boy 400



- 40 Memory Channels
- 1.6—30 MHz, plus LW, MW & FM Stereo (w/phones)
- Wide & Narrow Bandwidths
- SSB Capable
- Clock, Timer & Alarm Functions
- Carrying Case, External Antenna & Batteries Standard
- Optional AC Power Supply Available

## GRUNDIG Satellit 700



- 512 Memory Channels (expandable to 2048!) with Alpha-numeric ID Display
- Synchronous AM Detection with Selectable Sideband
- 1.6—30 MHz, plus LW, MW & FM
- SSB Capable
- Clock, Timer & Alarm Functions
- AC Power Supply
- Audio Output: 3W

Send \$1 for complete catalog of shortwave products!

**GILFER**  
SHORTWAVE

52 Park Avenue  
Park Ridge, NJ 07656

**ORDERS: (800) GILFER-1**  
**NJ & Technical: (201) 391-7887**  
**Fax: (201) 391-7433**

# MAILBAG

## LETTERS TO THE EDITOR

Each month we select representative reader letters for our Mailbag column. We reserve the right to condense lengthy letters for space reasons. All letters submitted must be signed and show a return address. Upon request, we will withhold sender's name should the letter be used in Mailbag. Address letters to Tom Kneitel, Editor, Popular Communications Magazine, 76 N. Broadway, Hicksville NY 11801.

### SYSOP

Permit me to call attention to the mention of HF FAX in the November '95 issue. I run a BBS at (705) 461-9762 and had a good upload sent to me—a program that uses the sound card as the decoder! So now I just take an audio feed out of the Sangean 803 (a) and feed it into the mic on the sound card for 16-gray scale real time WEFAXes. This also works for CW. Another good program turns the analog signals into digital and text is displayed!

The programs are shareware. I have attempted to contact the author of the WX program (called *Weatherman*), Paul Hitchcock, but the only address I have is no longer current. The two programs are available on my BBS. I charge a one-time fee of \$10 (cash) for unlimited lifetime access to my extensive files. The BBS has users throughout Canada, in most U.S. states, and even in overseas places as far away as Singapore.

I credit POP'COMM for inspiring me to get my ham ticket, and encourage users of my BBS to read POP'COMM.

Roger Bolwig, VE3ECB,  
Elliot Lake, Ontario, Canada

### Here's a Flash

The January cover story, *Chorus, Sferics, Tweaks, and Whistlers*, by Steve McGreevy, is excellent. Here is some additional information for those interested in ELF/VLF research. Project Tesla, directed by Robert Golka, formerly of Leadville, Colo., recreated and exceeded Tesla's Colorado Springs voltages in its attempt to electrically (not electromagnetically) pulse the Schumann Cavity.

Tower discharges were 24-million volts at 2,200 amps, continuous damped sinusoidal waveforms for various frequencies from 20 to 150 kHz. This was double Tesla's 12.5 MV record. Tesla's tower at Shoreham, Long Island, later reached 20 MV.

The project confirmed Tesla's research, though it was not able to discover how Tesla

converted these "higher" frequencies (at these voltages/currents) to the desired rectified 8 Hz lightning bolts needed to electrically resonate the lower ionosphere. Tesla's notes omit all reference to this frequency transformation.

Project Tesla was attempting to duplicate Tesla's generation of ball lightning, which may be a stable plasma of highly ionized gas, and might provide insights into fusion confinement. Project Tesla did not have sufficient funding to achieve completion. From his Brockton, Mass., lab, Robert K. Golka continues his experiments in ball lightning generation.

Paul Snigier,  
Raynham, MA

### That Party at Station WTTT, 1951

I've been in radio for about 26 years, but I don't think I can top your *New Years Eve Broadcast* story in the January edition. That was a great one!

Mark Shands,  
Top 20 Double-Play,  
(Formerly of Power 96, Y-100,  
WINZ-FM in Miami, 13-Q in  
Pittsburgh, KISS-102 in  
Pittsburgh, WHJX in  
Jacksonville,  
and many more!)  
(via e-mail)

### Letters We Liked a Lot

Your magazine is the *best!* Keep up the good work and please don't change a thing! Why change perfection?

Tom Ziko, KA5EYY,  
Seymour, TN

I'm writing to provide feedback on your magazine. Being new in the SWL hobby, I was pleasantly surprised with the format and amount of information in the POP'COMM *Communications Guide* and also the February issue of the magazine. Congratulations on presenting the information in an interesting and easy-to-read fashion.

Another point comes to mind. I have an ongoing problem at my favorite newsstand regularly locating any other publications relating to shortwave. I am happy to report that POP'COMM is always available, and it's a winner.

Michael A. Ryan, Ph.D.,  
San Diego, CA



## AR 8000

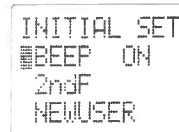
The New Concept - AR8000 shocks the market. AOR made every effort to incorporate the latest technology in to this new scanner.

### • SPECIFICATIONS •

- Range: .5 - 1900MHz usable to 100kHz
  - Modes: AM/NFM/WFM/USB/LSB/CW
  - Stepsize: 50Mz to 999.995kHz
  - Sensitivity( $\mu$ V): 30 to 1000MHz  
SSB .2 AM 1.0 NFM .35 WFM 1.0
  - Filters: (kHz) SSB 4 AM/NFM 12 WFM 180
  - Memories: 50 ch. x 20 banks=1000 total
  - Size/Wt.: 6.1 x 2.8 x 1.6 inch.  
20 oz. batt. incl.
- \* Cell blocked for all, but Approved agencies.



- Covers .5-1900MHz\*
  - Ferrite Rod antenna below 2MHz
  - Only portable scanner on U.S. market to have true SSB, both LSB & USB. Others attempt SSB using a BFO, but are difficult to tune and produce poor SSB audio.
  - 4 level alpha numeric LCD read out frequency, mode, signal strength, band scope spectral display, battery low, remote and more
  - Computer control up/down load data, will add a new dimension to the world of scanning.
  - Clone your memory banks with a friend, load 1000 memory channels in seconds
- .1 - 1900MHz\*



## The Latest From AOR Products Available at a Dealer Near You!

NEW

### SDU 5000

The Spectral Display Unit adds a new dimension to the signal interception hobby. Imagine seeing stations above and below your receiving frequency. Usually the transmissions are short, perhaps 1 or 2 seconds. What are the chances of you being tuned to the exact frequency at the instant of transmission? Very slim. With an SDU you can watch for stations to pop up over a 10MHz window, then zero in.



The SDU 5000 offers features unheard of only a year ago.

Δ Frequency coverage up to 10MHz Δ Display - 3.1" HQM Simple matrix color LCD Δ Resolution: 5 or 30kHz selectable Δ Input: 10.7MHz Δ 50dB Dynamic range Δ Screen refresh 2/s Δ Composite video out Δ Full computer control Δ Video output NTSC or Pal display, on TV or record on VCR Δ RS232 9600bps Δ Instant receiver set from cursor via RS232 Δ Store image on disc or your video recorder Δ Menu driven system makes SDU5000 simple to operate Δ SDU5000 is designed to work with the AR3000A (modified with a 10.7MHz output) using RS232 link with or without a computer. Other receivers with 10.7MHz IF output but digital linking may not be straight forward.



Electronic Distributors Co.

325 Mill Street, N.E.  
Vienna, VA. 22180

Phone: 703 938 8105 FAX: 703 938 4525

Exclusive North and South American Distributors.



### AR3030 HF

#### AR3030 HF HI TECH RECEIVER



•Direct Digital Synthesizer with Numeric Controlled OSC improves carrier to noise ratio drastically •10Hz tuning accuracy; RIT control CW/SSB • Synchro detector improves AM signals under severe fading conditions

•Tuning via keyboard or knob •Carrier Operated Relay for remote start/stop of recorder when signal is present •TCXO ; not an option 5PPM (-5°F+130°F) Wide dynamic range, Double Balance Mixer in 1st mixer, over 100dB, with higher intercept point than other receivers in this class • AGC control w/ off position • Large backlit LCD • Analog S meter •Dual VFO increases flexibility •RS-232C serial interface for opt. comp control • 3 way power source: AC adpt., 13.8VDC, internal 8AA NiCad or dry cell required •Processed aluminum case and chassis •2 year factory authorized U.S. warranty. *CALL your dealer for Product brochure!*

Frequency: 30kHz-30MHz opt. int. VHF conv. 108-174MHz • Memories: 100 programmable w/scan • Modes: AM, LSB, USB, CW, FAX, FMN Tuning Accuracy: 10Hz • Power: 12VDC -800mA(max.); 8AA Nicad or Alk (not incl.) • Size: 10" W x 3.5" H x 9.5" D; 4.8 lbs.

**FREE UHF converter  
or CW filter !!!  
(till July '95)**



# Cellular Fraud Runs Wild!

## Ringin' Up a Costly Nightmare

BY HAROLD ORT, N2RLL

**E**very minute of every day someone gets ripped off. Always has been, always will be. Theft takes many forms, and depending on your viewpoint, you're either the thief or the victim.

Certainly most of us would agree that the government rips us off; whether it's in the form of taxes or excess road tolls. Then there's all the commercial gyps, from over-priced medical care to outrageous costs for food and utilities.

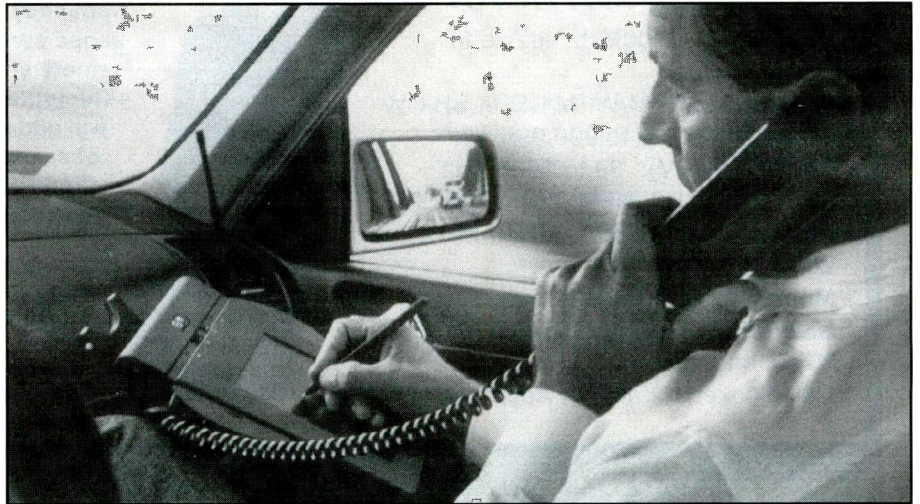
Of course if you ask the car manufacturers they'll have reasons for passing on the cost, the tax man definitely has reasons, and so does your friendly cellular carrier. With everyone blaming everyone else, we're stuck in the middle holding the bills.

Never fear, though. There's still a chance you'll get a good night's sleep because according to the Cellular Telecommunications Industry Association, typically one arrest is made daily in the war against cellular fraud, a war where every day criminals ring up more than \$1.32 million in fraud. CTIA Fraud Task Force chairman Tom McClure said 40,000 illegal numbers are activated monthly. Unfortunately cellular fraud is seen moving from the hacker to organized crime and drug traffickers.

Just what is cellular fraud and why the fuss over how much is lost every year on this crime—a crime that goes unnoticed by most of us; but yes, you guessed it, one way or another someone pays for the rising administrative costs of policing cellular fraud. In 1993 alone, more than \$365 million was lost to cellular fraud which is defined as the act of obtaining cellular service by fraudulent means to avoid paying for the service. Last year a whopping \$482-million was lost.

At first thought, it might seem easy to catch these criminals, but as Cellular One of New York and New Jersey points out, in the past two years alone, the industry has spent more than \$7-million fighting the crime. "However," they said, "almost as fast as anti-fraud technology can be developed, criminals are finding new and innovative ways to cheat consumers."

Interestingly it isn't always drug traffickers and felons using cloned cellular technology, it's sometimes everyday folks who get caught in a web of trying to save a buck. Take for example the store "fronts" that will sell you a phone service. You won't be able to receive calls, but you can sure make plenty of them, for a price, of course.



*Every time you talk over your cellphone, your number is on line for crooks.*

But that price is typically much less than the legal way most of us do business!

Cellular fraud is nothing new. Ever since the first cellular phones went on the air, cellular fraud has increased at near epidemic rates. Frankly, one source said the industry was counting on the belief that no one would figure out how to reprogram the phones for illegal use. Oops, someone goofed big time!

### **Four Basic Types of Cellular Fraud**

With more than 14,000 new cellular customers every day, our mobile society has adopted the cellphone—mobile, portable, and transportable—as the latest in stay-in-touch technology to keep users and their families safe, secure, and business-savvy. Of course where there's a buck to be made, unsavory characters will be there with their hands in your wallet. Here's what these criminals do.

First, there's "access fraud" which involves the tampering, programming, and unauthorized use of a cellphones' mobile ident number (MIN), and 11-digit electronic serial number (ESN)—the fingerprint of your phone. Every time you place a cellular call, these numbers, unique to your phone, are transmitted to the carrier's switch station for validation. These codes can be duplicated and then programmed into another phone. This counterfeiting or

"cloning," is very common and most frequently used.

When your cellular phone is using another carrier system outside your home service area, you're "roaming." When a cellular thief changes your ESN and MIN after each call while he's roaming, this "tumbling" confuses the cellular switch just long enough to make and complete a call—most likely a lengthy, long distance call!

Subscription fraud is also common—someone subscribes to cellular service using phony identification and other fraudulent information. The industry continues to improve its verification process and credit checks to eliminate this type of fraud.

Another somewhat easier-to-discover type of fraud is stolen phone fraud. As the name implies, someone steals a valid subscriber's cellular phone and makes numerous calls—usually long distance—before service is denied.

Then there are the infamous call-sell scams. This is the typical "cash per call" scam that involves reselling cell telephone services obtained through any of these fraudulent methods. Usually conducted on the street or in apartments, it attracts folks who want to make international long distance calls, such as illegal immigrants or drug traffickers. Last year Baltimore's Bhardwaj Esau was sentenced to 27 months in a federal prison, and his accomplice, Enayet Hussain Ahmed got seven months after being convicted of this call-





Cellphones can have their identities stolen by crooks who use them in cloned phones.

sell scam. In just a two day period they stole thousands of dollars of cellular airtime.

### Tough Times for Criminals

Everyone agrees that this high tech war deserves high tech weaponry, and that's exactly what the industry is using. So, with all the criminals out there and technology at their fingertips, how successful is the industry at nabbing the bad guys? Bell Atlantic Mobile's in-house Fraud Task Force is using the most sophisticated Fraud Detection System in the country to pinpoint fraudulent calling activity and lead law enforcement officials to criminals for arrest. The company has more than 50 full-time investigators detecting and thwarting cheats. Bob Johnson, vice president of Bell Atlantic Mobile in the Washington/Baltimore region said, "We're quickly identifying cellular fraud and catching offenders, which has been a tremendous savings of money and time." He continued, "It's helping us to keep fraudulent calls from ever reaching customers' bills."

Nonetheless, keep your eyes open for any unusual calls or activity on that monthly bill. Another tell-tale sign someone may be fraudulently using your number is if you suddenly begin receiving lots of wrong number calls or hang up calls on your cellular phone. Call your carrier right away!

He stressed that customers won't be responsible for fraudulent calls, but "they do suffer the inconvenience of having to

change their cellular telephone number if their phone has been cloned."

Using the latest intelligent software which analyzes calling patterns, an unusually high volume of calls and other tell-tale signs of cellular fraud, officials are getting tough with criminals. The goal is to nab the suspects at the onset, that's why it's important for the industry to work closely with law enforcement. Ed Kmiec, Bell Atlantic Mobile director of financial services and fraud management said, "Law officers' understanding of this relatively new crime, coupled with our ability to give the precise location of criminals, has led to swift apprehension of offenders." Not surprisingly too, cellular fraud is often just the tip of the criminal's iceberg.

CellularOne and its parent company McCaw Cellular Communications are developing innovative anti-fraud systems and taking numerous steps to detect and stop cellular fraud, including Fraud Protection Feature or FPF, which allows customers to lock service when not using their phone.

Also, by using a new software system they're examining cellular calls, looking at 17 call characteristics that's compared with the customer profile. If the information doesn't readily fit a usage profile it triggers the system and the subscriber is subsequently notified that fraud is suspected. Other techniques, including a pre-call verification feature, whereby a subscriber's ESN and MIN are validated prior to a call being delivered, are being used. This effectively eliminates tumbling fraud, according to McCaw and CellularOne. Additionally, digital authentication and even voice print technology are on the horizon to validate subscribers to curtail fraud.

These and other cellular companies are providing their customers with added security to thwart cellular fraud by providing customers with a personal identification number or PIN which is similar to an ATM code. During the dialing sequence, customers enter their private PIN number which provides an additional layer of calling security. For instance, early this year Bell Atlantic and NYNEX Mobile Communications began using a new Fraud Zone Protection Zone technique developed by Bell Atlantic Mobile. The program restricts calling throughout the greater New York City area for its customers from Washington, DC; Baltimore; Pittsburgh; and greater Philadelphia, including Delaware and southern New Jersey. Proper identification, along with a selected PIN code is required for those customers while roaming in New York City before the company will deactivate the fraud zone restriction.

It's a well-known fact (although you'd never believe lawmakers knew it when the ECPA was passed!) that cellphones are simple radio transmitters. It's also a fact that every phone, like each of us, has its own unique "fingerprint." A system that tracks, identifies and blocks illegally-made cellular

## NEW! ScanStar™ Commercial Edition

From Signal Intelligence  
The Leader In Computer Scanning

The Commercial Edition has all Professional features plus:

- o Multi-radio scanning, search/slave & peer strategies.
- o Spectacular graphical scan window has "all in view" status. Quickly lock/unlock channels with mouse.
- o Two independent scan windows. Scan up to 4 radios at the same time. Hot switch display.

### Professional Edition Features:

- o Spectrum analysis on R7100, R9000, AR3000, OS456, NRD535. Great graphics - support for most printers.
- o Scan by tone with OS456 or DC440 + other radio.
- o Scan multiple groups, banks and search ranges all at the same time! Alarms for priority channels.
- o Unlimited channels and banks. Select all features on a per-channel basis. No frequency restrictions.
- o Comprehensive report printing & data logging.
- o Import & export data, read & write radio memory.
- o Terminal window for TNC, decoder or modem.
- o Monitoring Assistant, background scan & more!

### Equipment Supported:

- OS456, R7100, R7000, R9000, FRG9600, DC440, AR3000, NRD535, NRD525, R8, MR8100.

### System Requirements:

- IBM PC 386/486/586 with 4 MEG ram, hard disk, VGA, mouse, serial ports. DOS 5/6 with DOS=HIGH, or OS/2 2.1 or 3.0. Cables and interfaces not supplied.

Commercial Edition \$129<sup>97</sup>

Professional Edition \$79<sup>97</sup>

Plus shipping, handling and state sales taxes. To order call.

**1-408-926-5630**

Signal Intelligence  
PO BOX 640891  
San Jose CA 95164  
408-926-5630  
VOICE & FAX

**FREE DEMO**

Download from Scan\*Star BBS,  
2400-9600 N81, login as "guest"

**1-408-258-6462**

CIRCLE 77 ON READER SERVICE CARD

GMRS

**EMERGENCY**

Radios

- Hiking
- Skiing
- Traveling
- Fishing
- Camping
- Hunting

Communicate with others NOW using the most versatile radio available on the market today.

**MAXON**

GMRS-210+3

2-5 Watt portable

**NOW Only \$ 210.00**

(Comes with the nationwide emergency frequency, 462.675 MHz installed!)

Many other accessories are available: headsets, mobile antennas, speaker/mics and more. Mobile radios too!

**GMRS RADIO SALES**

P. O. Box 37825

Phoenix, AZ 85069

**1-800-571-GMRS**

Fax: (602) 878-6398

CIRCLE 63 ON READER SERVICE CARD

calls is used in deterring cellular fraud. Let's suppose an illegal cellular user has a cloned phone and dials that long distance number. Instantly, the system identifies the signal pattern for the calling phone. If it doesn't match the one on file, the call is terminated.

Blocking a caller's initial access is the goal of the transmitter fingerprinting process. This method of fraud control is having remarkable results, according to Mr. Bill Taliaferro of Corsair Communications, a Sunnyvale, California-based company that develops and provides technology-intensive applications and solutions for the wireless industry. Known by the trade name PhonePrint, this fraud control system detects illegal phones by measuring in real

time the unique characteristics of each phone's radio signal. The new system can determine if the call is from a legitimate caller. If not, it automatically blocks the clone's access to the cellular network. The company emphasizes that the PhonePrint system eliminates the need for users to change phone numbers when fraud is detected, and increases cellular network capacity by eliminating illegal traffic.

Don Winters, director of technology transfer at AirTouch Communications, which has partnered with the PhonePrint folks said, "This pre-call validation allows us to keep criminals off our network which in turn reduces costs incurred by fraud and increases capacity for our paying custom-



*A pleasant chat could cost you plenty if your number is stolen or cloned, then used by others to run up huge overseas toll calls.*

ers to use the AirTouch network." Operational deployment of the system in Los Angeles is the first major sale of the system by Corsair Communications.

The cellular fraud epidemic can be slowed down, with everyone's help. Here's what you can do.

- Your subscriber agreement, which includes your electronic serial and mobile telephone number, should be treated like any other sensitive personal document. You wouldn't expose your credit card numbers and agreements for the world to see, would you? Keep it in a safe place!

- Take your phone with you or store it in a locked area when leaving your vehicle, especially in an isolated area.

- Report your stolen phone to your cellular phone carrier immediately.

- Remove your cellular antenna, lock the phone (or remove the handset) before leaving your vehicle with parking attendants, repair shops, etc. Maybe you should also consider buying that magnetic-mount antenna instead of the on-glass you now have.

- Why have long distance or overseas calling on your plan if you don't intend to use them? Ask your service provider to eliminate this long distance service.

- Use reputable cellular service technicians to install and test your phone.

Cellular fraud, as one company official said, "is not a victimless crime." After all, those costs have to be passed along to someone.

\* \* \*

*A special thanks to Bob Hagen, a reporter with WINS Radio, New York City, for providing some of the information used in developing this article.*

# BUY SMART

## SG-230 Smarttuner®

### Antenna Coupler

#### SSB, AM, CW & DATA

You can't buy a smarter tuner than this. An automatic antenna coupler so intelligent it precisely tunes any length antenna -8 to 80 ft-in the HF band.

The Smarttuner® automatically evaluates and switches 64 input and 32 output capacitance combinations, plus 256 inductance combinations in a "pi" network. The amazing result is over a half-million different ways to ensure a perfect match for your transceiver. And the most intelligent feature of all is that the Smarttuner remembers the chosen frequency and tuning values, and will automatically reselect those values-in less than 10 ms, each time you transmit on that frequency.

The SG-230 Smarttuner.® Buy smart.



MICROPROCESSOR CONTROLLED • NON-VOLATILE MEMORY • WATERPROOF  
B.I.T.E. INDICATOR • 1.8 TO 30 MHZ RANGE  
3 TO 150 WATTS INPUT POWER • 10ms RETUNING TIME • 8 to 80 ft. ANTENNA (all types)



NO COMPROMISE COMMUNICATIONS

**800-259-7331**



SGC, INC. SGC BUILDING P.O. BOX 3526 BELLEVUE, WA 98009 TEL. (206) 746-6310 FAX: (206) 746-6384

CIRCLE 75 ON READER SERVICE CARD



# The Global Reach of Trans World Radio

## Transmitting Sites Around the World Make the Difference!

BY GERRY L. DEXTER

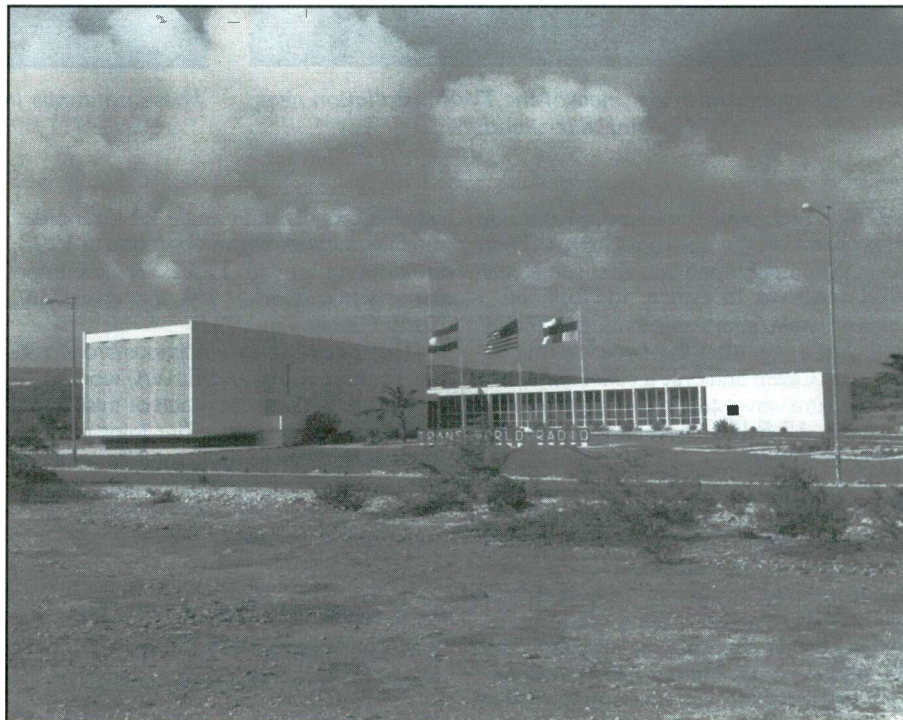
**W**hen Dr. Paul Freed founded what was eventually to become Trans World Radio back in 1952, it's unlikely he envisioned anything remotely as big and extensive as what it had become some 40 years later. If, today, you were to draw lines on a map connecting all the places where TWR has a presence on a map, the lines would zig-zag and criss-cross all over the globe.

But it might not have happened at all! Almost every organization goes through various struggles and growing pains on its way to eventual success (or failure) and TWR was no exception. It was several years before the radio effort gained a solid footing, and then the station was lost—literally taken from Freed. There was no transmitter, there were no microphones. But he did not quit. He regrouped. Today, TWR is one of world broadcasting's giants, with a reach covering some 80% of the planet's population.

Forty years after it began, Trans World Radio now broadcasts from ten main transmitter sites around the world (it actually owns only half of them) which combine for a total power of over nine million watts. Some 1,000 hours of programming are aired every week in 100 languages. Numbers like that surely equal or exceed those of any of the biggest government broadcasters plus national program producers and local churches, as well as programming from mission organizations and individuals. TWR's programs draw about one million letters per year. The total worldwide staff numbers about 1,000. The majority of the personnel are citizens of the country which they work.

TWR's programming is not strictly religious in nature. Many broadcasts focus on practical local problems such as agriculture and health, including AIDS prevention.

In addition to its headquarters facility in Cary, North Carolina, and ten main transmitting centers, TWR has studios, branch offices, and program partners in the following areas: Argentina, Australia, Austria, Belarus, Brazil, Burundi, Canada, the Czech Republic, Denmark, the Dominican Republic, England, Finland, France, Germany, Holland, Hong Kong, Hungary, India, Kenya, Malawi, Mozambique, Nor-



*Trans World Radio's station on Bonaire, Netherlands Antilles turned its shortwave transmitters off in 1993, but continues operating on 800 kHz medium wave.*

way, Paraguay, Russia, Singapore, Slovak Republic, Sweden, Switzerland, Taiwan, Ukraine, Venezuela, and Zimbabwe.

### History

TWR was founded in 1952 by Dr. Paul E. Freed, who remained president of the organization until succeeded by Thomas J. Lowell last year. Presently Dr. Freed serves as Chairman of the Board of Directors.

The first TWR station was in Tangier, Morocco, which came on the air in 1954. The Voice of Tangier used a 2.5 kW transmitter to broadcast the Christian message to Spain. Actually, the name "Trans World Radio" did not exist until 1960; Freed's initial organization was called International Evangelism. Getting WTAN on the air was a struggle. The early years saw more than one very close call in meeting loan payments. In at least one case, the necessary

money wasn't in hand until the last minute. Just when things had begun to stabilize, WTAN had to be given up after the Moroccan government nationalized broadcasting in 1959.

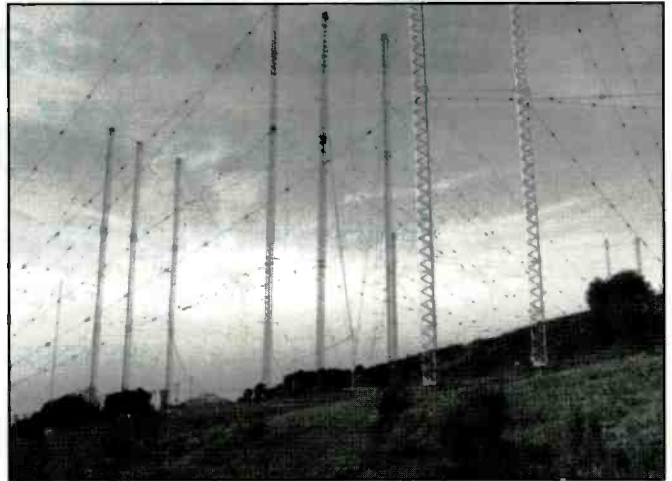
Only one year later broadcasting had begun again. Now with a new name, TWR was on the air using facilities in Monte Carlo, Monaco. The building used as TWR studios and headquarters (see photo) had been built by Hitler to serve as a Nazi propaganda station. The new arrangement had allowed TWR to expand its coverage well beyond its original target and reach listeners in other parts of Europe, as well as North Africa and the then Soviet Union.

TWR's next step was a big one—across the Atlantic and into the Western Hemisphere where it put TWR—Bonaire (Netherlands Antilles) on the air in 1960, operating with high power transmitters on both medium and shortwaves. Ten years later





Here's a beyond-the-bridge view of the TWR installation near Manzini, Swaziland.



These antennas beams are programming from TWR-Monte Carlo, Monaco.

(1974), a high power medium wave transmitter went on the air from Cyprus. Then the activity really sped up. That same year TWR returned to Africa and opened a medium wave/shortwave station in Swaziland. Just a year after that broadcasting began from Guam and only a year later a 400 kW medium wave station came on from Sri Lanka (a 12.5 kW shortwave outlet was added in 1993).

This 40-year span of activity also saw the addition of more transmitters and antennas as well as other expansions in technical facilities. The establishment of several cooperative broadcasting agreements allowed TWR to use existing broadcast facilities in such countries as Uruguay, Russia, and Albania. Offices and/or production studios were set up in many other countries as well.

Other red letter events included the 1971 transmission of what is thought to have been the first Gospel programming ever transmitted by satellite. In 1990, almost 20 years later, TWR began regular

satellite broadcasting and a 24 hour-a-day satellite network began operating in 1993, in cooperation with HCJB. A new international headquarters was opened in Cary, North Carolina in 1991.

TWR is one of four religious broadcasters (FEBC, HCJB, and ELWA) working in concert to expand the reach of missionary broadcasting. Among other joint projects (such as the TWR-HCJB satellite network) engineers from these stations work together constructing transmitters are HCJB's own plant in Indiana.

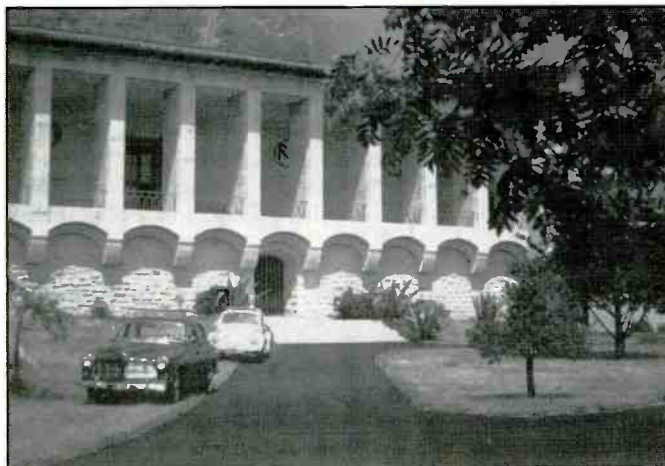
### ***A Capsule Look at the TWR Transmitting Facilities 'Round the World***

**Albania**—TWR uses a 1,000 kW medium wave transmitter at Lushnje which belongs to the Albanian government's Radio Tirana broadcasting on 1395 kHz. It airs about two and a half hours per day of

programming in ten languages, beamed to listeners in Germany, Great Britain, Hungary, the former Yugoslavian republics, the Czech Republic and the Slovak Republic.

**Bonaire**—TWR opened a half million watt medium wave station (on 800 kHz) here in 1960 and soon added high power shortwave transmitters. The Bonaire shortwave broadcasters were discontinued in June 1993, ending 28 years of TWR shortwave from the island. The organization concluded that programming could be better delivered via satellite and local stations to reach an increasingly metropolitan audience in Latin America. The loss of the Bonaire shortwave facility has made good reception of TWR programming much more difficult for North American listeners. The 800 kHz medium wave channel can be heard in much of North America during the nighttime hours, though not necessarily with listenable quality.

**Cyprus**—TWR began using a 600 kW medium wave station owned by Radio Monte Carlo in 1974. It airs programming



TWR's station at Monte Carlo was originally built to house a Nazi propaganda station.



The Puttalam transmitting site in Sri Lanka.



# OUT OF THIN AIR AND INTO THE THICK OF THINGS.



THE DRAKE R8A

The Drake R8A World Band Communications Receiver. Turn it on, tune it in, and as easy as that, you're hearing world events as they happen... uncensored and complete. And with the R8A's astounding clarity, it's almost as if you're there. In fact, no other communications receiver puts you closer to the action in even the most distant parts of the world.

If you're a hobbyist, you'll marvel at the R8A's simplicity of operation. If you're an expert, you'll admire the high-powered features. The Drake R8A offers superior performance in a complete package that includes built-in filters and other unique features that have made Drake the foremost name in world band communications. The R8A from Drake...you've got to hear it to believe it.

DRAKE, FOR A WORLD OF DIFFERENCE.

### Order Now Risk-Free!

#### 15-DAY MONEY BACK TRIAL

We are so confident you'll be impressed with the R8A's performance, we'll give you a full refund on your factory direct order, less shipping charges, if the R8A doesn't meet or exceed your expectations. Call for complete details.

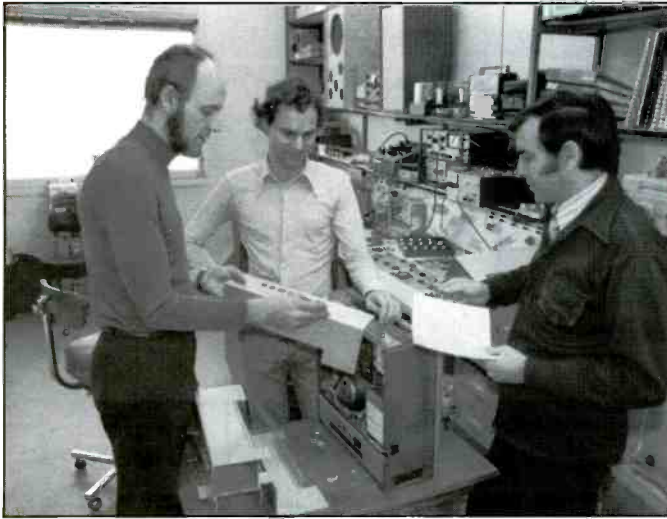
**Order Today, Factory Direct** or call for the dealer nearest you **1-800-937-2538**



**DRAKE**

R.L. Drake Company, P.O. Box 3006, Miamisburg, Ohio 45343, U.S.A. ■ Sales Office: 513.866.2421 ■ Fax: 513.866.0806 ■ Service and Parts: 513.746.6990 ■ In Canada: 705.742.3122  
© 1995 The R.L. Drake Company

**DRAKE** is a registered trademark of The R.L. Drake Company.



TWR engineers in Monaco look over some equipment.



If you worked for TWR Monaco you could enjoy this view as often as you liked.

in Kurdish, Farsi, Arabic, and Armenian, totaling something over two hours per day. The station broadcasts on 1233 kHz to listeners in the middle and near east from a site at Cape Greco.

**Russia**—A 1993 agreement between Trans World Radio and the Russian government allows TWR to broadcast from a 250 kW Radio Moscow (now Voice of Russia) transmitter near Irkutsk. Broadcasts go out in more than 20 languages, intend-

ed for listeners in Tibet, Bangladesh, India, Nepal, and Bhutan. Check for this outlet in 9825 between 0030 and 0200 and 7420 from 1230 to 1700.

**Sri Lanka**—In 1978 TWR put a 400 kW medium wave station on the air from Puttalam, operating on 882 kHz. A short-wave facility was added two years ago when a 12.5 kW transmitter went on the air. The shortwave operates on 6035 from 1330-1500, broadcasting in Tamil and other

South Asian languages. The target area is India and the subcontinent.

**Uruguay**—Another medium wave-only site, TWR uses the facilities of Radio Capital in Montevideo (a 50 kW commercial station on 610kHz). TWR has "exclusive rights" to broadcast religious programming to the Montevideo/Buenos Aires metro areas. Programs are aired in both Spanish and Portuguese.

**Guam**—A 10 kW medium wave trans-

## DELTA COMM™ DSS

### Digital Signal Strength

### Option For Your ICOM™ R7000

DELTA COMM™ I-7000 and your MS-DOS computer integrated with the Delta Research custom CI-V interface and optimized software will not just control but will maximize the potential of your ICOM™ IC-R7000's monitoring capability.

- CYBERSCAN function allows scan file tracking control of systems employing frequency hopping techniques.
- Spectrum log at speeds in excess of 1300 channels a minute, generate a real time histogram of activity and create scan database file automatically.
- Birdie log during frequency search automatically characterizes your R7000, then locks out those frequencies.
- Activity log function continuously monitors and logs all frequencies of a scan database while displaying active, was active and never active channels.



Optional DELTA COMM™ DSS (Digital Signal Strength) upgrade for your DELTA COMM™ I-7000 communication manager.

- Innovative interface design allows digitizing and storing the R7000 signal level information with 8-bit accuracy via your computer's game/joy stick port.
- DSS allows user programmable upper and/or lower signal level detection limits during DELTA COMM™ I-7000's spectrum log, scan and search functions.
- Log signal strength information to printer or delimited log file while DELTA COMM™ I-7000 is scanning or activity logging the selected database file.

DELTA COMM™ I-7000 communication manager program includes all cabling, manual, UL listed power supply and Delta Research custom CI-V interface for \$299.00 + \$8.00 (U.S.) or \$25.00 (foreign) S&H. The DELTA COMM™ DSS interface upgrade comes complete with easy to follow NO SOLDER installation instructions, all cabling and 8-bit DSS A/D converter module (game port required) for \$99.00 + \$8.00 (U.S.) or \$25.00 (foreign) S&H and is available as an upgrade option to registered I-7000 users. Contact us for additional information on DELTA COMM™ communication managers for ICOM™ R7100, R71A, R72 and IC735.



## Delta Research



Box 13677 • Wauwatosa, WI 53213 • FAX/Phone (414) 353-4567

## 911 ACTION!

## ACTION!



Don't miss all the action!!

### Join the Bearcat Radio Club Today!!

The Bearcat Radio Club membership offers:

1. The *National Scanning Report*, America's #1 all-scanning magazine. A FREE year subscription to every member.
2. A FREE frequency list for your county.
3. FREE access to our computer bulletin board and national frequency database -- members only.
4. FREE Classified ads - Buy, Sell or Trade.

### TWO GREAT LEVELS OF MEMBERSHIP

**ASSOCIATE MEMBERSHIP - \$19.90**

Includes all of the benefits listed above.

**FULL MEMBERSHIP - \$29.90**

Includes all of the benefits listed above PLUS a free copy of the *Betty Bearcat Frequency Directory* book (a \$14.95 Value)

Join TODAY!!

## Call 1-800-423-1331

Bearcat Radio Club, P. O. Box 291918, Kettering, OH 45429





# WORLD CLASS

## SENSITIVITY • SPEED • DISTANCE • POWER

Model 3300	\$139	Model M1	\$249.	Model 3000A Plus	\$349.	Model 8040	\$679
1MHz-2.8GHz MiniCounter		10Hz-2.8GHz HandiCounter®		10Hz-3GHz HandiCounter®		Bench Portable Counter	
<ul style="list-style-type: none"> <li>• True pocket size</li> <li>• 10 digit LCD display for best outdoors visibility and longer battery life</li> <li>• Select six gate times</li> <li>• Direct &amp; pre-scaled ranges</li> <li>• Hold switch locks display</li> <li>• Low battery indicator</li> </ul>		<ul style="list-style-type: none"> <li>• High speed OE10</li> <li>• Digital Filter greatly reduces random noise &amp; oscillation</li> <li>• Digital Auto Capture locks counter display on first reading to pass filter</li> <li>• 5 Hour NiCad</li> <li>• 11 Digit Backlit LCD display</li> <li>• 15 segment RF bargraph</li> <li>• Arm/Store button stores &amp; recalls frequencies</li> <li>• 250MHz direct count</li> <li>• Digital Communications Port permits data logging with optional converter &amp; software</li> </ul>		<ul style="list-style-type: none"> <li>• High speed OE10</li> <li>• Digital Filter greatly reduces random noise &amp; oscillation</li> <li>• Digital Auto Capture locks counter display on first reading to pass filter</li> <li>• 6 Hour NiCad</li> <li>• 10 Digit Backlit LCD display</li> <li>• 16 segment RF bargraph</li> <li>• Arm/Store button stores &amp; recalls frequencies</li> <li>• 250MHz direct count</li> <li>• Digital Communications Port permits data logging with optional converter &amp; software</li> <li>• Multi-function: Frequency, Period, Ratio &amp; Time Interval Measurement</li> <li>• Dual High Impedance Inputs &amp; Amplifiers</li> <li>• Built In High Pass Filter</li> </ul>		<p><i>With all the features of the 3000A plus:</i></p> <ul style="list-style-type: none"> <li>• Dual 50Ohm and 1Meg Ohm input amplifiers with AC/DC coupling, ± Polarity, Trigger Level adjust, Low Pass Filter &amp; Attenuator</li> <li>• Internal clock output/external clock input</li> <li>• RS-232 Serial computer interface</li> <li>• Optional ± 0.1ppm TCXO or ± 0.05ppm KVG ovenized timebase</li> </ul> <p><i>Products above shown with optional antennas.</i></p> <p><i>When you order ask about our full line of Antennas and Filters to give you maximum pick-up distances &amp; our Probes and Product Accessories.</i></p>	

Order Toll Free

**1-800-327-5912**

In FL: 305-771-2050 FAX: 305-771-2052

5821 NE 14th Ave, Ft. Lauderdale, FL 33334

# OPTOELECTRONICS

5% Ship/Handling (Max. \$10) U.S. Canada. • 15% outside continental U.S. • Visa, Master Card, C.O.D., Cash or Money Order only.





"The Largest Dealer of Scanners in the World"

# SCANNER WORLD, USA®

10 New Scotland Ave., Albany, NY 12208 • 518-436-9606

MODEL: FB-911

## FIRE BOX PHONE

**\$45.99** (\$5.50 Shipping Each)



13 memory phone, 3 direct access emergency memories, auto redial, ringer on/off, top light flashes when telephone is ringing, tone/pulse switchable, desk/wall mount, front door closes for authentic fire box appearance. FCC approved. Size 16" H x 8 1/2" W x 7" D. We also have the PB104, dark blue POLICE PHONE BOX for only \$45.99 (\$5.50 Shipping).

## GM-1™ GLASS MOUNT SCANNER ANTENNA

Frequency coverage 25-1200 MHz — only 22 inches tall. No holes to drill — includes contact glue pads for easy installation. Complete with 17 foot cable, Motorola connector, and mounting hardware. Swivels to vertical position — performance unaffected by moisture on the window.

Made in USA.

**SPECIAL \$39.99**  
(\$4.00 Shipping Each)

## GLASS MOUNT ANTENNAS FOR TRANSCEIVERS

Includes mounting kit and cable. Low band, High band and UHF band includes PL259 connectors. 800 cellular band antenna includes TNC connector.

GM-27 27 MHz Low Band for CB	\$39.99	(\$4.00)
GM-155 144-174 MHz High Band	\$39.88	(\$4.00)
GM-450 450-470 MHz UHF Band	\$39.99	(\$4.00)
GM-800 Cellular Telephone Band	\$34.99	(\$4.00)

CB Radios	In Stock
Two-Way Radio Batteries	In Stock
Scanner Antennas	In Stock
Power Supplies	In Stock

## SCANNER ACCESSORIES

BCAD70	14.99	BP4	24.99
BCAD100	14.99	BP55	16.99
BCAD140	14.99	MA917	26.99
BCAD580	16.99	MA518	14.99
BC003	7.99	ESP25	16.99
BC002	59.99	GRE8002	79.99
PS001	12.99	GRE-HH	54.99
UA502A	12.99	GRE9001	89.99
BP205/200	34.99	GRE3001	62.99
BP70	16.99	FBE	5.99
VC001	12.99	FBSW	5.99

★ ALL MERCHANDISE NEW, IN FACTORY SEALED CARTONS ★

## UNIDEN BEARCAT BC200XLT

**\$224.99** (\$8.00 Shipping)



Digital programmable 200 channel hand held scanner with raised button keyboard for easy programming of the following frequency ranges: 29-54 MHz, 118-174 MHz, 406-512 MHz, 809-956 MHz. Features include: Scan delay, memory backup, key pad lock, sidelit liquid crystal display, channel lockout, 10 twenty channel banks, direct channel access, automatic search, one full year factory warranty, 10 priority channels, Ni-Cad battery pack, AC adapter/charger, flexible rubber antenna, carry case are all included. Size is 2-11/16" W x 1-3/8" D x 7-1/2" high. (\*Excludes Cellular) #CC-008 Heavy Duty Leather Carry Case **\$27.99**

## RADIO SCANNERS

BEARCAT BC60XLT	\$109.99	(7.00)
BEARCAT BC70XLT	114.99	(7.00)
BEARCAT BC80XLT	219.99	(8.00)
BEARCAT BC100XLT	159.99	(7.00)
BEARCAT BC120XLT	169.99	(7.00)
BEARCAT BC142XL	83.99	(6.00)
BEARCAT BC144XL	89.99	(7.00)
BEARCAT BC147XL	99.99	(7.00)
BEARCAT BC148XL-1	104.99	(7.00)
SPORTCAT SC150BY	174.99	(8.00)
BEARCAT BC178XLT	149.99	(7.00)
BEARCAT BC200XLT	224.99	(8.00)
BEARCAT BC220XLT	259.99	(8.00)
BEARCAT BC350A	129.99	(7.00)
BEARCAT BC400XLT	93.99	(7.00)
BEARCAT BC560XLT	109.99	(7.00)
BEARCAT BC580XLT	194.99	(7.00)
BEARCAT BC700A	199.99	(7.00)
BEARCAT BC760XLT	249.99	(7.00)
BEARCAT BC800XLT	229.99	(8.00)
BEARCAT BC855XLT	149.99	(8.00)
BEARCAT BC860XLT	199.99	(8.00)
BEARCAT BC890XLT	284.99	(8.00)
BEARCAT BC2500XLT	369.99	(9.00)
BEARCAT BC8500XLT	369.99	(9.00)
BEARTRACKER BCT2	149.99	(7.00)
BEARTRACKER BCT7	209.99	(7.00)
COBRA SR900	99.99	(7.00)
COBRA SR901	74.99	(6.00)

## BOOKS

Scanner Master	29.95
Covert Intelligence	8.95
Air Scan Directory	14.99
Betty Bearcat	5.99
Top Secret (8th)	18.99
Covert Techniques	9.95
Tomcat's Big CB	13.95
World Radio	18.99
Survival Directory	6.95
Rail Scan	7.95
Monitor America	24.99
Police Call	9.29
Scanner Modification	17.99

## Uniden®/Bearcat BC-142XL 10 Channel Base/Mobile Programmable Scanner

**\$83.99**

(\$6.00 Shipping)



Programmable, digital, AC or DC operation, weather button, priority, lockout button, squelch, memory backup, 2 digit LED display. Frequency coverage 29-54 MHz, 136-174 MHz, 406-512 MHz. Sizes 9"x6 1/2"x2 1/4". Includes AC adapter and telescopic antenna.

Optional Cigarette Lighter Cord #142MPC \$4.99

## RELM RH-256NB HIGH BAND TWO-WAY RADIO

**SPECIAL PACKAGE DEAL \$339.99**



(Plus \$9.00 Shipping Each)

16 channel digital readout two-way radio. Covers high band frequency range of 146-162 MHz without retuning. Perfect two-way radio for ambulance, police, fire, tow trucks, taxis, commercial companies who use this band. Features include CTCSS tones built-in, priority, 25 watts output, channel scanning, back-lighted keyboard, message light, time out timer, scan delay, external speaker jack. Size is 2 1/4" H x 6 1/2" W x 10 1/4" D.

SPECIAL PACKAGE DEAL Includes RH-256NB, mobile microphone, 1/4 wave body mount antenna, mobile mounting bracket and mobile power cord, all for the low price of \$339.99.

We also have the hand-held version WHS-150 at only \$349.99.

## UNIDEN BEARCAT BC-400XLT

**\$99.99**

(\$7.00 Shipping)



Our best selling mobile scanner. 16 channel AC-DC programmable digital, AC-DC cords, telescopic antenna, mobile mounting bracket, weather search priority, 29-54 MHz, 136-174 MHz, 406-512 MHz, external speaker and antenna jacks.

## BEARCAT BC-100XLT

100 Channel Digital Programmable Hand-Held Scanner

**\$159.99**

(\$7.00 Shipping)



Our best price ever on a full featured complete package hand-held scanner. Manufactured by Uniden. Features include 11 bands of weather, aircraft, public service, trains, marine, plus more (29-54 MHz, 118-174 MHz, 406-512 MHz), 10 channel banks, 10 priority channels, lighted LCD display, earphone jack, channel lockout. AC/DC operation, scans 15 channels per second, track tuning. Special package deal includes the following accessories: AC adapter/charger, rechargeable Ni-Cad battery pack, flexible rubber antenna, carry case.

## SPORTCAT SC-150

100 Channels - 12 Bands Including Public Service, Air And 800 MHz

**ONLY \$174.99**

(\$8.00 Shipping)



Programmable hand-held sport scanner with 100 channels and 12 bands with aircraft and 800 MHz. Features include: 10 one touch direct access channels with 10 corresponding channel identifiers, band search, data lockout, headphone jack, WX search, rechargeable Ni-Cad battery, illuminated LCD, lockout, auto delay, volume and squelch control. Available in yellow and black (Specify color). Dimensions 2 1/4" x 1 3/4" x 6". Coverage: 29-54, 118-174, 406-512, 806-956 MHz.

## Cobra SR-901

AVAILABLE ONLY FROM SCANNER WORLD ONLY!

**\$74.99**

Each (Plus \$6.00 Shipping Each)



**\$69.99 (2 or more)**

Features include: 10 programmable channels, one touch memory channels, one touch memory programming, external speaker jack, 29-54 MHz, 136-174 MHz, 400-512 MHz, squelch, lockout, full frequency digital readout, AC or DC operation, retains memory up to 3 days without power, scan button. Includes AC adapter, telescopic antenna, and complete operating instructions. Size: 7 1/4" W x 2" H x 7 1/4" D. One year factory warranty. Optional mobile cigarette lighter cord #901MPC \$4.99

## UNIDEN BEARCAT BC 800XLT

DIGITAL BASE SCANNER

**\$229.99**

(\$8.00 Shipping)



Receive police, fire, ambulance, cordless phones, marine, trains, weather, ham, stock cars, public service plus much more. Frequency coverage 29-54 MHz, 118-174 MHz, 406-512 MHz, 806-912 MHz (continuous). 40 channels, AC/DC operation, digital programmable, memory backup requires 2 AA batteries (not included), telescopic antenna included, AC power cord included, external speaker jack, external antenna jack. Dimensions: 9 1/4" D x 4 1/2" H x 12 1/2" W. Channel lockout, direct channel access, scan delay, priority, digital display, auto weather button, automatic search, track tuning.

## UNIDEN BEARCAT BC-760XLT

**\$249.99**

(\$7.00 Shipping)



Digital Programmable 100 Channel Scanner

BC760XLT covers the following frequencies: 29-54 MHz, 118-174 MHz, 406-512 MHz, 806-954 MHz (excludes cellular). Features compact size of 6-15/16" W x 1-5/8" H x 7-3/8" D, scan delay, priority, memory backup, channel lockout, bank scanning, key lock, AC/DC power cords, telescopic antenna, mounting bracket supplied, one year factory warranty, search, direct channel access, track tuning, service search including preprogrammed frequencies by pushing a single button for police, fire emergency, aircraft, weather, and marine services plus exclusive optional features never available on any scanner before. First is an RF receive amplifier for boosting weak signals for only \$34.99 plus a CTCSS tone board is available for only \$59.99 to make this the number one scanner available in the USA. Optional cigarette lighter plug #760MPC \$4.99

— IF YOU CAN'T FIND WHAT YOU WANT IN THE ABOVE LISTING, GIVE US A CALL, WE MAY HAVE WHAT YOU WANT —

**ORDERING INFORMATION:** Call (518) 436-9606 to place orders or mail orders to Scanner World, USA®, 10 New Scotland Ave., Albany, N.Y. 12208. Orders will be shipped within 24 hours by United Parcel Service if order is accompanied by MasterCard, Visa, cashier's check, money order. COD (COD shipped by United Parcel Service will be cash or money order only). If a COD package is refused, customer will be billed for shipping and COD charges. Mail orders with personal or business checks enclosed will be held 4 weeks for bank clearance. Prices, specifications, and terms subject to change without prior notice. If items are out of stock we will back order and notify you of delivery date. All shipments are F.O.B. Scanner World® warehouse in Albany, N.Y. We are not responsible for typographical errors. All merchandise carries full manufacturer's warranty. Bid proposals and purchase orders accepted from government agencies only. Free full line catalog mailed 4 times per year. Merchandise delivered in New York State add your local sales tax. No returns accepted after 7 days of merchandise receipt. \*Add \$5 per item and \$4.00\* for all accessories ordered at same time. COD orders will be charged an additional \$4.95 per package. Full insurance is included in shipping charges. All orders are shipped by United Parcel Service to street address only. (No P.O. Box). Shipping charges are for the 48 continental US States only. Alaska, Hawaii and all others ask for quote on shipping charge. FAX # 518-465-2945.

Scanner World, USA® • 10 New Scotland Ave., Albany, NY 12208 • 518-436-9606



mitter went on the air from Nimitz Hill, Guam in 1975 on 801 kHz. Two-100 kW shortwave outlets, assigned the call KTWR, opened in 1977 for coverage of much of Southeast Asia, Australia, India, China, and the former Soviet Union. Broadcasts go out in more than 20 languages over a complex that now totals five-100 kW transmitters. The station was knocked off the air during Typhoon Russ in late 1991. Considerably less damage was caused by the August 1993 earthquake (8.1 on the Richter scale); the station was able to stay on the air although with reduced power.

KTWR's full schedule is too long to include here. But check such frequencies as 9430, 9785, 9815, 9820, 9870, 11580, 11660, 11665, 11700, 11830, and 15200 at prime reception times in North America, i.e., from 1100 UTC to 1600 or 1700 and you should be able to hear the station. Not all of the above frequencies are in use every hour.

**Monaco**—Broadcasters from Monte Carlo go out to Europe and the Middle East in 37 different languages. The station consists of a 300 kW medium wave transmitter (702 kHz) at Monte Carlo, a 1000 kW and one-500 kW transmitter on shortwave. TWR's Monte Carlo schedule is also too long to list. Check the daily English broadcast from 0740 to 0920 on 7120. There are also weekend broadcasts in English on this frequency at 1230-1300.

**Swaziland**—The TWR Swaziland station consists of a 50 kW medium wave operating on 1170 kHz and shortwave transmitters of 25 and 50 kW, plus two of 100

## The Best\* Just Got Better!

The Eavesdroppers™ now includes our new Zap Trapper™ Electronic Gas Tube Lightning Arrestors. Receive-only design shunts damaging transients to ground at only 1/7th the voltage buildup of the available 200 watt transmit-type arrestors, providing maximum solid state receiver protection.

Protect your investment - combine an excellent shortwave receiving antenna with the best receiver protection money can buy.



- Completely assembled and ready to use
- Only 42' overall length
- 8 trap circuits permit reception on all shortwave bands, 11-90 meters.
- All connections soldered and enclosed in ultrasonically-welded, hermetically-sealed trap covers
- Includes 50' of 450 lb. test nylon rope

- **Model T** includes 100' twinlead feedline
- **Model C** includes weatherproofed center connector for your coax & coax sealant
- Either model \$79.95
- UPS for lower 48 states \$5.00
- COD add \$4.50, IL add 7% sales tax
- Foreign shipping quoted

- "The best...built like an antenna should be."—Larry Magna in *World Radio TV Handbook*
- "Our best seller."—EEB in their recent ads and catalogs
- "Now in use in 45 countries."—Giffler Shortwave In 1983

## Antenna Supermarket

P.O. Box 563 Palatine, IL 60078 Tel (708) 359-7092 Fax (708) 359-8161

At your dealer or direct • Visa & Mastercard accepted

kW, all located near Manzini. Some 25 languages are used to speak to listeners located mainly in the southern part of the continent. Your best bet to hear the Swaziland station is to check tropical band frequencies 3200 and 3240 for the 0300 sign on in local languages. Frequency 5055 will also be heard with a TWR signal on occasion later in the evening.

**South Africa**—At the end of the last year a 500 kW South African government (Channel Africa) shortwave transmitter located south of Johannesburg began carrying TWR programming for five hours per day. The broadcasts are intended to cover east, central and west Africa in Hausa, Fulani, Yoruba, Twi, Swahili, and English. The Sudan Interior Mission, operators of station ELWA in Liberia (sometimes heard on 4760 singing in at 0600) is cooperating with TWR by sponsoring programs in the Hausa and Yoruba languages.

The loss of shortwave from TWR Bonaire leaves us unable to enjoy the armchair copy we used to. But TWR signals at greater distances, even to have a go at some of the medium wave stations if you are in an area where foreign medium wave DX is not impossible. Most of the outlets welcome and respond to reception reports so why not give it a go? ■

TWR's main transmitting outlets. South Africa, added just months ago, is not indicated

# Tuning In On Yesterday

## Our Rich Heritage, in Retrospect

BY ALICE BRANNIGAN

One of the first shortwave broadcast stations to be encountered by all novice SWL's is missionary station HCJB, *The Voice of The Andes*, in Quito, Ecuador.

HCJB was founded 63 years ago in 1931, by Clarence Jones and Reuben Larson. Larson had been a missionary in Ecuador for many years, and came to realize that radio could be of value in his work. Jones had experience in religious broadcasting in Chicago, and was also thinking of the medium's potentials for missionary work. While Larson was visiting Chicago, he met Jones and they realized they both had the same idea about missionary radio. They decided to pursue the idea.

As soon as Larson returned to Ecuador, he approached the government about obtaining permission to open a shortwave station. He was able to secure a 25-year permit to operate this facility. A 200-watt transmitter was purchased and shipped to Ecuador for this purpose.

The station was established at Quito, the nation's capital city. Quito is at an elevation of 9,500 feet, and is about 12 miles south of the equator. The living room of Larson's home served as the first studio. The transmitter was set up on 4107 kHz, and HCJB's first broadcast was sent out on December 25th, 1931.

At that time, HCJB was the only station in Ecuador carrying regular programming, which makes HCJB the oldest radio station in Ecuador. When you stop to think of it, HCJB is one of the world's oldest

continuously operated shortwave broadcasters.

HCJB has always been enthusiastically supportive of the SWL'ing hobby, perhaps more so than many other shortwave stations. The station assiduously sends QSL's to verify all correct reception reports, and offers regular programs of interest to members of the DX'ing community.

HCJB continues its missionary work. From its humble beginnings, HCJB has grown to become a large station with a worldwide audience. In 1949, HCJB opened a mediumwave outlet in Quito on 974 kHz. The medium wave facility presently operates on 690 kHz with 50 kW. Presently, there are 31 shortwave frequencies in use between 3 and 12 MHz. HCJB has a 500 kW shortwave transmitter, four that run 100 kW, three with 25 kW, plus two 30 kW rigs for SSB. Broadcasts utilize both AM and SSB modes, and incorporate 15 languages (including English).

### The Strange Start of Michigan's First FM Broadcaster

During the 1930's, several American broadcast stations were experimenting with the idea of simulcasting their programs over AM-mode shortwave relay transmitters operating on 30 MHz-band frequencies. In the 1930's, these frequencies were considered to be UHF.



This 1938 QSL was used for decades. You may have the identical one.

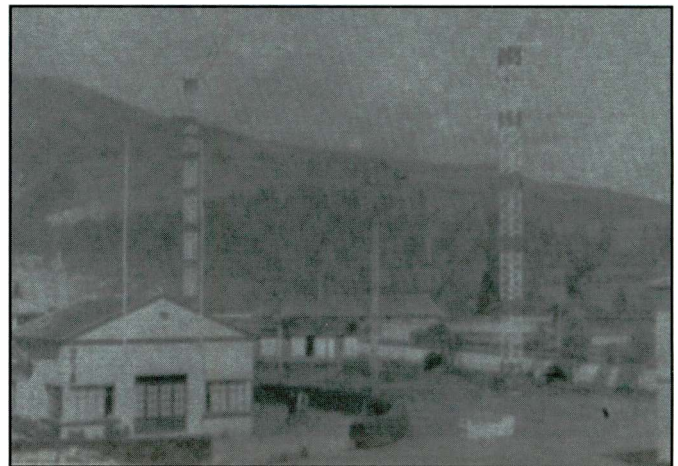
In late 1935, *The Detroit News*, owners of AM station WWJ, took out an Experimental Radio Service license for this purpose. This allowed WWJ to operate station W8XWJ, a 100-watt (later 500-watt) shortwave relay station on 31.60 MHz, AM-mode.

W8XWJ was located on the roof of the Penobscot Tower, almost 700 feet above street level, and Detroit's tallest building at that time. W8XWJ began operating on January 29, 1936. Being in the very heart of the city, and with a local service area as flat as a pancake, this station had good coverage. WWJ furnished construction plans to anyone in the area wishing to build a simple receiver to hear W8XWJ.

Skip reception often brought in DX reports from afar from hams and others who could tune these frequencies. W8XWJ sent QSL cards in response to reports from many areas of the U.S. and Canada.

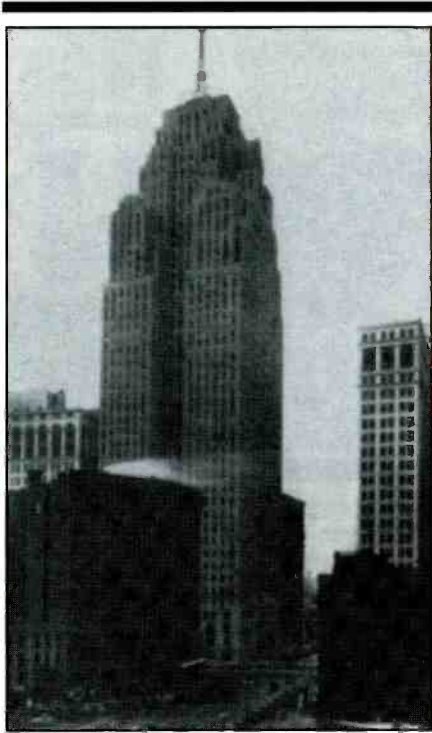


This is one of the HCJB control rooms during the late 1940's.



HCJB's transmitting site in Quito as they looked in the late 1940's.





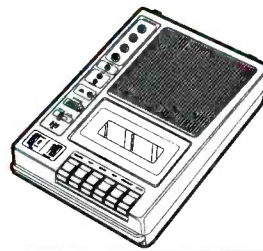
Michigan's first FM station was W45D. It was located on top of this Detroit skyscraper. But what an unusual start it had!

By the late 1930's, certain advantages of the new FM'casting technology were starting to become apparent. It had become evident that FM offered audio quality far superior to that of AM. Therefore in 1940, plans were made to change over W8XWJ from AM to FM, and obtain a commercial license for its operation. In those days, all FM broadcast stations were assigned to a band consisting of channels spaced at 200-kHz intervals dotted between 42.10 and 49.90 MHz. WWJ's station needed to change frequency, and was subsequently reassigned to 44.50 MHz.

W8XWJ's location had been ideal for its local AM shortwave coverage, so certainly this site would satisfy the FCC's FM requirements for serving Detroit's basic trade area of 6,820 square miles at 50 uv/M along its perimeter. The decision was made to install a 50 kW FM transmitter and an (approximately) unity gain antenna to deliver the required signal contour. This antenna was to have a horizontally polarized circular pattern. Alternately, a 3 kW transmitter could have been used in combination with a high-gain antenna sufficient to achieve the desired signal coverage.

The higher power transmitter and unity gain antenna combo were selected for two reasons. First, the owners assumed that it would eventually want to increase its power, anyway. Secondly, the station feared that a high-gain 44 MHz antenna on top of a 700-foot office building would have been unwieldy, difficult to install, adjust, and maintain.

## PROFESSIONAL 10 HOUR RECORDER. Built like a BATTLESHIP



- \* Special Pop'Comm price \$149
- \* Heavy Duty commercial recorder (NOT "improvised" from a consumer model)
- \* Full one year warranty \* Dimensions 11.5 x 7 x 2.75"
- \* BUILT-IN voice activation: add \$25
- \* Also available: 12, 14 and 16 hour models
- \* Recorders come with full applications info for scanners, etc.



### VIKING INTERNATIONAL

SINCE 1971

150 EXECUTIVE PARK BLVD. #4600  
SAN FRANCISCO, CA 94134

PHONE: (415) 468-2066 FAX: (415) 468-2067

No shipping charges on prepaid orders. COD's OK. Cal. residents add tax. Sorry, no credit cards (all they "do" is increase prices...)

CIRCLE 82 ON READER SERVICE CARD

NEW!!

# SCANCAT GOLD

IMPROVED!

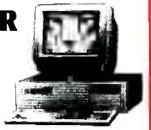
Since 1989, The Recognized Leader in Computer Control

Once you use SCANCAT with YOUR radio, you'll NEVER use your radio again WITHOUT SCANCAT!

SCANCAT supports most radios by:

AOR, DRAKE, KENWOOD, ICOM, YAESU and JRC (NRD)

Plus PRO-2005,6 & 2035/OS456, Lowe HF-150, and Watkins-Johnson HF-1000



## SCANCAT 6.0 FEATURES

- Search between any 2 frequencies.
- Search by ANY increment.
- Create Disk files.
- Import from most text formats to a working SCANCAT file.
- Log found frequencies to files while scanning.
- Scan Disk Files Frequencies.
- Spectrum Analysis to Screen OR Printer.

## SCANCAT - GOLD FEATURES

We simply don't have the space to tell you ALL the new GOLD features

SCANCAT-GOLD includes ALL ABOVE 6.0 FEATURES PLUS

- Link up to 15 frequency disk files.
- D-BASE IMPORT w/DUPLICATE filters.
- Scan HF & VHF Icom's simultaneously.
- PRINT to ANY printer, or Disk File.
- Automatic BIRDIE LOCKOUT.
- Link up to 15 search banks.
- IMPORT virtually any database.
- Search by CTCSS & DCS TONES with PRO2005,6/2035 (& ICOM/DC440).
- MULTIPLE search filters.

## PLUS - POWERFUL COMMERCIAL FEATURES SUCH AS:

- Demographic search for frequency co-ordination and 2-way Usage Analysis.
- Detailed logging to ASCII type files with DATE, TIME, Sig Str, Air Time
- UNLIMITED file sizes with our exclusive SCANCAT filing method.
- Exclusive "MACRO" control by frequency of Dwell, Hang, Resume, Sig. Treshhold and even 6 separate programmable, audible alarms.
- Command line options for TIMED ON/OFF (Unattended) logging/searches.

**\*\*SCANCAT IS NOT COPY PROTECTED —USE ON AS MANY COMPUTERS AS YOU NEED \*\***  
**SCANCAT will run on virtually ANY 640K computer, EVEN HP-100XLT PALMTOP!**

SCANCAT comes ready to run ALL supports radios within only ONE program. SCANCAT makes your listening hobby a breeze! Plus, the included SCANPORT allows you to convert your favorite BBS, D Base or Text Files to a running SCANCAT file: 100+ Page manual included. Requires a 640K MS-DOS computer w/RS-232C serial port - hard disk recommended. Manufacturer's Interface not included.

CALL or WRITE for FREE information or our \$5.00 FULLY OPERATIONAL DEMO DISK (includes shipping/handling). ORDER NOW & RECEIVE as a BONUS, FOUR SCANCAT FREQUENCY FILES!

SCANCAT GOLD	\$94.95	UPGRADE	\$24.95
SCANCAT 6.0	\$69.95	from any version	
SQUELCH DETECT CABLES	\$24.95	PLUS \$5.00 SHIPPING & HANDLING \$7.50 FOREIGN	
OPTOScan456 kit	\$299 (\$10 s/h)		

Order OS456 board & SCANCAT-GOLD combined and receive our \$15 frequency disk. **FREE!**

Order direct or contact your favorite dealer

## COMPUTER AIDED TECHNOLOGIES

P.O. Box 18285 Shreveport, LA 71138

Orders Only (318) 636-1234 - FAX (318) 686-0449 (24 hrs)

Live Tech Support - (318) 687-2555 (9 a.m. - 1 p.m. Central M-F)

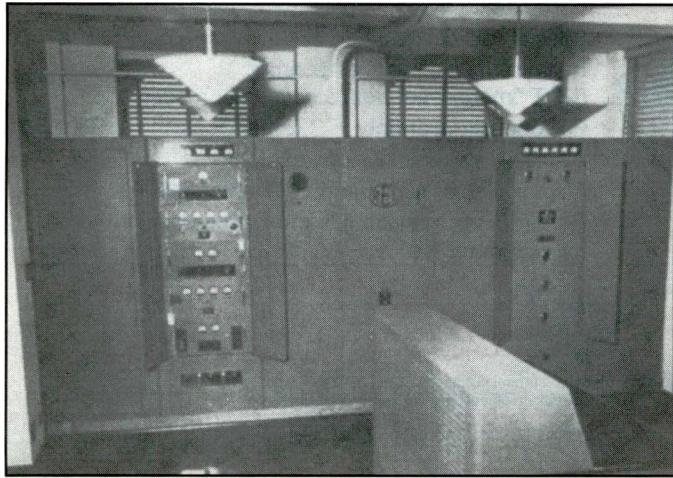
Nitetime BBS (SCANCAT File Area) (318) 631-3082 (7 p.m. - 6 a.m. Central)

Online support available in GENIE's Radio & Electronics RoundTable. Call 800-638-9636 to subscribe to GENIE!

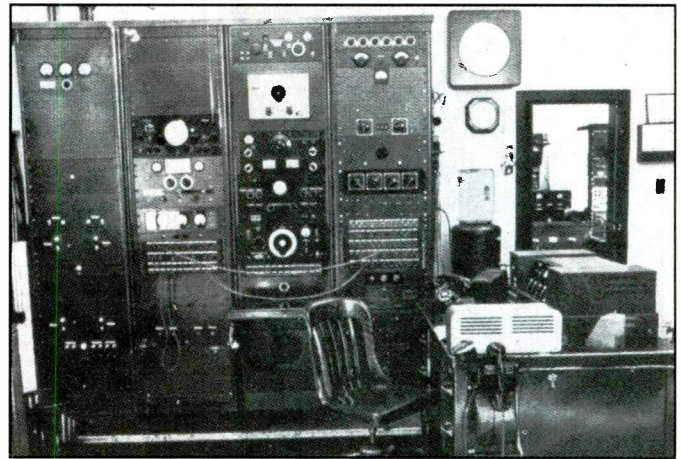
(See our ad on page 53, 79, & 85)

FREE DEMO ON BBS





Front view of the 3-kW driver unit at W45D, circa 1942.



W45D's speech bays, power supplies, measuring equipment, etc., circa 1942.

To allow the maximum power input of better than 100 kW, a pair of water-cooled Westinghouse WL-899A tubes were used. For maximum power output and plate efficiency, the PA stage was operated at 15,000 volts plate potential. The entire PA room was shielded with fine-mesh bronze screen, its entrance door, and all other doors leading into sections with exposed high circuits were interlocked. All tuning and other controls were brought out through a recessed panel where they could be accessed by small cranks connected to gear-reduction boxes.

A complete 50 kW power plant needed to be constructed to power this station inasmuch as no power-supply circuits were available on the 45th floor of the building where the station was installed. The station could therefore operate independently of all other electrical circuits in the building.

To serve the prescribed broadcast area, 13.3 kW was needed to be fed into the antenna. In 1941, W8XWJ was issued a commercial FM broadcast license. Its new call letters became W45D.

No longer a mere relay of WWJ, W45D was operated with its own independent staff, and had its own programming. This was an era of rapid growth for FM, and W45D's presence was obviously appreciated. Soon after W45D came on the air in 1941 as the only FM'er in Detroit, there were 1,500 FM receivers in the station's service area. About a year later, there were nearly 15,000!

In 1944, the FCC changed the callsign format of FM broadcasters, and W45D then became known as WENA. Two years later, the old 40 MHz FM broadcasting band was being phased out and replaced by the newly created 88 to 108 MHz FM band. That gave WENA a new frequency of 96.9 MHz, although it was given permission to simulcast for a while on its old 44.50 MHz frequency as an accommodation to listeners still using older FM receivers and converters.

By 1948, things had changed consider-

ably. WENA had become known as WWJ-FM, and was operating on a new frequency, 97.1 MHz. The pioneering FM station, now owned by CBS, presently goes by the call letters WJOL. Still on 97.1 MHz, the station remains programmed independently from its co-owned sister station, WWJ.

We wonder if any of WJOL's listeners know their favorite FM station started out exactly 60 years ago as an Experimental AM shortwave relay?

### Early 'Phone Tests

Radiotelephony had been demonstrated at least as early as 1906, though only on an experimental basis. In the fall of 1908, the U.S. Army decided to try and establish a reliable radiotelephone circuit from Fort Hancock, Sandy Hook, New Jersey, to Fort Wood, on Bedloe's Island (now known as Liberty Island), in New York Bay. Sandy Hook is at the western side of the entrance to lower New York Bay. Bedloe's (Liberty) Island is an over-water route of 18 miles to the north.

One of the major problems with radiotelephony in those days concerned the carbon-grain microphones. These were round, sealed metal cases about three inches in diameter. Each case had a diaphragm in front and an insulated contact on the reverse side. It was necessary to keep a large supply of these on hand so that the diaphragms could be replaced as fast as they became caked.

A transmission would begin after the mic was slipped into place. The operator would then start shouting into the mic. At every sound, the needles on both the hot-wire ammeters showed a marked fluctuation, with higher pitched sounds causing a greater reaction. The needles would react most to music played through a phonograph.

Sometimes, only five minutes into a transmission the needles would become inactive, indicating that the mic had caked or baked, or otherwise been rendered use-

less. A few taps with a screwdriver handle might bring it back to life, but if that didn't work the mic had to be replaced.

When they got the Fort Hancock station working, the operators started calling Fort Wood, and counting from one to five. After many tries and receiving no replies, the operators eventually got tired of shouting. They cranked up the gramophone and began repeating a recording of *The March of the Wooden Soldiers*, from Victor Herbert's *Babes in Toyland*. They didn't care about the music, being mainly concerned with the ammeters and seeing how they were responding.

Soon enough, a U.S. Navy battleship passing Sandy Hook on the way to the Hudson River telegraphed, "The music is excellent, send us more."

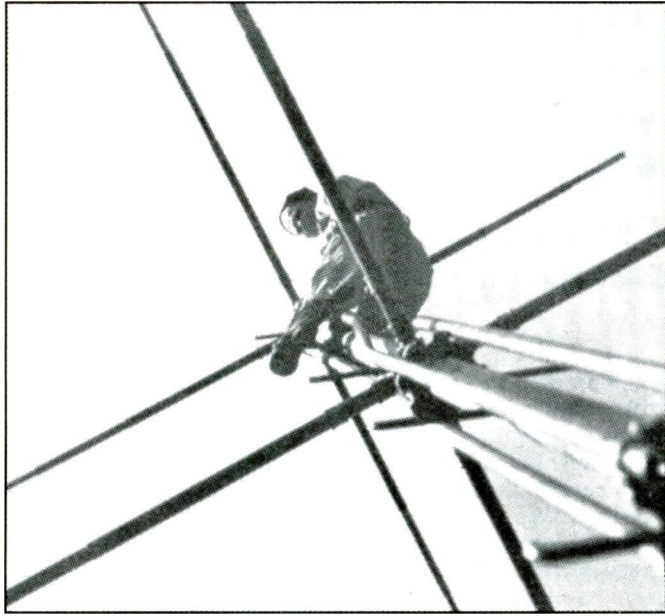
After another hour of *The March of the Wooden Soldiers*, they still hadn't heard from Fort Wood. However, Fort Hancock did receive a low, rambling spark signal, which proved to be the telegraphic voice of station "SE," the Marconi coastal station at Sea Gate, Brooklyn, six miles away at the eastern entrance to lower New York Bay. "SE" sent the telegraphic plea, "Get you fine. But in the name of humanity, we beg you to change that tune. You are driving us crazy."

Fort Hancock changed the record, but kept transmitting. Later in the day, Fort Hancock received a (landline) telegram from Fort Wood simply stating that the tests might as well be abandoned since the interference in the Upper Bay was too powerful and persistent to allow reception.

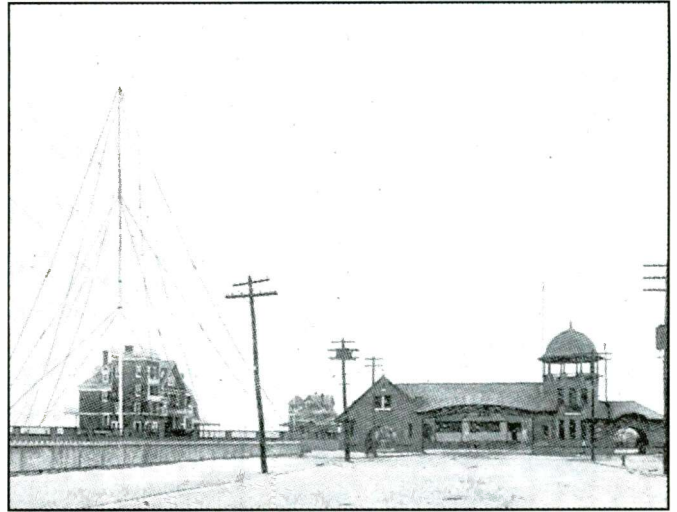
Reader Dennis R. Murr, of Mountville, Penna., sent in a clipping from the *Lancaster, Pa. New Era* concerning another early radiotelephone demonstration and experiment, also held in New York City.

This took place on June 16, 1914, when radiotelephone technology was still in its early developmental stages. The 1914 experiment involved a voice transmitter aboard a naval vessel, and a receiver set up





W45D's two-bay turnstyle antenna, almost completed.



Marconi's telegraph station "SE," at Sea Gate, New York (the building and mast at the left). In 1908, it played a vital role in the first instance of a disgruntled listener. The "SE" operator begged Fort Hancock for relief from their station's musical test transmissions.

in lower Manhattan at Battery Park. Witnessing the test were military personnel, civilians, and the news media. On board the ship was Dr. David G. McCaa, the Lancaster, Penna. physician and radiologist, who had developed and perfected the apparatus used in the demonstration.

Dr. McCaa graduated from medical college in 1903 and for many years was the radiologist at Lancaster General Hospital.

It was in 1906, while working on improvements to his X-ray machine, that McCaa developed the basic concept for his own radiotelephone technology. By 1914, McCaa and associate H.S. Williamson, were transmitting voice and music programs on an irregular basis. These originated from McCaa's home in School Lanes Hills. In 1915, he erected two tall radio towers at this site.

Those who came to view McCaa's 1914 demonstration at New York's Battery Park were mostly there to scoff. When all the receiver brought in was buzzing and static, along with regular telegraphy, the joking began about the country doctor and his crazy invention.

The laughter stopped abruptly when the operator shouted out, "Here he is! He's talking." There it was, a voice arriving from miles at sea. McCaa spoke for several minutes, then he played a cornet. McCaa had proven his method of voice transmission.

Dr. McCaa was awarded a number of patents relating to his electronics techniques. During WWI he was with the U.S. Bureau of Standards, and later was with the Federal Telegraph Co., and, after that, the Philco Corp. During WWI, and until his death in 1954, he was an engineer with the U.S. Army Signal Corps, Fort Monmouth, New Jersey.

Looks like we have run out of our allo-

cated space for this month, so please come back in July. In the mean time, we always invite input from readers in the form of news clippings about old time radio and wireless, station photos and picture post-

cards, old QSL cards and veris (originals or good copies), station listings, as well as memories and anecdotes. The continuing support of our valued readers is sincerely appreciated. ■

## All-Pro Wide Receiver



Covers frequencies to 1300 MHz!

**Catch the action ordinary radios miss...** with the PRO-2035 scanner from Radio Shack. Its extrawide coverage and NFM/WFM/AM modes bring you police and emergency communications, civilian and military aircraft, satellites, 33 and 23cm amateur radio, wireless mikes, studio-transmitter links, Citizens Band, TV audio, FM broadcasts and more.

PRO-2035 features rotary and auto-search tuning, 1000-channel memory, 50-channel-per-second HyperScan™. Plus a triple-conversion design that puts image interference out of bounds. Feature-packed and easy to use, it's in a league by itself. Hear it today at Radio Shack.

**Radio Shack**

You've got questions. We've got answers.™

## WORLDS SMALLEST FM TRANSMITTERS

### MICRO-MINIATURE FM TRANSMITTER!

In spite of its micro-miniature size, the XWB1000-EZ transmitter kit punches out a signal up to 1/2 mile away! Including the battery, this is absolutely the smallest FM transmitter available. Miniature battery and holder included on circuit board for minimum size. Amazing audio sensitivity. Picks up sounds at the level of a whisper. Use with any FM broadcast receiver from 88 to 108 MHz. XANDI's famous E-Z kit approach makes assembly a snap. Kit includes pre-assembled surface mount module, microphone, antenna wire, and battery.

● **XWB1000 E-Z \$49.95**



### LONG RANGE CRYSTAL CONTROLLED FM TRANSMITTER!

With a range of up to 1 mile, the new XTL1000-EZ transmitter KIT is an outstanding performer. Miniature battery and holder included on circuit board. Amazing audio sensitivity. Picks up sounds at the level of a whisper. Works with any VHF scanner or surveillance receiver at 143 MHz. XANDI's famous E-Z kit approach makes assembly a snap. Kit includes pre-assembled and tested surface mount module, microphone, antenna wire, and battery. Custom frequencies available for Law Enforcement agencies.

● **XTL1000 E-Z \$69.95**

### LONGER RANGE CRYSTAL CONTROLLED FM TRANSMITTER!

With a range of up to 3 miles, the new XTL3000-EZ transmitter E-Z KIT out performs any other unit available. Miniature battery and holder included on circuit board. Amazing audio sensitivity. Picks up sounds at the level of a whisper. Works with any VHF scanner or surveillance receiver at 143 MHz. XANDI's famous E-Z kit approach makes assembly a snap. Kit includes pre-assembled and tested surface mount module, microphone, antenna wire, and battery. Custom frequencies available for Law Enforcement agencies.

● **XTL3000 E-Z \$89.95**

**1-800-336-7389**  
SATISFACTION GUARANTEED.

CHECK, VISA, MC, MO  
or COD, S&H EXTRA

ASK FOR OUR  
NEW CATALOG!

**XANDI** SINCE 1981  
**ELECTRONICS**  
1270E BROADWAY RD #113, TEMPE, AZ 85282

CIRCLE 83 ON READER SERVICE CARD

## NEW PORTABLE SATELLITE ANTENNA



### Complete 2' KU Band System

Introductory Offer **\$389.95**  
plus shipping & handling

For FREE information package and pricing of other products

• Call 219-236-5776 •



Prices & specifications subject to change without notice.

**R.C. Distributing Company**  
P.O. Box 552 • South Bend, IN 46674

CIRCLE 72 ON READER SERVICE CARD

# POP'COMM Reviews:

## Optoelectronics' Frequency Scout

How would you like to have a pocket-size frequency counter that will automatically find and store transmitted frequencies in your area, plus tune a receiver? Do you shortwave and scanner enthusiasts think this sounds too good to be true? Well, it is true and the Optoelectronics' Scout does just that and more. Unlike a frequency counter that's generally used as a lab measurement tool, one could say the Scout is more of a frequency detector and recorder for transmitted RF signals.

### Overview

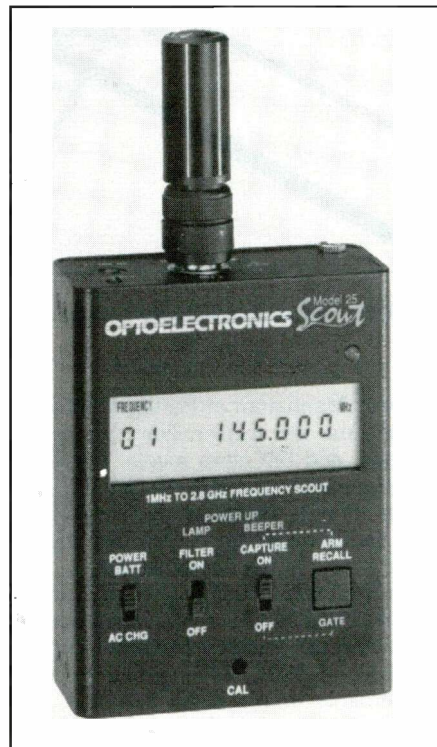
The Scout covers a frequency range of 10 MHz to 2.8 GHz. Up to 400 frequencies can be recorded and stored in its non-volatile memory with up to 255 hits per frequency. Front panel display and indicators include: a ten-digit LCD frequency and memory channel display with a defeatable electroluminescent (EL) backlight offering 1 kHz frequency resolution, a 16 segment bar-graph for relative RF signal strength level, a red LED for visual confirmation of a measurement, a beeper for an audible confirmation, and a "pager-style" vibrator for a silent confirmation.

All three front panel slide switches and one push-button control the modes of operation. Referral to the well-written instruction manual is suggested to understand proper operation of all switches. When the Scout is connected via the ICOM CI-V interface to an ICOM R7000, R7100, or R9000 receiver, or to a Realistic Pro-2005/6 scanner with an OptoScan456 board, it will tune the receiver/scanner to the most recently recorded frequency. Plus, you can download all of the stored frequencies in the Scout to the receiver as well!

With a size of only 3.7 inches high (excluding antenna) by 2.75 inches wide by 1.2 inches deep and powered by a rapid-charge 850mA hour nickel cadmium battery pack, the Scout is small enough to fit in a shirt pocket. With the optional 1.75-inch high DB32 dual band VHF/UHF antenna connected, the Scout is still a very "low-profile" device.

### Operation

Using the Scout is not only fun, but enlightening as well. Depending upon the antenna used, the Scout detects and records



frequencies not previously monitored on a regular basis. Various exclusive features, including Digital Filter/Capture Technology (patent pending), ensure the capturing and recording of individual transmitted signals—not ambient noise! The reviewer found the SLEEP mode to be most effective in increasing battery life, while still storing detected frequencies. In fact, a typical charge should give you a full day's use of the Scout. Only confined editorial space limits a full exploration of all of the Scout features, but it's suffice to say that Optoelectronics has engineered another winner for the communications enthusiast.

The Scout is manufactured by Optoelectronics, Inc., 5821 NE 14th Avenue, Fort Lauderdale, FL 33334. Phone number is (305) 771-2050 and the Toll Free Order Line is (800) 327-5912. Price of the Scout is \$449.00 with the Optional DB32 VHF/UHF mini-antenna at \$29.00. Please contact Optoelectronics directly or one of their authorized dealers for more information.

Reviewed by POP'COMM Staff



# The FCC Frequency Almanac<sup>©</sup>

## Finest Set Of Frequency Books Available

Scanner frequency directories have entered a new generation of sophistication with the introduction of **The FCC Frequency Almanac<sup>©</sup>**. With one book for each state the publishers are able to give the scanner hobbyist more frequencies than other directories.

The simplified frequency format is also unique. First frequencies are listed by county. Each county then lists public safety by state, county and city agencies, including 800MHz. As if this were not enough, businesses and *all other services* are then listed. This makes for an incredibly large and complete frequency source for the scanner hobbyist (see table 1).

All data comes direct from the FCC data files and covers all land mobile and fixed, between 30MHz and 2GHz.

*wave and no broadcast.* **U.S. Scanner News** specializes in in-depth unbiased reviews, outstanding feature articles, accurate frequency information, the latest FCC actions affecting the hobby, helpful scanning and technical hints, plus regular monthly columns. **This magazine is a must if you own a scanner.**

Subscription rates are 1yr \$18, 2yr \$32, 3yr \$46, Canada \$49 1yr. A sample copy is available for \$1 by 3<sup>rd</sup> class or \$3 by 1<sup>st</sup> class.

These directories and magazine are published by U.S. Scanner Publications, PO Box 14923, Portland OR, 97214. 800-890-6999, Fax 503-233-5176.

Check or money orders are accepted with same day shipping or call their 800 number 800-890-6999 with MC, VISA or Discover cards.

### Compare The Page Counts To Other Directories

State	Pages	State	Pages
AK	96	MT	136
AL	208	NC	334
AR	184	ND	115
AZ	176	NE	206
CA	829	NH	88
CO	224	NJ	272
CT	100	NM	94
DC	See MD	NV	96
DE	48	NY	504
FL	472	OH	480
GA	336	OK	230
HI	56	OR	127
IA	272	PA	464
ID	128	PR/VI	116
IL	520	RI	56
IN	320	SC	164
KS	252	SD	121
KY	223	TN	261
LA	212	TX	840
MA	231	UT	104
MD(DC)	152	VA	270
ME	120	VT	72
MI	365	WA	172
MN	292	WI	288
MO	280	WV	136
MS	170	WY	128

Table 1

DE, HI, ME, NH, PR&VI, RI, SD, VT, WV, and WY are \$9.95 each state.

Shipping and handling is \$3.95 per book for 4<sup>th</sup> class or \$5.95 for priority mail (CA, FL, IL, NY, and TX are \$6.95). Add \$1.00 per book for more than one book.

U.S. Scanner Publications also publishes the only national monthly magazine devoted entirely to VHF-UHF monitoring with *no short-*

Prices depend on the size of the state:

CA, FL, IL, NY, and TX are \$24.95 for each state.

AK, AL, AR, AZ, CO, CT, GA, ID, IN, IA, KS, KY, LA, MA, MD, MI, MN, MO, MS, MT, NC, ND, NE, NJ, NM, NV, OH, OK, OR, PA, SC, TN, UT, VA, WA, and WI are \$19.95 each state.

# LOOK

## HAVE YOU SEEN

## U.S. SCANNER NEWS

The **ONLY** national monthly magazine devoted entirely to the hobby of VHF-UHF monitoring. **No Shortwave, No Broadcast!!**

**Each Month You Get:**

- ▶ Outstanding Feature Articles
- ▶ In-depth, unbiased reviews
- ▶ Accurate frequency information
- ▶ The latest FCC actions
- ▶ Helpful scanning and technical hints
- ▶ Plus regular monthly columns

**1YR \$18.00; 2YR \$32.00; 3YR \$46.00**

Sample \$3.00 1<sup>st</sup> Class or \$1.00 3<sup>rd</sup> Class (4-6 wks)

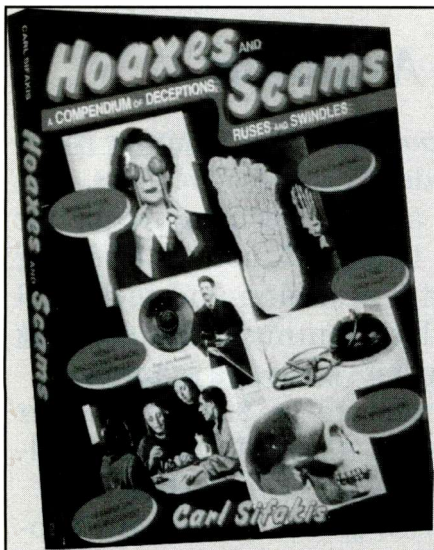




Dealer Sales Available

**Mail Check or Money Order or Call 1-800-890-6999**

**US SCANNER PUBLICATIONS**  
PO BOX 14923  
PORTLAND OR 97214-4923  
(503) 230-6999 FAX (503) 233-5176



## Schemes & Deceptions That Worked!

During the 1898 Alaskan gold rush, the Skagway Telegraph Company charged \$5 each for sending telegrams from miners addressed to their families back home. Then miners paid another \$5 each to receive the telegraphed replies from home. The Skagway Telegraph Co. was raking in a fortune.

In Carl Sifakis' book, *Hoaxes and Scams*, you'll learn the outrageous secrets behind the unique and shockingly wicked devilish Skagway Telegraph Co. Its owner was lynched by the miners.

Sifakis' absorbing and fascinating 308-page illustrated book is an A-to-Z compendium exposing some 800 of the strangest and most bizarre hoaxes, scams, con games, charlatans, cheats, quacks, flimflams, deceptions, fakes, gyps, forgeries, swindles, bamboozles, frauds, impostors, rip-offs, schemes, rackets, and famous lies that people accept as the truth. Some are cruel, others are bold, many are simply hilarious. All are factual.

Among a few of the things in *Hoaxes and Scams* are Hitler's plot to start World War II by means of a hoax attack on the shortwave station in Gleiwitz, Poland. Learn about how counterfeit FCC investigators are supposedly checking on phone billing frauds. Find out about the quack who peddled goat gland sex rejuvenation transplants over his broadcasting stations in Kansas and Mexico.

Remember Orson Welles famous 1938 *War of the Worlds* broadcast panic? Sifakis found out that a dozen years earlier there was a hoax radio program that horrified listeners by interrupting a speech to realistically describe mobs destroying major hotels and government buildings.

Learn how British Intelligence easily located Nazi secret agents when they were

sent to England to establish clandestine radio transmitters. Find out about "900" you-pay long distance phone numbers and telemarketing frauds, as well as computer scams and viruses. Discover how President Calvin Coolidge hoaxed the Secret Service, and how that agency took sweet revenge on him.

*Hoaxes and Scams* covers home and car repair swindles, stock frauds, street con games, art forgeries, rigged contests, false messiahs, pretenders to royalty, faked insurance claims, casino and carnival scams, real estate gyps, useless medical electronics machines, phony charities, and more. From P.T. Barnum to Michelangelo, from George Washington to the Marx Brothers, they're in the book. Discover fake monsters, ghosts, sea serpents, mermaids, freaks, fossils, and giants that fooled the public, and even scientists.

*Hoaxes and Scams* is \$19.95, plus \$5 shipping/handling (\$6 s/h to Canada). NY State residents please add \$2.12 tax. Order from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725-0056. VISA/MC welcomed. Toll-free phone orders: 1-800-656-0056. Canada/AK/HI orders: (516) 543-9169.

## Pass That Exam

*Communications Licensing and Certification Examinations: The Complete TAB Reference*, by Sam Wilson and Joseph A. Risse, is a 480-page illustrated book that provides electronics techs with just about all the expert advice and information needed to pass the various communications exams given by the FCC and other sponsoring organizations.

There's important information included on DC and AC circuits and components, power equipment, transmitters and receive-

## COMMUNICATIONS LICENSING AND CERTIFICATION EXAMINATIONS THE COMPLETE TAB REFERENCE

Sam Wilson and Joseph A. Risse

- FCC
- ISCET
- ETA

## PRACTICE TESTS FOR COMMUNICATIONS LICENSING AND CERTIFICATION EXAMINATIONS THE COMPLETE TAB REFERENCE

Sam Wilson and Joseph A. Risse

- FCC
- ISCET
- ETA

ers, digital basics, television systems, electronic circuits and components, and many other topics. By properly using this book, you should have the edge needed to ace the exams for the following certifications: ISCET, GMDSS, GROL, Radar Endorsement, Amateur Tech Class License, Marine Radio Permit, FCC Radio and Aircraft License. This book is \$29.95.

A companion volume by the same authors, which may be ordered separately, is entitled, *Practice Tests for Communications Licensing and Certification Examinations: The Complete TAB Reference*. This is a 400-page illustrated book.

This book covers the full range of information necessary for passing all of the exams, making it a handy and useful guide for certification seekers.

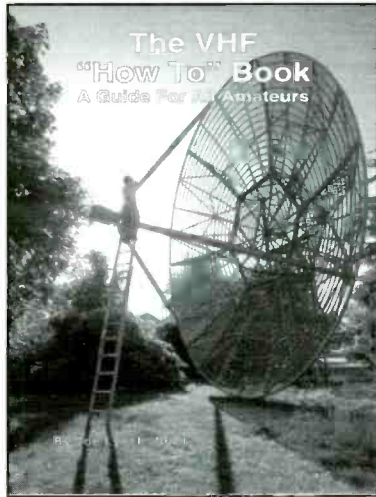
Full-length practice exams, along with answers and mathematical solutions are provided for: General Radio Operator License, Amateur Tech Class License, Marine Radio Operator Permit, Radio Telegraph Certification, Radar Endorsement, ISCET Associate-Level Certification, ISCET and ETA Journeyman Communications certifications, GMDSS, ETA Associate-Level certification, SBE and NICET certifications. This book is \$24.95.

Both books come from TAB Books, 13311 Monterey Ave., Blue Ridge Summit, PA 17294-0850. Phone 1-800-822-8158. TAB books are also available at some communications stores.

## Two Ham VHF/UHF Guides

Hams who operate in the VHF/UHF bands, including the popular 2-meter band, now have two valuable new references available from CQ





Communications, Inc., the company that brings you POP'COMM. One is *Getting Started in VHF*, and the other is, *The VHF "How-To" Book*.

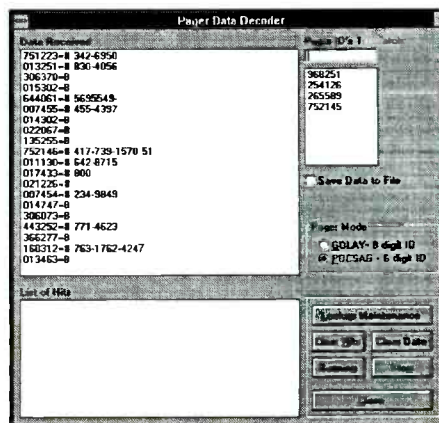
*Getting Started in VHF* is a 52-minute VHS video prepared by Richard Moseson, NW2L. This excellent video offers a wide-ranging introduction to the bands and activities above 30 MHz. Organized as a "travel-guide" to VHF, the program includes demos of features found on today's radios, instructions on how to find and use FM repeaters, the basics of packet (computer) hamming, and examples of ham TV, satellites, moonbounce, and meteor scatter communications.

The price of this video is \$19.95.

*The VHF "How-To" Book*, by Joe Lynch, N6CL, is a comprehensive resource for new and experienced VHF operators, alike. It provides detailed guidance for all aspects for all aspects of VHF operation and, for the first time, provides ham operators with a single reference to the multitude of operating options available on VHF and UHF. This book will even interest scanner owners and commercial two-way users who want to know more about the frequencies of concern to their operations.

The price of *The VHF "How-To" Book* is \$15.95.

They are available from many ham deal-



ers, or directly from CQ Communications, Inc., 76 North Broadway, Hicksville, NY 11801. Toll-free order line: 1-800-853-9797.

### In Addition...

Kantronics advises they have released a collection of articles describing the tech features of G-TOR. This 98-page book includes articles, charts, and protocol as published in several periodicals. It's available from Kantronics dealers, and from Kantronics, itself. For more information, contact Kantronics, 1202 East 23rd St., Lawrence, KS 66046-5006. Phone (913) 842-7745.

A Windows-based software package has been developed which is intended to interface an M-400 radio pager decoder with an IBM-compatible PC and display the information being received on the screen. It is primarily intended to be used for the GOLAY, POCSAG, and super POCSAG pager modes. Its features include a name lookup database, a watch list for pagers of special interest, and the ability to save received data in an ASCII text file for later review. The price of the program is about \$30. For more information, contact Page-Watch, 15427 South Long, Overland Park, KS 66221-2377. ■



## World's Most Powerful CB and Amateur Mobile Antenna\*

Lockheed Corp. Test Shows  
**Wilson 1000 CB Antenna Has  
58% More Gain Than The  
K40 Antenna (on channel 40).**

In tests conducted by Lockheed Corporation, one of the world's largest Aerospace Companies, at their Rye Canyon Laboratory and Antenna Test Range, the Wilson 1000 was found to have 58% more power gain than the K40 Electronics Company, K40 CB Antenna. This means that the Wilson 1000 gives you 58% more gain on both transmit and receive. Now you can instantly increase your operating range by using a Wilson 1000.

**Guaranteed To Transmit and Receive  
Farther Than Any Other Mobile  
CB Antenna or Your Money Back\*\*  
New Design**

The Wilson 1000 higher gain performance is a result of new design developments that bring you the most powerful CB base loaded antenna available.

#### Why Wilson 1000 Performs Better

Many CB antennas lose more than 50% of the power put into them. The power is wasted as heat loss in the plastic inside the coil form and not radiated as radio waves.

We have designed a new coil form which suspends the coil in air and still retains the rigidity needed for support. This new design eliminates 95% of the dielectric losses. We feel that this new design is so unique that we have filed a patent application on it.

In addition, we use 10 Ga. silver plated wire to reduce resistive losses to a minimum.

In order to handle higher power for amateur use, we used the more efficient direct coupling method of matching, rather than the lossy capacitor coupling. With this method the Wilson 1000 will handle 3000 watts of power.

#### The Best You Can Buy

So far you have read about why the Wilson 1000 performs better, but it is also one of the most rugged antennas you can buy. It is made from high impact thermoplastics with ultraviolet protection. The threaded body mount and coil threads are stainless steel; the whip is tapered 17-7 ph. stainless steel. All of these reasons are why it is the best CB antenna on the market today, and we guarantee to you that it will outperform any CB antenna (K40, Formula 1, you name it) or your money back!

\*Inductively base loaded antennas  
\*\*Call for details.

#### Lockheed - California Company

A Division of Lockheed Corporation  
Burbank, California 91520

Aug. 21, 1987

Wilson Antenna Company Inc.  
3 Sunset Way Unit A-10  
Green Valley Commerce Center  
Henderson, Nevada 89015

Subject: Comparative Gain Testing of Citizen's Band Antennas  
Ref: Rye Canyon Antenna Lab File #670529

We have completed relative gain measurements of your model 1000 antenna using the K40 antenna as the reference. The test was conducted with the antennas mounted on a 16' ground plane with a separation of greater than 300' between the transmit and test antennas. The antennas were tuned by the standard VSWR method. The results of the test are tabulated below:

FREQUENCY (MHZ)	RELATIVE GAIN (dB)	RELATIVE POWER GAIN (%)
26.965	1.30	35
27.015	1.30	35
27.065	1.45	40
27.115	1.60	45
27.165	1.50	41
27.215	1.60	45
27.265	1.75	50
27.315	1.95	57
27.365	2.00	58
27.405	2.00	58

**58%  
MORE  
POWER GAIN  
THAN THE  
K40**

Individual test results may vary upon actual use.

**CALL TODAY**  
TOLL FREE: 1-800-541-6116  
FOR YOUR NEAREST DEALER  
**Wilson 1000**

DEALERS Exclusive dealer areas still open

Roof Top Mount.....**59<sup>95</sup>**  
Trunk Lip Mount.....**69<sup>95</sup>**  
Magnetic Mount.....**79<sup>95</sup>**  
Little Wil.....**29<sup>95</sup>**  
Wilson 2000 Trucker.....**59<sup>95</sup>**

**Wilson**  
ANTENNA INC.

1181 GRIER DR., STE. A  
LAS VEGAS, NV 89119

# Nikola Tesla

## The Real Inventor of Our A.C. Power System and of Radio

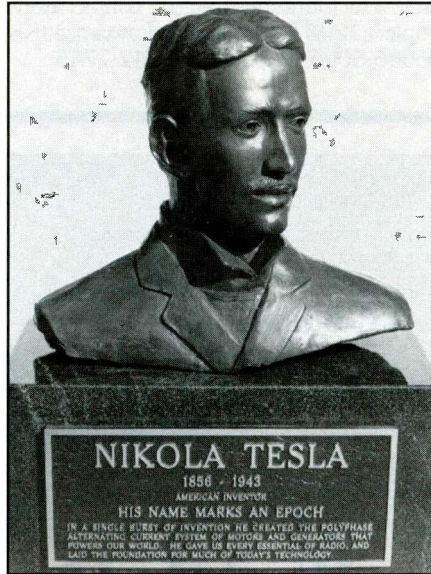
BY JOHN W. WAGNER

At the stroke of midnight, when July 9 became July 10, 1856, Nikola Tesla was born. Within the first 26 years of his life he had conceived the rotating magnetic field principle—a culminating breakthrough in power technology after Michael Faraday's monumental discovery of electromagnetic induction in 1831. Tesla's discovery made possible the polyphase generation and distribution over long distances of virtually unlimited electrical energy in the form of 60 cycles (Hertz) AC.

After solving the AC conundrum, Tesla had no further interest in low frequency work and moved on to explore the world of high frequency phenomena. By 1890, he had conceived his famous "Tesla coil," still used as a major component in numerous electronic devices. By 1893, he had conceived, explained, and demonstrated the "four-tuned circuits," making possible the theories of Maxwell and Hertz on the transmission of intelligence. In 1893, he made the first "wireless" transmission before the National Electric Light Association in St. Louis; it is this essential understanding that exists today in all modern radios. These principles served as the foundation for his U.S. patents that took priority over Marconi's basic patents. On June 21, 1943, the United States Supreme Court ruled on Case No. 369, identified as "Marconi Wireless Telegraph Company of America vs. United States." The Court rendered invalid Marconi's basic patent No. 763,772 dated June 28, 1904. Tesla's patent No. 645,576 of March 20, 1900, and its subdivision patent for apparatus No. 649,621 dated May 15, 1900, had priority.

Our modern-day understanding of radio is very different from what people knew in those early days. Therefore, it is essential to state a definition of radio that encompasses only that which is indispensable as an embryonic commencement of our present day technology. Lack of understanding in this embryonic area is where most modern technologists and historians become confused, and understandably so. Nevertheless, without the conception of the radio "embryo," those basic elements underlying its fundamental principles, there would be no radio; and without a delimitative definition, there could not have been a definitive decision of who really invented those basic elements essential to our modern-day radio technology.

The following definition served the



Bust of "Nikola Tesla," offered to Smithsonian and refused.

Supreme Court well because it was then able to render a decision: "A radio communication system requires two tuned circuits, each at the transmitter and receiver, all four tuned to the same frequency." It is this "four-tuned circuit invention" that Tesla patented, published, and explained that led to future advancements.

Many Tesla followers made progressive refinements in the technology, thus developing it to its present state. Most of us tend to attribute the birth of radio to early technologists who made the first refinements, but it was Tesla had laid the foundation. Puzzling to many, however, is that Tesla's greatest contributions, AC power distribution and fundamentals of radio, are either unknown or challenged bitterly.

It is easy to understand why most people have a distorted understanding of just who was the real inventor of radio. First, it was the newspapers that hailed Marconi's first successful transatlantic radio transmission; then textbooks followed with their depiction of that exciting event. Both media sources had already raised the flag of victory for Marconi, so it is easy to understand Tesla's dismay—he had done much of the pioneering work.

A similar media blitz is responsible for Thomas Alva Edison becoming a familiar household name. In reality, Mr. Edison did

not create or develop our system of alternating current electricity. History of "The War of the Currents" shows how he fought its adoption bitterly, choosing instead to promote a system of direct current that had already been invented by others. In short, Mr. Edison's brief role in the electrical power industry was that of entrepreneur who failed, rather than an inventor.

In 1988-89, the writer's students commissioned a bust of Tesla (appraised at \$6,000) to donate to any large museum. After discovering that the Smithsonian made no recognition of Tesla, we offered our bust. Our offer was promptly refused. Later we discovered their curator was displaying a bust of Edison alongside Tesla's motor/generator. He also displayed photographs of the Niagara Falls power plant showing one of its original Tesla generators. A large brass inscription plate listed Tesla's patents, but there was no reference to Tesla. In the middle of the display stood a life-size replica of Edison with the caption, "While the Niagara AC plant was being built by Westinghouse, Edison was busy with other important things." The caption did not explain what these "other important things" were, nor why this was relevant to the Niagara AC power plant.

The Smithsonian Book of Invention is a prodigious 3/4-inch thick book of America's greatest inventors and their inventions. Tesla's name does not appear anywhere in that publication. The writer is amazed by these historians when they ignore Tesla's contributions in their chapters depicting the evolution of electric power and radio.

The curator meticulously traces the history of electricity from Volta to Edison, naming the 43 significant contributors, yet Tesla's name is missing. Instead, the curator shows pictures of the Niagara Falls Power project and readers are carefully guided into believing that this was the work of Edison. Yet it was Tesla's polyphase AC system the power commission adopted, and licenses had to be issued to use Tesla's patents. Money for this publication came from the Thomas Alva Edison Foundation.

Tesla is one of only two Americans honored by International Electrotechnical Congress in Munich. In 1956, the unit of magnetic flux density in the MKS system was designated the *tesla*. Thus, his name is alongside only 15 others, such as Volta, Faraday, Ohm, Watt, an Ampere. ■



# Scanners/Weather Stations/CB

**COMMUNICATIONS ELECTRONICS INC.**  
Emergency Operations Center

**New Scanner Products Available**  
Now readers of *Popular Communications* may purchase communications and weather forecasting equipment directly from Communications Electronics Inc. Order today from CEI and save.

## Bearcat Scanners

Bearcat 9000XLT-P base/mobile	\$374.95
Bearcat 3000XLT-P handheld	\$354.95
Bearcat 890XLT-P base/mobile/WX	\$228.95
Bearcat 860XLT-P base	\$159.95
Bearcat 760XLT-P base/mobile	\$198.95
Bearcat 700A-P info mobile	\$148.95
Bearcat 560XLA-P base/mobile	\$83.95
Bearcat 220XLT-P handheld/SPECIAL	\$208.95
Bearcat 178XLT-P base/WX alert	\$128.95
Sportcat 150-P handheld w/800 MHz	\$159.95
Bearcat 148XLT-P base/WX alert	\$83.95
Bearcat 120XLT-P handheld	\$129.95
Bearcat 80XLT-P handheld	\$159.95
Bearcat BCT7-P info mobile	\$168.95

## Weather Stations

Now you can be your own weather reporter with the Davis Weather Monitor II. Our top-of-the-line weather station combines the most advanced weather monitoring technologies available into one incredible package. Glance at the display, and see wind direction and wind speed on the compass rose. Check the barometric trend arrow to see if the pressure is rising or falling. Push a button, and read indoor and outdoor temperature, wind chill, humidity and barometric pressure. Our package deal includes the new ultra high resolution 1/100 inch rain collector part #7852-P, and the external temperature/humidity sensor, part #7859-P. The package deal is order #DAV1-P for \$479.95 plus \$15.00 shipping. If you have a personal computer, when you order the optional Weatherlink computer software for \$139.95, you'll have a powerful computerized weather station at an incredible price. For the IBM PC or equivalent order part #7862-P. Apple Mac Plus or higher including PowerBook, order part number 7866-P.

The Weather Monitor II (7440) comes complete with anemometer with 40 feet of cable, external temperature sensor with 25 feet of cable, junction box with 8 feet of cable, AC-power adapter, detailed instruction booklet and one year limited factory warranty.



Davis Weather Monitor II 7440-P	\$334.95
Davis Weather Wizard III 7425-P	\$154.95
Davis Remote Display Unit 7815-P	\$84.95
Davis Rain Collector II 0.01" 7852-P	\$59.95
Davis Rain Collector II 0.2 mm 7852METRIC-P	\$59.95
External Temperature/Humidity Sensor 7859-P	\$39.95
Davis Anemometer Mast Mount 7890-P	\$15.95
Weatherlink Software for IBM PC/Version 3.0 7862-P	\$139.95
Weatherlink Software for Apple/Version 3.0 7866-P	\$139.95
4-Conductor 40' (12.2 m) extension cable 7876-P	\$17.95
6-Conductor 40' (12.2 m) extension cable 7878-P	\$21.95
8-Conductor 25' (7.6 m) junction box cable 7880-P	\$14.95
8-Conductor 50' (15.2 m) junction box cable 7881-P	\$24.95
8-Conductor 100' (30.5 m) junction box cable 7882-P	\$44.95
Modem Adaptor 25-pin for communications port 7870-P	\$9.95
Car/Boat/RV Lighter Cord 7873-P	\$9.95
2400 baud modem for Weatherlink MEXT-P	\$39.95
Talking weather card - Call 313-994-9000 for demo ITI-P	\$474.95
Weatherlink language disks: Francaise, Deutsche, Italiana, Espanola 7865-P	\$24.95
Barometer, Indoor Hygrometer & Thermometer, Clock/Calendar BA888-P	\$99.95
Indoor-Outdoor Thermometer/Barometer & Hygrometer by OSI BA213-P	\$79.95
Thermometer with transparent calendar & clock display by OSI TG188-P	\$19.95
Thermometer with AM/FM clock radio by Oregon Scientific CR388-P	\$39.95
Indoor/Outdoor Thermometer with Jumbo Display by OSI JB880EX-P	\$24.95



**Bearcat® 9000XLT-P Radio Scanner**  
Mfg. suggested list price \$769.95/CE Special \$374.95  
500 Channels • 20 banks • Alpha numeric display  
Turbo Scan • VFO Control • 10 Priority channels  
Auto Store • Auto Recording • Reception counter  
Frequency step resolution 5, 12.5 & 25 KHz.  
Size: 10-1/2" Wide x 7-1/2" Deep x 3-3/8" High

**Frequency Coverage:**  
25,000-549.995 MHz., 760.000-823.995 MHz.,  
849.0125-868.995 MHz., 894.0125-1,300.000 MHz.

The new Bearcat 9000XLT gives you pure scanning satisfaction with amazing features like TurboSearch™ to search VHF channels at 300 steps per second. This base and mobile scanner is ideal for surveillance professionals because it has a selectable attenuator to help eliminate annoying intermodulation from adjacent frequencies in highly populated areas and selectable AM, Wide FM and Narrow FM modes that allow you to change the default receiving mode of the BC9000XLT. Other features include **Auto Store** - Automatically stores all active frequencies within the specified bank(s). **Auto Recording** - This feature lets you record channel activity from the scanner onto a tape recorder. **Hi-Cut filter** to help eliminate unwanted static noise. You can even get an optional **CTCSS Tone Board** (Continuous Tone Control Squelch System) which allows the squelch to be broken during scanning only when a correct CTCSS tone is received. For maximum scanning enjoyment, order the following optional accessories: **PS001** Cigarette lighter power cord for temporary operation from your vehicle's cigarette lighter \$14.95; **PS002** DC power cord - enables permanent operation from your vehicle's fuse box \$14.95; **MB001** Mobile mounting bracket \$14.95; **BC005** CTCSS Tone Board \$54.95; **EX711** External speaker with mounting bracket & 10 feet of cable with plug attached \$19.95. The BC9000XLT comes with AC adapter, telescopic antenna, owner's manual and one year limited warranty from Uniden.

## CB/GMRS Radios



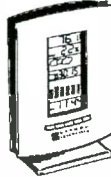
The new Maxon GMRS 210+3 transceiver is a PLL synthesized 10 channel radio on General Mobile Radio Service frequencies. Two repeater channels are programmable and one channel (462.675 MHz) is set aside for emergency and safety communications. The seven remaining interstitial frequencies 462.5625, 462.5875, 462.6125, 462.6375, 462.6625, 462.6875 & 462.7125 MHz are all purpose GMRS radio channels. 2 watts of RF power for exceptional transmitting range. Up to 5 watts when used with the supplied 12 volt vehicular DC power cord. CTCSS built-in. Includes 450mAh Ni-cad rechargeable battery pack, AC/DC wall battery charger, owner's manual, FCC license application, belt clip, antenna. Order today.

Maxon GMRS210+3-P GMRS transceiver \$199.95  
Cobra 148FGTL-P CB with freq. counter \$209.95  
Cobra 29LTDWX-P CB/Weather Alert .... \$114.95  
Cobra HH40-P CB 40 ch. Handheld ..... \$99.95  
Ranger RCI2950-P 25 watt 10 meter ..... \$239.95  
Uniden GMR100-P GMRS Handheld ..... \$144.95  
Uniden WASHINGTON-P SSB CB Base ... \$189.95  
Uniden GRANTXLP SSB CB Mobile ..... \$139.95  
Uniden PRO538W-P CB & Weather ..... \$59.95

Maxon GMRS210+3-P GMRS transceiver	\$199.95
Cobra 148FGTL-P CB with freq. counter	\$209.95
Cobra 29LTDWX-P CB/Weather Alert	\$114.95
Cobra HH40-P CB 40 ch. Handheld	\$99.95
Ranger RCI2950-P 25 watt 10 meter	\$239.95
Uniden GMR100-P GMRS Handheld	\$144.95
Uniden WASHINGTON-P SSB CB Base	\$189.95
Uniden GRANTXLP SSB CB Mobile	\$139.95
Uniden PRO538W-P CB & Weather	\$59.95



## Digital Barometer



The Oregon Scientific BA888-P forecasting barometer displays rising, falling and constant barometric trends. Other features include 6-line advanced liquid crystal display, weather forecast shows sunny, cloudy, slightly cloudy or rainy, °C or °F selectable, indoor relative humidity, indoor temperature, barometric pressure bar graph shows trend for past 24 hours, clock/calendar/alarm.

**Special \$99.95**

## VHF Transceiver

**RELM® WHS150-P Transceiver**  
Mfg. suggested list price \$481.67/CE price \$339.95

Severe weather spotters depend on the RELM WHS150 transceiver for direct two-way communications with their police or fire department, civil defense agency or ham radio repeater. The WHS150 is our most popular programmable five watt, 16 channel handheld transceiver that has built-in CTCSS, which may be programmed for any 39 standard EIA tones. Frequency range 148.000 to 174.000 MHz. Will also work 144.000-148.000 with slightly reduced performance. The full function, DTMF compatible keypad also allows for DTMF Encode/Decode and programmable ANL. Weighting only 15.5 oz., it features dealer programmable synthesized frequencies either square or half duplex in both 5.0 and 6.25 KHz increments. Other features include scan list, priority channel, selectable scan delay, selectable 5 watt/1 watt power levels, liquid crystal display, time-out timer and much more. When you order the WHS150 from Communications Electronics Inc., you'll get a complete package deal including antenna, battery, belt clip and user operating instructions. Other accessories are available. A leather carrying case with swivel belt loop part #LCWHS is \$49.95; rapid charge battery charger, part #BCWHS is \$69.95; speaker/microphone, part #SMWHS is \$54.95; extra Ni-cad battery pack, part #BP007 is \$59.95. The radio technician maintaining your radio system must order programming instructions part #P150 for \$18.00 to activate this radio. FCC license required for United States operation.

## Other neat stuff

Soundtronic AC101-P digital portable shortwave receiver - 20 memory	\$39.95
Grundig Yacht Boy 400-P digital portable shortwave receiver - 40 memory presets	\$179.95
Grundig Yacht Boy 230-P portable shortwave receiver	\$109.95
Sangean ATS800-P portable 20 memory shortwave receiver	\$69.95
Sangean ATS803A-P portable shortwave w/AC adapter - 9 memory presets	\$129.95
Sangean ATS808-P portable 45 memory shortwave receiver	\$149.95
Sangean ATS818C-P portable shortwave receiver with cassette recorder	\$209.95
Uniden EXP9200-P 900 MHz 1 or 2 line cordless phone	\$289.95
Bogen FR3110-Digital FAX Friday Fax-on-Demand system & answering machine	\$399.95
Bogen FR3020-P memory expansion module for Fax Friday/Up to 36 minutes	\$99.95
Bogen FR2000-P Digital two-line advanced voice mail system & answering machine	\$279.95
Bogen FR0018-P memory expansion module, doubles recording time to 36 minutes	\$79.95
FANS P161P-P 60 name/number caller ID, unwanted call blocker, automatic paging	\$149.95
SN1 ID200-P Bouncer name/number caller ID, call reject, forward to machine	\$69.95
ICOM GP22P handheld global positioning system (GPS)	\$494.95
WXLP weather radio with National Weather Service storm alert	\$39.95
RELM WHS150-P VHF handheld 5 watt, 16 channel transceiver	\$339.95
RELM RH256N-P VHF 25 watt, 16 channel synthesized transceiver	\$289.95
Ranger RCI2950-P 25 watt 10 meter ham radio transceiver	\$239.95
Cobra RD1215W-P Safety Alert receiver & Super Wideband laser/radar receiver	\$159.95
Uniden LRD9900SW-P Super Wideband Laser/Radar Detector - VGC undetectable	\$139.95
ME2-P Map Expert CD Rom for IBM PC by Delorme Mapping	\$299.95
ANTK-P VHF scanner/VHF transmitting antenna PL259 connector	\$29.95
ANTMBNC-P magnet mount scanner antenna w/ BNC connector	\$29.95
ANTMMOT-P magnet mount scan antenna w/Motorola plug	\$29.95
ANTMPLP-P magnet mount scan antenna with PL259 connector	\$29.95
ANTSGBNCP glass mount scanner antenna with BNC connector	\$29.95
ANTSOMTP glass mount scanner antenna with Motorola jack	\$29.95

## Buy with confidence

It's easy to order from us. Mail orders to: Communications Electronics Inc., Emergency Operations Center, P.O. Box 1045, Ann Arbor, Michigan 48106 U.S.A. Add \$15.00 per radio or telephone product for U.P.S. ground shipping and handling in the continental U.S.A. unless otherwise stated. Add \$10.00 shipping for all accessories and publications. Add \$10.00 shipping per antenna. For Canada, Puerto Rico, Hawaii, Alaska, P.O. Box, or APO/FPO delivery, shipping charges are two times continental U.S. rates. Michigan residents add state sales tax. No COD's. No returns or exchanges after 31 days. 10% surcharge for net 10 billing to qualified accounts. All sales are subject to availability, acceptance and verification. Prices, terms and specifications are subject to change without notice. We welcome your Discover, Visa, American Express or MasterCard. Call 1-800-USA-SCAN to order toll-free. Call 313-996-8888 if outside the U.S.A. FAX anytime, dial 313-663-8888. For technical assistance to solve your communications problem, call the Communications Electronics technical support hotline for \$2.00 per minute at 1-900-555-SCAN. Scan Distribution Center and CEI logos are trademarks of Communications Electronics Inc. Sale dates 5/5/95-8/30/95 AD #0411956DN Copyright © 1995 Communications Electronics Inc.

**For credit card orders call 1-800-USA-SCAN**

**Communications Electronics Inc. Emergency Operations Center**

P.O. Box 1045, Ann Arbor, Michigan 48106-1045 U.S.A.  
For information call 313-996-8888 or FAX 313-663-8888

## WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Remember the Voice of Chile—that country's short-lived international service quite a few years back? Those eight-100 kW transmitters have sat silent and unused for a long time, but now they're about to be recycled, or more appropriately, "rehertz-ed." After years of being on the sale block they're about to become part of a new station—Radio America Internacional.

This new shortwaver is owned by Jose Holowaty, former program director of the Far East Broadcasting Company's KGEI, which was closed last summer. The 22-acre site in Chile has nine towers supporting curtain antennas which beams signals to Europe, Russia, Africa, and the Americas. If plans have gone according to the initial schedule the station may very well be on the air right now. At this writing, though, we don't know what frequencies will be in use. Look for this one to carry primarily religious programming, probably in several languages.

Kol Israel continues to be threatened by cutbacks due to declining budgets. The broadcasts at 1400 and 2230 have likely been dropped by the time you read this. The 2000 broadcast in English was to have been sliced to half its former length and two French broadcasts deleted. The only English broadcasts left would be 0500-0515 on 7465, 9435, 17545; 1100-1130 on 15640, 15650, 17575 and 2000-2015 on 7405, 7465, 11603 and 17575.

Deutsche Welle has been making a lot of changes. The transmitting site at Konigs Wusterhausen has been closed down and DW has also discontinued the use of relays at Brasilia (Brazil) and Meyerton (South Africa). The Kigali, Rwanda relay has resumed full operation (hence the dropping of Meyerton). The station has also set up a facilities exchange arrangement with Radio Netherlands. DW is using RN's Madagascar relay facility at 0500-0550 to Africa in French and Portuguese on 11765. Radio Netherlands, in turn, is being carried over DW's transmitter at Nauen on 7130 at 1130, to Europe in English.

Radio Prague, too, continues having to tighten its belt. Before the breakup of the country Radio Prague had three transmitter sites but, unfortunately, two of them were in what is now Slovakia. Radio Prague continued to use these after the split but has now lost them or given them up. Now Radio Prague only has access to the Litomysl facility. The evening English broadcasts are at 0000 on 5930, 0100 on 7345, 0300 on 5930, and 7345 and 0330 on 7345, so it seems the broadcasts we're most likely to listen to aren't much bothered by the change.

Good news for QSL hunters! It seems

Ed Rausch Cedar Grove NJ



**RADIO AMAHORO**  
ASSOCIATION SANS BUT LUCRATIF

RUE DU NOYER 322  
B 1040 BRUXELLES  
TEL. FAX 32 (0)2 735 39 16  
BANQUE CGER 001-1605922 66

Brussel, 30th December 1994

Dear Friends,

It is a great pleasure for us to write to all of you, numerous, who have send to us, a listening report - from all the parts of the World (Japan, Australia, New Zealand, Canada, USA, many European Countries - like Ukraina - and of course many African Countries).

Thanks for the precise details you have transmitted to us and for some of you, for the audio tapes, the postcards and photographs you joined to your letters.

We apologize not to have been able to reply directly. As in Rwanda, the official language, beside the national one (kinyarwanda) in which we broadcast, is French, we join to this letter copies of some documents written in French, that answer your questions.

With our best regards, we stay entirely at your disposition for any further information.

Sincerely yours,

  
Tation MUSABYIMANA  
Director of Radio Amahoro

  
Guy THEUNIS  
Delegate Administrator

Annexe : Press Release  
« Radio Amahoro » ou la voix de la paix au Rwanda  
(writing from « Trait d'Union Rwanda » Journal)  
Radio Amahoro (three months activities report - 4 pages)  
Radio Amahoro (a broadcasting feedback report - 2 pages)  
Adhesive Card of Radio Amahoro

*Ed Rausch's nice logging of and reception report to Radio Ahahoro resulted in this QSL letter.*

Radio Denmark has begun issuing verifications again, after a negative attitude that lasted for a quarter century! The address is Radiohouse, DK-1999 Frederiksberg C., Denmark. You might want to mark the envelope "Attention Shortwave Service" or somesuch. Unfortunately, Radio Denmark still does not carry any English programming other than the station ID announcement (if you write to them ask for the return of English programming!). And, as you are aware, Radio Denmark no longer uses its own transmitters; it broadcasts over Radio Norway facilities so when you hear Radio Denmark you are not really hearing Denmark!

It seems the news of the return of Armed Forces Antarctic Network at McMurdo,

Antarctica, may have been premature or simply wrong. There are reports now that the station is only using FM and may not be active on its 6160 shortwave frequency. Or, at least, is operating from 2000-1200 rather than 24 hours a day. If true, that schedule still gives us a chance to hear the signals during our early morning hours, assuming it could break through other stations using the frequency.

Trans World Radio recently added a tenth transmitting site, this one at Meyerton, Channel Africa's main facility. It's in operation from 0604-0700 on 11730 (English), 0332-0428 on 9500 (Swahili), 1804-1900 on 9525 (Swahili) and 1900-2100 on 9510 in Yoruba, Fulani, and other African languages. Only about half of



TWR's ten sites are on shortwave, the rest are medium wave only.

## Club News

Two of America's major clubs have recently called it quits, we're sorry to report.

The Association of DX Reporters, headquartered in Baltimore, discontinued its operation due to declining membership and a lack of support from those members who remained. ADXR can trace its history virtually to the beginning of radio broadcasting. The club was formed out of the remains of the famous Newark News Radio Club which closed down in the early 80's.

**SPEEDX**—Society to Preserve the En-grossing Enjoyment of DXing—has closed its doors after nearly 25 years of covering the shortwave broadcast and utility scene. The club could no longer produce its monthly bulletin due to financial problems.

If you are looking for a good shortwave club to join here are a couple we can highly recommend: The North American Shortwave Association, 45 Wildflower Road, Levittown, PA 19057 (\$26/year in North America) and The Ontario DX Association, P.O. Box 161, Station A, Willowdale, ON M2N 5S8, Canada (\$28/year). NASWA covers shortwave broadcasting scene exclusively from programs to equipment to loggings, station news and QSLs. It also has an excellent awards program. ODXA covers SWBC, utilities, medium wave DX, QSLs and VHF/UHF, but does not accept loggings from members living outside Ontario. Three dollars should get you a sample bulletin from either club.

Your input is always welcome. Loggings should be listed by country and double spaced so they can be cut and sorted more easily. Be sure to include your last name and state abbreviation after each log item, otherwise we cannot use them. We're also looking for spare (non-returnable) QSLs and photos of you and your shack to use as illustrations, as well as shortwave station photos and literature, station news, schedules and QSL news such as new addresses, requirements, changes in policy, etc. Thanks for your participation!

Here are this month's loggings. All times are in UTC, five hours ahead of EST, i.e. 0000 UTC equals 7 p.m. EST. The language of the broadcast reported is assumed to be English unless otherwise indicated (AA = Arabic, PP = Portuguese, etc.)

**ALASKA**—KNLS, 7355 at 1635 with pop music and announcer in CC. (Barton, AZ)

**ANGOLA**—Radio Nacional, 9534 at 2002 with music. (Jeffery, NY)

**ANTIGUA**—BBC relay on 15220 at 1245 with sports news, cricket comments. (Williams, TX)

Deutsche Welle relay, 15275 at 1249 with news in GG. (Williams, TX)

**ASCENSION ISLAND**—RAI, Italy relay, 11765 at 0200 with news, discussion and ID in Italian. (Flemmer, WA)

BBC relay on 15400 with sports at 1755. (Barton, AZ) 17830 at 1304. (Williams, TX)

**AUSTRALIA**—5995 at 1210 and 11800 at 1505. (Fox, NC) 5995 at 1305 and 6060 in CC or JJ at 1320. (Northrup, MO) 5995 via the Brandon site at 1145 in



Here's a look at the shack of Bob "Smoke Signals" Perry of Painted Post, NY. The extensive line-up of equipment is just part of Bob's collection of over 100 antique radios. Bob holds ham call WA2TIX.

Pidgin, then switched to the Shepparton site and EE at 1200. (Flemmer, WA) 6060 in CC at 1200. (Lamb, NY) 9770 at 1530. (Placanica, Italy) 9860 at 0920 with sports. (Barton, AZ) 17795 at 2310. (Vaage, CA)

**AUSTRIA**—Radio Austria Int'l, 6155 at 1130 with Vienna Philharmonic Concert. (Placanica, Italy) 11780 at 1530 to SE Asia with news and "Report From Austria."

**BENIN**—Radio Benin, Cotonou, 4870 at 0458 sign on in FF with drums and kalimba, then anthem. ID, African music and talks. (Lamb, NY)

**BOTSWANA**—VOA relay, 6035 at 0430 with "Daybreak Africa." (Lamb, NY)

**BRAZIL**—Radio Tupi, 4975 at 0445 in SS with music. (Jeffery, NY) (Not in Portuguese? editor)

Radio Brazil Central, 4985 at 0142 in PP with bal-lads, talks by man. IDs. (Lamb, NY)

### Abbreviations Used in Listening Post

AA	Arabic
BC	Broadcasting
CC	Chinese
EE	English
FF	French
GG	German
ID	Identification
IS	Interval Signal
JJ	Japanese
mx	Music
NA	North America
nx	News
OM	Male
pgm	Program
PP	Portuguese
RR	Russian
rx	Religion/ious
SA	South America/n
SS	Spanish
UTC	Coordinated Universal Time (ex-
GMT)	
v	Frequency varies
w/	With
WX	Weather
YL	Female
//	Parallel Frequencies

IF YOU TURN THIS PAGE, YOU GET SOMETHING

FREE

# Die Universelle Welle



Die Radio- und  
Fernsehsendungen der  
Urchristen im Universellen Leben

präsentiert von  
Studio Santec

The QSL card of "Die Universelle Welle," based in Wurzburg, Germany. The organization's program is broadcast on shortwave over rented facilities in Russia.

Radio Educacao Rural, 4755 at 0707 in PP with pops, long phone talk and ID. (Lamb, NY)

Radio Alvorada, 2460 at 0250 with vocals, ID, announcements, commercial. Tnx Don Moore tip. (Paszkiwicz, WI)

**BULGARIA**—Radio Bulgaria, 9700 at 0008 with news, program of Bulgarian alternative music. (Wilden, IN) 13670 at 1327 with ballads in presumed Bulgarian. (Williams, TX)

**BURKINA FASO**—Presumed Radio Burkina on 4815 at 0658 in FF with pops, mention of Ouagadougou—one of my favorite place names (ML) (Yes, Marie, but can you pronounce it!) Also African news. (Lamb, NY)

**CANADA**—Radio Korea Int'l, via Sackville, 9650 at 1130 with IS, ID, news, "Shortwave Feedback." (Jeffery, NY)

CBC Northern Quebec Service, 9625 at 2233 with Canadian regional news. (Rogg, PA)

CKZU, Vancouver, 6160 at 1612 with program on gardening. (Flemmer, WA)

Deutsche Welle via Sackville, 13790 at 1445 in GG. (Williams, TX)

CHU time station, 7335 at 1152 with UTC time checks in EE/FF. (Williams, TX)

Radio Canada Int'l, 15325 at 1500 with IS, ID in EE and FF and broadcast following in FF. (Williams, TX)—Steve thinks this might have been via the Portugal relay, though there was no site announcement)

BBC Sackville relay, 15260 at 1514. (Williams, TX)

**CHINA**—China Radio Int'l, 9710 at 0000 with CC language lesson. Also at 0300 with economic news. (Fox, NC) 0022 with talk of plans for celebrating the take back of Hong Kong in 1997. Also 9730 at 0435. (Wilden, IN) 9730, new frequency for North America, at 0435 with ID, address, letters show. (Flemmer, WA) 11715 at 0321. (Vaage, CA)

Swiss Radio Int'l, via China, 7480 at 1325 in EE, into FF at 1330. (Flemmer, WA)

**COLOMBIA**—Caracol Colombia, 5075 at 0530 with Latin tunes and SS news. (Flemmer, WA)

La Voz del Cinaruco, 4865 at 2254 in SS with reggae, ID, frequency, sound effects, Caracol network promos. (Lamb, NY) 1115, presumed ID with mentions of Arauca and Caracol. (Williams, TX)

**COSTA RICA**—RFPI, 7385 with frequency and schedule info at 0439. (Barton, AZ) 9400 USB at 0400 with DX program, letters show at 0430 requesting reports on new 15050 USB. Also uses 12150 USB evenings and 17905 USB daytime. (Fox, NC). New 15050//17905 USB in SS at 1640. (Lamb, NY)

Radio Exterior de Espana relay on 11815 at 1319 in SS. (Williams, TX) 11815 at 1400 with ID, news in SS. (Flemmer, WA) Here and //17715 at 1615 in SS. (Lamb, NY)

Adventist World Radio, 5030 at 1125 in SS with IS and ID. Also 9725 at 1230 with ID, IS in EE. 11870 at 1410. (Williams, TX) 5030 at 0612. (Flemmer, WA) 9725 at 0000. (Fox, NC)

**CROATIA**—Croatian Radio, 7370 at 0900 in EE with news headlines and easy-listening music. (Placanica, IT)

**CUBA**—Radio Rebelde, 5026 at 1123 with radio drama. (Williams, TX)

Radio Havana Cuba on 6000 and 9830 SSB at 0100-0500. (Fox, NC) 6180 at 2240 with DX program. (Wilden, IN) 9550 at 1225 in SS, 11760 at 1317 in SS. (Williams, TX) 11740 at 2035 in PP. (Rogg, PA) 1236 in SS on 11760 with "Cuba Campesina." (Jeffery, NY) 1436. (Barton, AZ)

**CYPRUS**—BBC relay, 6050 at 1817 in listed Albanian with IDs, news, EE sound bites. Also 6180 at 1802 with news. (Lamb, NY)

**CZECH REPUBLIC**—Radio Prague, 5930 at 2207 with report on anti-money laundering banking regulations. (Rogg, PA)

**DENMARK**—Radio Denmark, via Norway, 15335 at 1345 in Danish. (Williams, TX)

**ECUADOR**—Radio Jesus Gran Poder, 5050 at 1128 with religious music and SS announcements. (Williams, TX)

HCJB on 6205 to Europe at 0730. (Placanica, Italy) 9745 at 0330. (Vaage, CA) 0100. (Jeffery, NY) 9765 at 1230 with IS, ID in SS. Also 11910 in SS at 1235 and 15410 at 1505 in EE/SS. (Williams, TX) 21490 SSB at 0230. (Fox, NC)

Radio Baha'i, 4950 at 1033 in SS and unidentified language with Ecuadorian music, mentions of several towns and cities in Ecuador. (Lamb, NY)

**EGYPT**—Radio Cairo at 2235 on 9900. (Fox, NC)

**ENGLAND**—Radio Korea Int'l, via Skelton, 9555 at 1430 with mailbag program. (Placanica, Italy)

VOA via Wofferton, 15185 at 1510 with news. (Williams, TX)

BBC on 3955 at 0441. (Jeffery, NY) 7125 in SS at 0427. (Wilden, IN) 7830v at 1840. (Wilden, IN) (Probably a VOA feeder carrying this, Sue, editor) 15070 at 1530 to Africa. (Wilden, IN)

**EQUATORIAL GUINEA**—Radio Nacional Bata, 4925 at 0553 in SS with African music, drums, into news. (Lamb, NY)

**ETHIOPIA**—The Radio Voice of Peace for Rwanda, via Radio Amahoro, operates on 9560 from 0355 to 0500. Reports can be sent to Radio Amahoro, Rue de Noyer 322, B-1040 Brussels, Belgium. (Rausch, NJ)

**FINLAND**—Radio Finland, 15400 at 1443 with Finnish lesson, news in classical Latin, into Finnish at 1500. (Rogg, PA)

**FRANCE**—Radio France Int'l at 0350 on 7135. (Barton, AZ)

11615 to North Africa at 1600. (Flemmer, WA) 11700 at 1600. (Placanica, Italy)

**FRENCH GUIANA**—RFO Cayenne, 5055 at 0620 in FF with music. (Flemmer, WA)

RFI relay, 11670 at 1233 in FF. Also 15365 at 1300 with IS, ID and into FF and 15515 at 1256 (Williams, TX) 13625 at 1230. (Fox, NC) 21765 at 2032 in FF. (Wilden, IN)

**GABON**—RTV Gabonaise, presumed, 4777 at 2116 in FF with African music, pops, FF talks. (Lamb, NY)

Radio France Int'l relay, 12015 at 1640 with African music and discussion. (Flemmer, WA)

**GERMANY**—Deutsche Welle, 6985 and 6100 at 0030. (Fox, NC)

New 6190 at 0530 and 15145 (Wertachtal site) to Africa at 1545. (Flemmer, WA) 11810 at 2347 in GG. (Vaage, CA) 15410 at 1254 in FF. (Williams, TX) 6045 via Nauen at 0413. (Lamb, NY)

Radio Netherlands via DW Nauen site—a new arrangement—on 7130 at 1127 sign on with IS, ID, news. (Lamb, NY)

**GHANA**—Ghana Broadcasting Corp., 4915 at 0049 with African and world news, ID. (Flemmer, WA)

**GREECE**—Voice of Greece on 17520 at 1435 with regional, then world news. (Rogg, PA)

**GUAM**—AWR Asia, 7455 at 1155 in CC with religious music. (Williams, TX) 9370 at 1500 with DX program. (Placanica, Italy)

**GUATEMALA**—Radio Maya de Barillas, 3325 at 1205 with ID and IS. In SS and presumably Mayan with QRM and fade out. (Williams, TX)

Radio Chortis, 3380 at 1208 with program theme "La Cucaracha." (Williams, TX)

Radio Tezulutlan, 4836 at 1112 with marimba music, announcements in SS. (Williams, TX)

**HONDURAS**—Radio Internacional, 4930 at 0450 in SS with IDs, LA pops, sign off at 0456. (Lamb, NY)

**HONG KONG**—BBC relay, 5990 at 1305, // to Singapore relay on 6195. (Flemmer, WA) 7180 at 1315. (Barton, AZ)

**ISRAEL**—Kol Israel, 11588 at 1510 in RR with news beamed to Europe. Also 11603 at 2000 with "Spotlight," world news, ID. (Flemmer, WA)

**ITALY**—RAI, 9575 at 1933 with IS, ID, news. (Jeffery, NY)

**JAPAN**—Radio Japan, 5960 (via Canada) at 0331. (Vaage, CA)

6025 (via Canada) at 0530 and 11705 (via Canada) at 1400. (Fox, NC) 7125 at 1155 with news. 9535 at 1730. (Barton, AZ)

**JORDAN**—6035 at 1600 with call to prayer and news in AA. (Flemmer, WA)

**KUWAIT**—Radio Kuwait on 9830 at 0030. (Fox, NC) 11990 at 1830 with news, easy listening music. (Placanica, Italy)

**MADAGASCAR**—Radio Netherlands relay, 9890 at 1615 to close at 1625. Also 11655 at 1945. (Barton, AZ) 9895 at 1340. (Flemmer, WA)

**MOROCCO**—RTV Marocaine, 15345 at 1347 in AA and a few words of FF. AA music. (Williams, TX)

VOA relay, 6140 at 0530. (Lamb, NY) 15410 at 1635. (Flemmer, WA)

**NETHERLANDS**—Radio Netherlands, 6015 at 0330. (Fox, NC)

**NETHERLANDS ANTILLES**—Radio Netherlands Bonaire relay, 6165 at 0451. (Vaage, CA) 9720 at 0915. (Barton, AZ)

**NEW ZEALAND**—Radio New Zealand Int'l, 9655 at 1620 with local weather, time check and easy listening music. (Flemmer, WA)

9700 at 1136 with jazz music, cricket report. Part of expanded schedule for Southern Hemisphere summer sports coverage. (Rogg, PA) 15115 at 0300. (Fox, NC)

**NIGERIA**—Voice of Nigeria, 7255 with anthem and EE sign on at 0455. (Barton, AZ)

Radio Nigeria, Kaduna, 4770 at 0437. (Jeffery, NY)

**NORTH KOREA**—Radio Pyongyang, 6576 and 9977 at 1100 with anthem and EE sign on, into revolutionary music. (Barton, AZ)

**NORTHERN MARIANAS**—KFBS-Far East Broadcasting, 9465 at 1724 with RR programming. (Flemmer, WA)

KHBI, Monitor Radio, 9355 at 1339 with religious discussion. (Flemmer, WA) 13625 at 1238. (Williams, TX)

**PALAU**—KHBN/Voice of Hope, 9965 at 1451 with a religious program. (Flemmer, WA)

**PAPUA NEW GUINEA**—NBC Port Moresby, 4890 at 0800 with local and area news. (Flemmer, WA)

**PERU**—La Voz de la Selva, 4825, presumed, at 1107 in SS with talks, mentions of Peru, Ecuador and Colombia. (Williams, TX)

Radio Cora, 4915 at 1050 with sign on, anthem, opening music with shouting men and animal noises, Christian music, morning prayer, mentions of Puente Piedra, Lima and other cities. (Lamb, NY)]

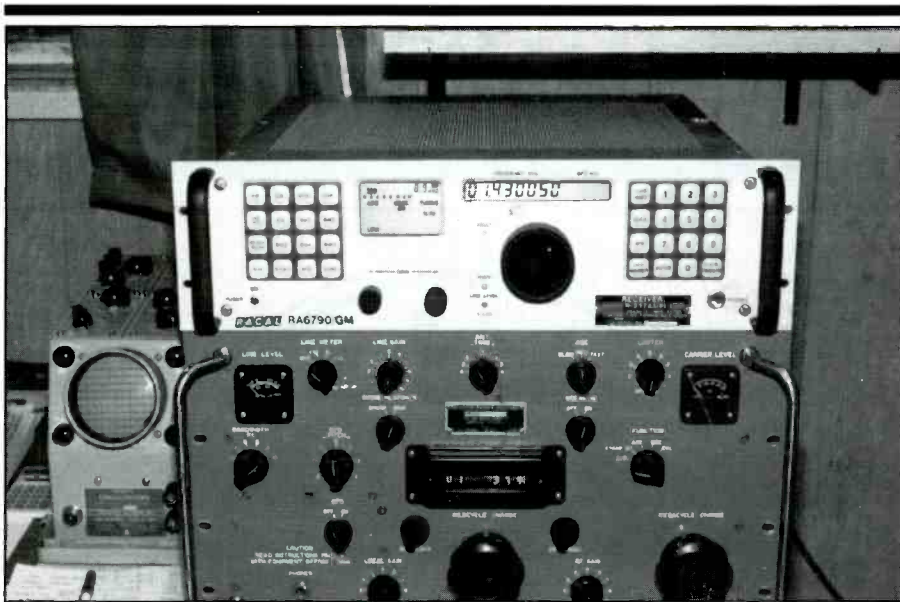
Radio Chota, 4890.1 at 0210 in SS with huaynos, time check, xylophone, flutes, ID. (Paszkiwicz, WI)

Radio Vision 2000, 5131 at 0246 to 0301 close with ballads, announcements, ID, national anthem. (Paszkiwicz, WI)

**PHILIPPINES**—Radio Veritas Asia, 9555 at 1330 with Hindi religious program, EE ID, into Bengali at 1400 and off at 1430. (Placanica, Italy)

VOA relay, 12040 at 1645 with African World Service. (Flemmer, WA)





Two mighty giants—WWII R390A receiver and a Racal RA6790—grace the shack of Fred Cunningham of Massachusetts.

**PORTUGAL**—Radio Portugal, 15200 at 1335 with ballads, contemporary music in PP. (Williams, TX)

Deutsche Welle relay, 5965//7285 at 2058 sign on with IS, site ID in PP, news in scheduled Albanian. (Lamb, NY) 7285 at 2230 in II with "Germania Sera" (Germany This Evening). (Placanica, Italy)

**ROMANIA**—Radio Romania Int'l, 7195 at 2109 in EE with news of Balkans, ID, sports. (Lamb, NY) 15390 at 1302 with news. (Jeffery, NY)

**RUSSIA**—New Voice of Vietnam relay on 5940 at 0516 in EE with ID and program "Vietnam's Economy." (Lamb, NY)

Trans World Radio via Irkutsk, 11665 at 1311 in unidentified language. (Williams, NY)

Voice of Russia (ex Radio Moscow) 6050 at 1320 in unidentified language. 7295 at 1315 with news program. (Northrup, MO) 7270 at 0324 with mailbag and 7345 at 1631 with opera. (Barton, AZ) 7330 at 1149 in CC, also 15470 at 1359 with IS, ID in EE, into RR. (Williams, TX) 7345//7370 at 1620 with "Focus on Asia and the Pacific." (Flemmer, WA)

**SAUDI ARABIA**—BSKSA, 15175 at 1453 in AA. (Williams, TX)

**SINGAPORE**—BBC relay, 3915 at 1649. (Flemmer, WA)

**SLOVAKIA**—Tentative AWR Europe, 7115—new frequency?—at 0747 with "Light of the World" religious program and address for AWR office in Germany. This frequency is not in their current sked. (Lamb, NY) 9445 at 0900 with "Lifestyle Magazine," "Wavescan," and "World DX News." (Placanica, Italy)

**SOUTH AFRICA**—Channel Africa, 7185//9585//11900 at 0254 sign on with IS, ID, anthem, news. (Lamb, NY) 7225 at 1957 with bird call IS and ID in PP, news of Africa at 2000. (Rogg, PA)

SABC, 4810 at 0100 with non-stop 40s and 50s standards, no ID. (Flemmer, WA) This was likely the Radio 2000 service, Del, though SABC is in the process of making some changes in what domestic services they carry on SW. (editor)

BBC via Meyerton, 11940 at 0522 with tonic scale IS, ID, Big Ben, news in PP. (Lamb, NY)

**SOUTH KOREA**—Radio Korea Int'l, 7550 at 0845 with mailbag program. (Barton, AZ) 13670 in FF at 1415. (Williams, TX)

**SPAIN**—Spanish National Radio 11815 at 2225 with news in Catalan. (Rogg, PA) 15110 and 17715 at 1333. (Williams, TX)

**SWEDEN**—Radio Sweden, 11650 at 1410 in RR and 15240 at 1340 in EE. (Williams, TX)

**SWITZERLAND**—Swiss Radio Int'l, 3985 at 0643 in FF, into II at 0645 and EE at 0700, 6205 at 1757 in GG, into II at 1800. (Lamb, NY) New 9905 at 0110 with news. (Flemmer, WA) SRI still has the

oversized QSL cards, which are very colorful. (Wilden, IN)

China Radio Int'l Swiss relay, 3985 at 2230 in II. (Placanica, Italy)

**SYRIA**—Radio Damascus, 12085 at 2100 with Middle East and world news. Off at 2130. (Flemmer, WA)

**TAIWAN**—Voice of Free China via WYFR, 5950 at 0300. (Fox, NC) 7130 at 1213 with ID, news, "Let's Learn Chinese." (Flemmer, WA) 1200 with anthem. (Barton, AZ)

**TANZANIA**—Radio Tanzania, 5050 at 0346 in EE with pops, talking drum and into music. (Lamb, NY)

**THAILAND**—VOA relay, 7255 at 1220 in an Asian language to 1230 sign off. (Flemmer, WA)

**UKRAINE**—Radio Ukraine Int'l, 7405 at 1943 in Ukrainian. (Jeffery, NY) 7205//7240//7290//7405 at 1929 in Ukrainian with pops, choir, ID, IS, anthem and "Axel F" (Beverly Hills Cop theme) and into news. (Lamb, NY)

**UNITED ARAB EMIRATES**—UAE Radio, Dubai, 15320 at 1342 and 15395 at 1350 in EE. (Williams, TX)

**UZBEKISTAN**—Radio Tashkent, 13785 at 1230 with independence celebration. (Placanica, IT)

**VATICAN**—Vatican Radio, 6095 at 0333 in SS with talk about Christians in Cuba. (Lamb, NY) 15585 at 1402. (Williams, TX)

**VENEZUELA**—Ecos del Torbes, 4980 at 1118 in SS with talks. (Williams, TX) 0130 with news in SS. (Rogg, PA) 0436, past usual 0400 close, with live concert of Venezuelan folk music, cheering, talks, ID and off at 0701 with state and national anthems. (Lamb, NY)

**ZIMBABWE**—Zimbabwe Broadcasting Corporation, 4828 with music at 0330. (Jeffery, NY)

And that's the lot. Thanks and a snappy salute to those who did the good thing this month: Marie Lamb, Brewerton, NY; D.D. Flemmer, Tacoma, WA; Clifford Fox, Hiddenite, NC; Salvatore Placanica, Italy (via Lamb); Sheryl Paszkiewicz, Manitowoc, WI; Dave Jeffery, Niagara Falls, NY; Sue Wilden, Columbus, IN; Ed Rausch, Cedar Grove, NJ; Mark Northrup, Gladstone, MO; Steve Williams, Corpus Christi, TX; Rick Barton, Phoenix, AZ; Bjorn F. Vaage, Granada Hills, CA and Allan Rogg, Rome, PA. Thanks to each of you!

Good listening!

GROVE, MONITORING TIMES, SATELLITE TIMES, BOOKS

AND DRANE, ICOM, GROVE, GRUNDIG, LOWE, MFJ, OPTOELECTRONICS, REALISTIC, SANGEAN, SONY, UNIDEN, UNIVERSAL, SHORTWAVE RECEIVERS, DECODERS, SCANNERS, ANTENNAS, PORTABLES, FOG DATABASE, AMPLIFIERS, CONVERTERS, SPEAKERS, SOFTWARE, ASSORTED ACCESSORIES, BOOKS

## Call Grove Enterprises Now at 1-800-438-8155 and receive a FREE Grove Catalog!



*What's the big deal?* Well, hear us out. The Grove catalog will introduce you to a full line of the finest products, publications, and technical services. You'll find hundreds of products from manufacturers that you know and trust, all for scanner and shortwave listening enthusiasts. We do not try to be all things to all people. At Grove, we don't sell computers or test equipment, we sell and service what we know. Our volume buying guarantees you great prices. We're a family business and we want to serve you, not just once but from now on. For the best prices, best quality and a full range of reliable and friendly services, call Grove. It is a big deal.

CIRCLE 70 ON READER SERVICE CARD

# CLANDESTINE COMMUNIQUE

## WHAT'S NEW WITH THE CLANDESTINES

**R**adio Free Somalia has resumed activity from a location at Gaalkacyo, in northeastern Somalia. It is operated by the International Amateur Radio Network, the organization which also set up Radio Free Bougainville in Papua New Guinea. The schedule of this very low power station is a bit uncertain. It has announced that it relays Radio Somalia from 1000 to 1215 on 7215, and 1600 to 1715 on 3920. It has also been heard using 13820 to close at 1330, saying broadcast was for Australia and New Zealand. If there's any chance of hearing this station it would seem to be this latter time and frequency.

Radio Nacional de Angola, the official government radio, now airs a program called Voice of the Resistance of the Black Cockerel, which broadcasts material against Jonas Savimbi and his UNITA organization. UNITA has had its own radio station operating with that name virtually as long as it has been in existence. The government program is aired over Radio Nacional from 0455 to 0700 on 9720, and 1100-1200 on 11955. The former offer a better chance of being heard. Check for the UNITA station on 4960 (also check 9705) and 9550 between 0445 and 0845, 1045 to 1400 on 7290 and 11850 (unlikely in North America), and 1630 to 2105 on 4960 and 7290.

Another clandestine station tied in with unrest in parts of the former USSR is the Voice of Free Tajikistan. Unfortunately, it appears that, like many clandestines in Central Asia, this is not an easy one to hear in North America. The station seems to have settled on 7080 and is airing broadcasts at various times during the evening hours in North America. It has announced transmissions at 0200, 0500, and 0900, but the station is either not sticking to that or has additional broadcasts at other times during that period. Broadcasts do not appear to run much more than 30 to 40 minutes at a time.

Rick Seifert, via e-mail, says anti-Castro broadcaster La Voz del CID has recently been alternating the use of its 9942 and 9922 frequencies from one evening to the next. Rick also notes that the entire spectrum from 9920 to 9970 sounds "like a beta test at a motorboat factory due to Cuban jamming." The Cubans are after La Voz del CID and were also targeting Radio Caiman until it went off the air. We also think Radio Miami International (9955) is a target since it airs the programs of La Voz de Fundacion.

Here's Radio Marti's current schedule, again thanks to Rick Seifert: 0500-0600



*The Mozambique National Resistance (RENAMO) is thinking of leasing out or privatizing its Voz da Renamo station.*

via Greenville on 6005, 0600-1200 via Delano on 6030, 1200-1400 via Delano on 9565, 1600-1900 via Greenville on 11930, and via Delano on 11740, 2300-0100 via Greenville on 6010 and Delano on 9525, 0100-0400 via Greenville on 6030 and 0400-0500 via Greenville on 6005. Thanks, Rick. Hope we finessed those times correctly.

Steve Williams, in Texas, picked up the Voice of the Iraqi People on 15605 and 1414 with some Arabic and Western music, both employing a synthesizer.

On one of their DXpedition outings the Maywoods DX Group was able to hear the Cambodian clandestine Radio Provincial Government, formerly the Voice of the Friend of the Great National Union Front (one or two other mouthful names preceded even that one). The reception was very weak at 1311 on 5407. Marty Foss in Alaska has also managed to pick this up; his log was at 1252 when they were playing indigenous music.

The Voice of Rebellious Iraq is scheduled at 0530 to 0730 (or perhaps 0730 to 0930), 1200 to 1430 and 1630 to 1830 on a frequency which varies between 7070

and 7090. The station is the mouthpiece of the Supreme Assembly of the Islamic Revolution in Iraq and operates from Iran.

The Voice of the People of Kurdistan supposedly now has a broadcast beamed to Europe. Unlike so many of these Kurdish clandestines (and Iran/Iraq, too, for that matter) this one uses a higher frequency—15060 at around 1600, in Arabic. Unfortunately Saudi Arabia's general service uses a 500 kW transmitter on this frequency (also in Arabic), though it is nominally scheduled only until 1500.

It looks as though the Mozambique National Resistance station Voz da Renamo may be "privatized" or leased out. The MNR (Renamo) says it no longer has sufficient funds to continue to operate the station.

That covers things for this month. Before we go, here's a reminder that your information and observations on clandestine shortwave broadcasting are always welcome. We'll be glad to include your loggings, station schedules and other news, address and QSL information, and so on. If you find information, either off your radio or in the press, feel free to pass it along!

Until next month, good hunting! ■



## HF 150 IBS★★★★

**REAL RADIO, RUGGED,  
RELIABLE**

Simplicity makes the HF150 easy to operate, and the synchronous detection produces superb audio which enhances the outstanding performance!

- Frequency: 30kHz - 30MHz
- Multimode: AM, AMN, LSB, USB
- 60 Memories (FREQ. & MODE)
- Tuning Step: 8Hz
- Bandwidth 7kHz & 2.5kHz
- 3 Ant. inputs, 600 Ohm BAL, 50 Ohm Coax and high impedance whip
- Built In Speaker, Ext. Jack & Record OUT
- Power 10-15VDC .15A (.3A max)
- Includes FREE AC adaptor
- Size: 7.3"W x 3.2"H x 6.3"D; 2.9 lbs.

*New for the  
LOWE HF150  
Display Back-  
Light kit for  
LCD readout.  
The BL150 is easily  
installed, instructions  
included.*



# LOWE

## SP150

**New....Just Released!  
The Ultimate  
Lowe Accessory!**

The latest from Lowe is a combination audio filter, amplifier and speaker. Works well with any SW receiver or transceiver, but designed to compliment the HF150 and PR150.

**Features:**

- 10W Audio amplifier
- Variable notch filter
- High pass filter
- Low pass filter
- Built-in loudspeaker
- External speaker output
- Headphone output



*The SP 150, PR 150 and the HF 150 shown  
pictured on the three tier rack system.*

## PR150 Pre - Selector w/ Pre-Amplifier

While a perfect match to the HF 150, this excellent unit is very effective with other SW receivers. Lowe's recently revamped model obtains wide coverage of 100KHz to 30MHz through the use of seven tunable bandpass filters. Multiple antenna inputs, pre-amp attenuator and much more. Hear what you've been missing by eliminating intermod & image interference.

**Antenna input:** 50ohm unbalanced, 600ohm balanced • **Power:** 10 - 15VDC  
**Size:** 7.3"w x 3.2"H x 6.3"D



**WRTVH RECEIVER OF THE YEAR!**

## HF 225 IBS★★★★

Rated 4 stars by Passport's Larry Magne,

- Multimode, AM, SSB, CW
- 30 Memory Channels
- Optional AM Synchro & FM
- Filter for all Modes: 2.2, 4.7, 10kHz 200Hz audio CW filter
- Built-In Speaker, Ext. Speaker, Rec. Jacks
- 10-15VDC .15A (.3A MAX) AC/Nicads Opt.
- Size 10"W x 4.2"H x 8"D; 4.18 lbs.



## HF 225E EUROPA

A "Turbocharged" HF225 for the dedicated DXer! Same high performance features of the HF225 plus these additional features:

- 7, 4.5 & 3.5kHz replacement filters for excellent selectivity
- Reduced residual noise thru shielded coils and switching diodes
- Synchronous detector (D225) & KPAD1 standard on Europa version

**CALL, FAX OR WRITE FOR DETAILED FLYER!**

## HF 235 THE PROFESSIONAL CHOICE

Top of the line rack version of the HF225, with similar specs. A professional communications receiver for the discriminating user, with high stability OSC & opt. computer RS232.

### ACARS FROM LOWE....The Air Master!

The Lowe Air Master is a super combination of hardware and software for the receiving and decoding of ACARS (Aircraft Communications Addressing and Reporting System). This is a new teletype message format used to transmit data between commercial aircraft and airport ground stations. ACARS was developed and implemented to reduce the work load of flight crews by using computers to handle routine communications. This information is transferred via VHF to the ACARS ground station. Generally speaking, if your customer is able to receive VHF voice transmission, then ACARS traffic should be no problem from the same source. When using the Air Master software with your PC and an air-band receiver, you'll be able to view the ACARS messages as they are received. The package includes the MS-DOS software for use with a 386 or higher PC, the computer interface and manual. The interest level in this market is growing rapidly. Be sure to get a demo or evaluation unit for your store. Look for upcoming product reviews and new product releases.

Two or three tier rack mounts, along with a variety of accessories are also available from EDCO. Keypads for the HF150 and HF225, Carrying Cases, Mounting Brackets, and a Computer Control Interface are just a few of the extras which can give you optimum performance of your LOWE product. Contact EDCO for full details.



**Electronic Distributors Co.**  
P.O. Box 1936 • Vienna • VA 22180  
Ph 703 • 938 • 8105 FAX 703 • 938 • 4525  
*Contact your favorite Dealer today!*



# SCANNING VHF/UHF

BY CHUCK GYSI, N2DUP

## MONITORING THE 30 TO 900 MHz "ACTION" BANDS

The summer is upon us and that means the scanning action is starting to heat up. With more people outside, the police are busier, parks become very active, and by tuning in the right frequencies you can partake in a summer of hot activity.

Some of my favorite listening targets in the summer include amusement parks (especially those business frequencies used by security) and shopping malls (which become refuges from the heat on hot summer days). You'll find plenty of action on the business frequencies between 151.625 and 151.955, 154.515 and 154.625, and 461 and 465 MHz. Be sure to tune around. You're bound to hear something on these bands just about anywhere in the nation.

### Scanning Tips

Rick Garrett, N9GSU, writes from Muncie, Indiana, to say that he is a professional musician and spends a lot of time on the road. He says his scanners and ham radio equipment help him pass those lonely late-night hours. Here are a few tips he wishes to pass along from things he's learned living on the road:

- Always carry a copy of your amateur radio license or the scanner law of the state that you are visiting. Rick says that scanner laws are not always a high priority for police officers to know, so it pays to be prepared. If you can cite a state's scanner law for a police officer, it will eliminate having to prove it in court later as long as the officer can verify it via radio with one of his supervisors.

- Never try to program a scanner while driving! This sounds elementary, but Rick says you'd be surprised what some people try while driving. It's too easy to take your eyes off the road to program a scanner while on the freeway. Have your radios programmed before you hit the streets or high-

way. It will eliminate frustration and a possible accident.

Rick passes along a few frequencies for his area in Indiana: Anderson police, 453.700; Henry County Rescue, 154.430; Muncie tower, 120.100; Indianapolis approach, 120.650; Reese unicom, 122.700; Muncie Skywarn, 146.730; Anderson Skywarn, 146.820; and Indianapolis Skywarn, 146.700. Rick also asks what frequency is used at the Renfo Valley Entertainment Center in Mount Vernon, Kentucky. I checked my databases, but came up blank. Anyone able to assist on this? Rick adds that readers in the Muncie area can give him a call on the 146.730 repeater.

### More from Indy

Thomas A. Gray writes to say he has been a POP'COMM subscriber for 10 years. He's presently using a Realistic Pro-2006 with OptiScan 456 and a Radio Shack discone antenna. He passes along some interesting frequencies for the Indianapolis area: 142.450, Fort Harrison military police; 154.815, Hendricks County police; 148.150, Civil Air Patrol; 415.200, General Services Administration Federal Protective Police for Federal Office Building; 155.160, Lifeline Helicopter; 461.425, Washington Square Mall; 155.025, Indiana Civil Defense; 155.550, Johnson County police; 155.670, Hancock County police.

### OK in OKC

Dick Sharp checks in from Oklahoma with his list of frequencies: 159.090; Oklahoma City police F2, Spring Lake division; 158.970, Oklahoma City police F4 Hefner division; 158.730, Oklahoma City police F5 backup; 159.030, Oklahoma City police F7 Santa Fe division; 158.790,

Oklahoma City police F9 Will Rogers division; 158.895, Oklahoma City police F10 airport police division; 159.210, Oklahoma City police F11 car to car; 159.060, Oklahoma City police F12 car to car; 151.340, Oklahoma City police F13 800-unit non-emergency information checks; 155.490, Oklahoma City police F14 state mutual aid; 453.350, Oklahoma City fire; 453.600, Oklahoma City fire; 460.350, Oklahoma County Sheriff; 460.400, Oklahoma County eastern net (small towns east of Oklahoma City are dispatched out of this county net); 158.805, Oklahoma City Housing Authority police; 154.830, Oklahoma Bureau of Narcotics and Dangerous Drugs; 154.665, Oklahoma State Bureau of Investigation.

### Rail Cell

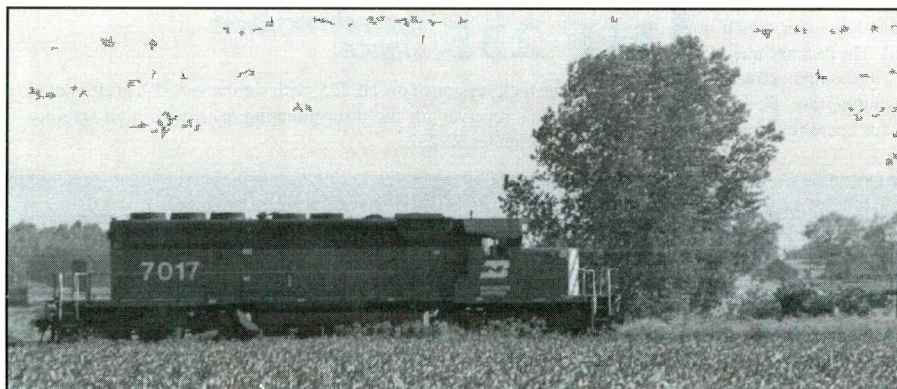
Wes Leatherock sends a message about our February column. The column speculated that Conrail is putting cellular telephones in some of the run-through locomotives from other lines and in leased locomotives to avoid equipping them with the correct frequencies needed for the lines they run on.

Wes says that this is possible, but most locomotives (particularly those involved in run-through operations with other lines) are now equipped with radios that can be programmed to any railroad frequency. These radios are known as AAR radios, for the Association of American Railroads. The AAR designates which frequency allocated to the railroads is a certain channel number. Both the transmit and receive frequencies can be selected on the radio.

One of the most common uses for cellular telephones in locomotives is to communicate with customers, according to Wes. The crew can call the customer to advise when they will arrive; security or maintenance forces at a plant can be contacted to unlock the gates or derails for deliveries or pickups; a call ahead can determine what track the car or cars will be delivered or picked up on; or various other details can be directly worked out with shippers and receivers of freight.

### More Freqs

Jill Dybka from Nashville, Tennessee, sends in frequencies for Davidson County and metro Nashville: 154.445, Metro ambulance administrative; 154.755, Metro police and sheriff mutual aid; 154.815, Metro police vice; 154.860, Metro police south sector; 155.010, Metro police central sector; 155.070, Metro police west sector; 155.130, Metro police countywide; 155.205, Metro ambulance dispatch and



There is an increasing use of cellular phones in the cabs of locomotives. Other railroad employees are using cellular in addition to PBX systems. Cellular allows phone calls to be placed over railroad frequencies. (Photo by Chuck Gysi, N2DUP)



Vanderbilt Life Flight; 155.280, Metro ambulance secondary; 155.310, Metro police east sector; 155.340, Metro ambulance to hospital and Vanderbilt Life Flight; 155.535, Metro sheriff dispatch; 155.580, Metro police records; 155.640, Metro police traffic; 155.730, Metro police vice; 156.015, Metro police communications van; 156.030, Metro sheriff courthouse security; 156.090, Metro sheriff SWAT; 156.100, Metro parks and recreation; 159.030, Metro police communications van; 159.210, Metro police; 450.650, WSM air traffic spotters; 458.850, Metro fire chief administrative; 458.900 and 458.950, Metro fire on-scene; 460.575, Metro fire dispatch; 460.600, Metro fire intrac; 460.625, Metro fire dispatch, paging; 462.000, Bellevue Center mall; 462.950 and 462.975, Metro ambulance dispatch; and 464.825, Bellevue Center mall.

### Write In

What are your favorite frequencies? Do you have any scanner-related questions? Do you have any listening tips worth passing along to your fellow readers? How about sending in a photo of your listening post or antenna farm? Write to: Chuck Gysi, N2DUP, Scanning VHF/UHF, Popular Communications, 76 N. Broadway, Hicksville, N.Y. 11801-2909, or e-mail to scan911@aol.com via the Internet. ■

## Popular Communications Goes "Online"

If you have access to Internet e-mail, then you can contact Popular Communications online! Plus, if you are a member of certain commercial online services, you may access some of our specific contact areas. For instance, you can submit contributions to our columns, ask a column author a question, or even submit a letter to "Mailbag." Be sure to specify the name of the column or author so we can quickly direct your message to the proper person. Also please include your complete street mailing address for our files. Here's how to find us:

**America Online**—Go to the Ham Radio Club (keyword: Ham Radio), click on "Message Center," and look for the Popular Communications area under the category, "Manufacturers, Dealers, & Vendors." E-mail to SCAN911 (POP'COMM Online representative).

**CompuServe**—E-mail only at this time; direct to Rich Moseson, 72127,745 (POP'COMM Online Coordinator) or John Dorr, 71301,424 (POP'COMM Marketing Director).

**Genie**—Move to page 345 (the Radio & Electronics Roundtable/Radio & Electronics Bulletin Board), then find Category 16 (Commercial Vendors—Books, Magazines, Videos, etc.) and Topic 3 (Popular Communications). E-mail to CQ.

**Internet**—E-mail only at this time; address to SCAN911@aol.com or CQ@genie.geis.com

# 1995

## Bearcat

RADIO CLUB & National Scanning

### CONVENTION

THREE DAYS OF SCANNING EXCITEMENT

JULY 14, 15 & 16

LANCASTER HOST RESORT

Registration ONLY \$10 in Advance

\$15 at the Door

Demonstrations  
Seminars  
Startek Frequency  
Counters



Exhibitors  
Speakers  
Radio Shack  
Much More!

Call Now for Show Reservations

1-800-423-1331

Use your Visa, Mastercard or Discover

Or mail your check or money order for \$10 to:

National Scanning, Box 360, Wagontown, PA 19376

For room reservations call the Lancaster Host Resort

1-800-233-0121

## AR8000 Interface

### Computer Interface for the AR8000

- △ Low Power, powered by your serial port
- △ No Drain on the batteries in the radio
- △ Light weight, perfect for Laptop use
- △ As small as a DB-25 Connector
- △ Hi-Tech Surface mount design for reliability
- △ 100% Shielded cable to receiver for reduced interference
- △ PC Software included for Windows and DOS
- △ Manual included
- △ Detailed Programmers documentation available
- △ Designed and Manufactured in the USA
- △ Optional 100% shield computer cable from AR8000INF to computer for reduced interference

Unlike some of the European devices sold today, this unit is smaller, lighter, and makes no power demands on your receiver. With the extra shielding and smaller size there is less chance of additional interference leaking into your radio. The AR8000INF is also the only interface that is upgradeable for use with the optional Tape recorder controller due first quarter '95.



Electronic Distributors Corp.

325 Mill St. Vienna, VA. 22180

Phone: (703)-938-8105 • FAX: (703)-938-4525

Available at your favorite dealer.



# TELEPHONES ENROUTE

BY TOM KNEITEL, K2AES

## WHAT'S HAPPENING WITH CELLULAR, MARINE & MOBILE PHONES

**A**llen Muse is the Manager of the Emergency Communications Center, Metropolitan Police Department of Nashville and Davidson County, Tenn. As such, handling cellphone calls to 9-1-1 is within the scope of his daily operations.

He passes along the following information to cellular users of 9-1-1 service. This info is intended to benefit those placing calls to 9-1-1 dispatchers in all areas.

Allen notes that it is vitally important that cellular telephone callers to 9-1-1 be aware of their location and their mobile number when they place their call. The operator will request this information.

*Stay calm!* A panicky person cannot provide useful information. When the call is from a cellular phone, the emergency operators have *only* the information can give verbally over the phone.

*Know your location!* Not only must emergency operators obtain accurate information on where to send help, but they must determine which agency should respond. Cellular calls can cross city and county boundaries, and often operators must transfer a call to another agency after determining where it originates. Allen tells us it's surprising how many cellular callers don't even know the county from which they are calling.

*Know your mobile number!* A large number of cellular telephone users do not know their own cellphone number. The emergency operator may need to call you back for more information. (So leave your cellphone "on" to receive a callback.)

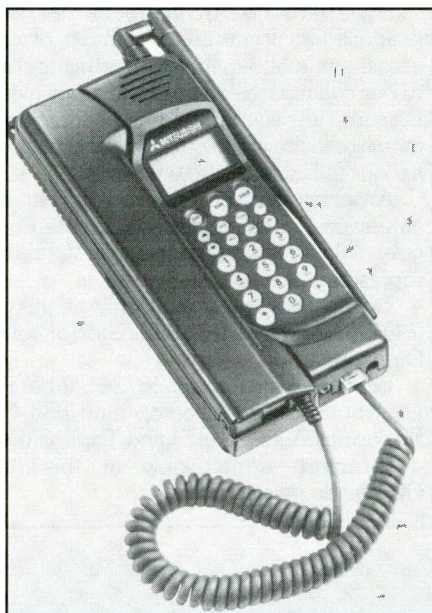
*Know when to call!* The 9-1-1 service is designed for serious emergencies, when an immediate response could save lives. Please avoid using it to report routine information to public safety agencies. They all have non-emergency lines for this purpose.

*Know when to stay put!* Some cellular callers have witnessed crimes in progress, and begin pursuing suspects. The police do not recommend this because the caller could be in great jeopardy. Get accurate information about the circumstances, descriptions of people and vehicles, etc., and give it to the emergency operator. Wait for authorities to arrive to see if they need additional information from you.

Allen Muse says these things greatly help police in doing their job providing emergency services. They can also speed the arrival of emergency responders when they are needed to provide assistance.

### Eavesdropping Uncovers Apparent Plot

In Tennessee, a woman randomly monitoring came upon cordless phone calls on her newly-received gift scanner. She got



*Mitsubishi's A-1000's transportable is small and versatile.*

quite an earful. Sounded to her like integral details of a murder plot. Based upon things said, it was possible to easily realize which of the woman's neighbors was speaking. She quickly reported the conversation to the sheriff, which led to an investigation by that agency.

Next thing you know, the sheriff arrested a neighbor of the scanner owner, and the neighbor's boyfriend. They were charged with conspiring to murder the woman's husband, and make it look as if he had been the victim of a bungled robbery.

The husband said he was amazed that there was a plot being cooked up against him. The sheriff said the scanner owner had not done anything illegal by randomly scanning and encountering the cordless phone conversation.

Thanks to L. Mark Lussky, Bill Tschopp, and the others who passed along this story.

### Scam Department

*Ring...Ring... 4:22 a.m.*

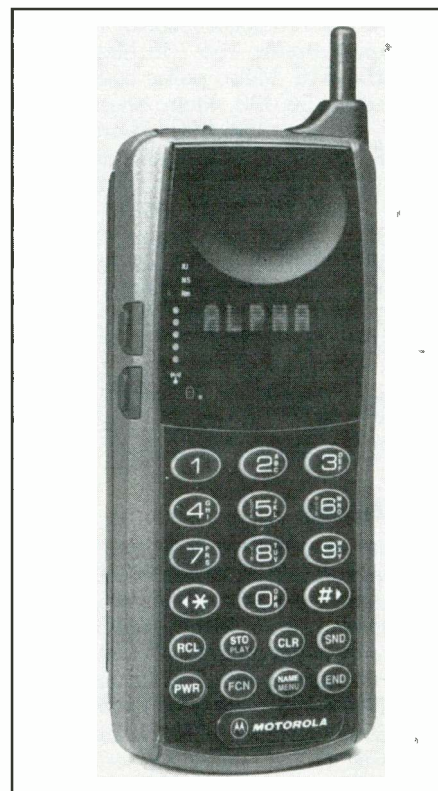
"Hello, is this Mr. Thomas?"

"Uh, yeah. What's the matter?"

"Mr. Thomas, this is Randy Williams at the telecommunications fraud control center. Sorry to bother you, but we are seeing unusual activity with your calling card. Over \$500 worth of calls to Honduras as of 20 minutes ago. I assume you have no knowledge of these calls."

"No."

"Let's suspend your card immediately so you won't be charged for any of this. Just give me the last four digits of your calling card number for verification. We will get a new card to you in about ten days."



*The new Motorola Ultima claims the honor of being the company's most lightweight pocketphone.*

A month later you still don't have a new calling card. Your phone bill arrives in a shoe box, and the phone company is saying, "Randy who?" What happened?

Randy randomly picked your name out of the phone book. He caught you with a good story while you were groggy and off-guard. You, unfortunately, have one of the many calling card numbers that use your regular phone number plus four random "security" digits—the exact digits Randy asked for.

Think about changing your number, or calling card.

This worthy alert came from our friends at Murray Associates, nationwide electronic eavesdropping detection and industrial espionage prevention consultants, P.O. Box 5004, Clinton, NJ 08809. Phone 1-800-635-0811.

AT&T's Fraud Prevention Resource Center can be reached at 1-800-851-0439.

### Cellphone Crimefighters

In Miami, Fla., members of the Citizens' Crime Watch of Dade County are using cellars. Cellular One of Florida has equipped key residents in ten high-crime Dade County neighborhoods with cellphones. This will enable them to immediately report both emergency and non-emergency situations to police.

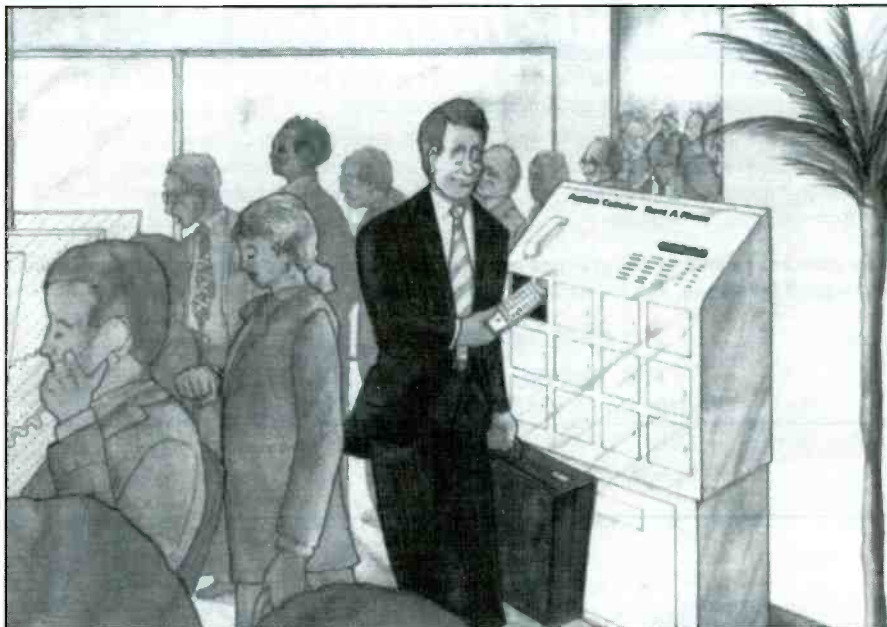


Anyone observing a drug deal, breaking-and-entering, mugging, or similar crime is only a quick phone call away from police assistance. They don't have to locate a landline phone.

In addition to providing the phones and battery rechargers, Cellular One of Florida will underwrite 200 minutes of air time per month during a one year trial period of this cellphone program. The carrier will also continue to support the Citizens Crime Watch and Metro-Dade Police in orienting and training the neighborhood residents who will be responsible for the daily operation of the phones.

The program will be evaluated by Florida International University's College of Urban and Public Affairs. It is expected to become a model program for other urban cities in America with high crime rates.

This is a worthwhile program, and we salute Cellular One of Florida as well as Metro-Dade Police for their participation. Cellular carriers and communities seeking further information on this project, contact Citizens' Crime Watch at (305) 470-1670.



This automated dispenser will rent you a cellular phone by the day, week, or month when you're on a business trip.

### Smallest Transportable

Mitsubishi International says its new AT-1000 transportable cellular is the smallest, lightest transportable cellphone available. Weighing 26.5 oz. and measuring 8.3 inches by 3.7 inches by 1.6 inches, the AT-1000 operates at the full 3-watt cellular

power limit, same as a mobile unit.

The AT-1000 features optional hands-free capability, making it easy to use while driving. One innovative design feature is the optional battery pack inserted into the handset, which eliminates the bulk of a separate battery pack.

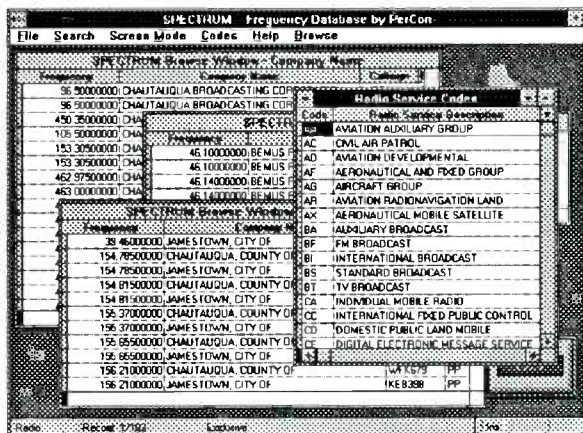
Among the AT-1000's many features are the large keypad and display, 99 alphanumeric memory locations, two dedicated one-touch speed-dial buttons, 9-1-1 access even when locked, any key answerer, automatic answer, selectable power output.

The MSRP is \$249, and the set is made

## SPECTRUM by PerCon

### Frequency Database CDROM

For DOS / WIN / MAC



SPECTRUM is a frequency database with over 3 million FCC licenses. Search, Browse, Export and Print by Callsign, Frequency, Name, City, RS Code and County. Easy! Easy! New! Ham Callsign with Open Repeater CDROM - \$19.95

**\$29.95**

**For More Information  
CALL NOW!**

PerCon Corporation  
4906 Maple Springs / Ellery Rd.  
Bemus Point, NY 14712  
(716) 386-6015 (716) 386-6013 FAX

Shipping for UPS  
Blue is \$7.50

CIRCLE 116 ON READER SERVICE CARD

THE MONITORING MAGAZINE

## AR3030 HF Receiver



IBS☆☆☆

*AOR offers leading edge technology in receiver design with the introduction of the AR3030! Unbelievable design & price tag...nothing has been spared! Compare AR3030 features with other receivers costing over \$1000...The AR3030 is the winner!*

### SPECIFICATIONS

Frequency: 30-kHz-30MHz plus optional internal VHF converter 108-174MHz • Memories: 100 programmable w/ scan • Modes: AM, LSB, USB, CW, FAX, FMN • Tuning Accuracy: 10Hz • Image & Spurious rejection: >70dB • Dynamic Range: >100dB @ 25kHz spacing  
Antenna inputs: (1) Coax 50Ω unbal. (2) 450Ω bal. (3) Hi-Z for whip  
Audio output: External speaker, FAX, Record • IF Output: 455kHz  
Computer: RS-232C • Power: 12VDC 800mA (max. audio); 8AA Nicad or Alk (not incl.) • Size: 10"W x 3.5"H x 9.5"D; 4.8 lbs.

*Superior Performance & Unsurpassed Value!*



**Electronic Distributors Corp.**  
325 Mill St. Vienna, VA. 22180  
Phone: (703)-938-8105 • FAX: (703)-938-4525  
Available at your favorite dealer.



CIRCLE 58 ON READER SERVICE CARD

June 1995 / POPULAR COMMUNICATIONS / 39

## YOU AIN'T HEARD NOTHIN' . . . YET

Since 1967, CRB Research has been the world's leading publisher and supplier of unique hobby and professional books and information including:

- Scanner Frequency Guides
- Shortwave Frequency Guides
- Military/Federal Communications
- Broadcast Station Registries
- Undercover Communications
- Survival Communications
- Covert Operations
- & Other Related Topics!

New titles are constantly being added to our exciting catalog. If it's interesting and unusual, we've got it. You'll see. Ask for our latest FREE catalog.

**CRB RESEARCH**  
P.O. Box 56, Commack, NY 11725  
Phone: (516) 543-9169/FAX: (516) 543-7486

CIRCLE 11 ON READER SERVICE CARD



### When seconds count, REACT® needs you...

...to summon help for an injured motorists, an elderly woman trapped in a fire, a trucker stranded in a blizzard, a drowning child!

As a REACT volunteer CB radio monitor you may be the only communications life-line for someone in serious trouble. You relay messages from those desperate for help to police or other emergency services.

Your REACT Team will also use CB and other radio services to provide safety communications for events like parades, marathons and even balloon races. The fellowship with other REACT members at Team meetings and annual conventions is an added bonus.

Volunteer. Join Today!

### Add a New, Exciting Challenge to Your Life. Help Save Lives and Property!

REACT® International, Inc.

Tel (316) 263-2100  
FAX (316) 263-2118  
P.O. Box 998, Wichita, KS 67201



CIRCLE 73 ON READER SERVICE CARD

in Georgia. For more information, contact Mitsubishi International Corp., Communication System Sales Div., 1500 Michael Drive, Suite B, Wood Dale, IL 60191. Phone (708) 860-4200.

### Motorola's Lightest Pocket Cellphone

Motorola's Ultima pocket cellular phone weighs a mere 4.8 oz., making it the company's lightest unit designed for sale through its retail outlets.

The Ultima utilizes lithium "ion" batteries that offer up to an hour of talk time or 10 hours of standby. Additional batteries offer up to two and three hours of talk time. There's a large two-line display with a dedicated signal-strength indicator and menu icons. It's the world's first pocket phone with an (optional) digital answering machine that can answer in your own voice so the caller can leave a short message! The Ultima has nine user-selectable different ringer tones, and it can vibrate.

No separate charger is required. Since the Ultima has its own built-in fast-charger, all you need is the new sleek wall adapter. Other power accessories include a modular desktop charger, and a cigarette lighter adapter.

For room-privacy, or hands-free driving, an optional headset may be plugged into the jack provided. An optional pager feature plays an outgoing message in your own voice instructing the caller to leave their phone number by entering keypad tones that plugs directly into the phone.

For further information, contact the Motorola Cellular Subscriber Group, 600 North US Highway 45, Libertyville, IL 60048. Phone 1-800-331-6456.

### Rent Cellphones

Next time you're on a business trip, you might want to use your American Express Card to get a Action Cellular Rent A Phone. Besides getting the use of a cellphone while out of town at a meeting, convention, or whatever, you'll be earning Mileage Plus Bonus Miles on United Airlines!

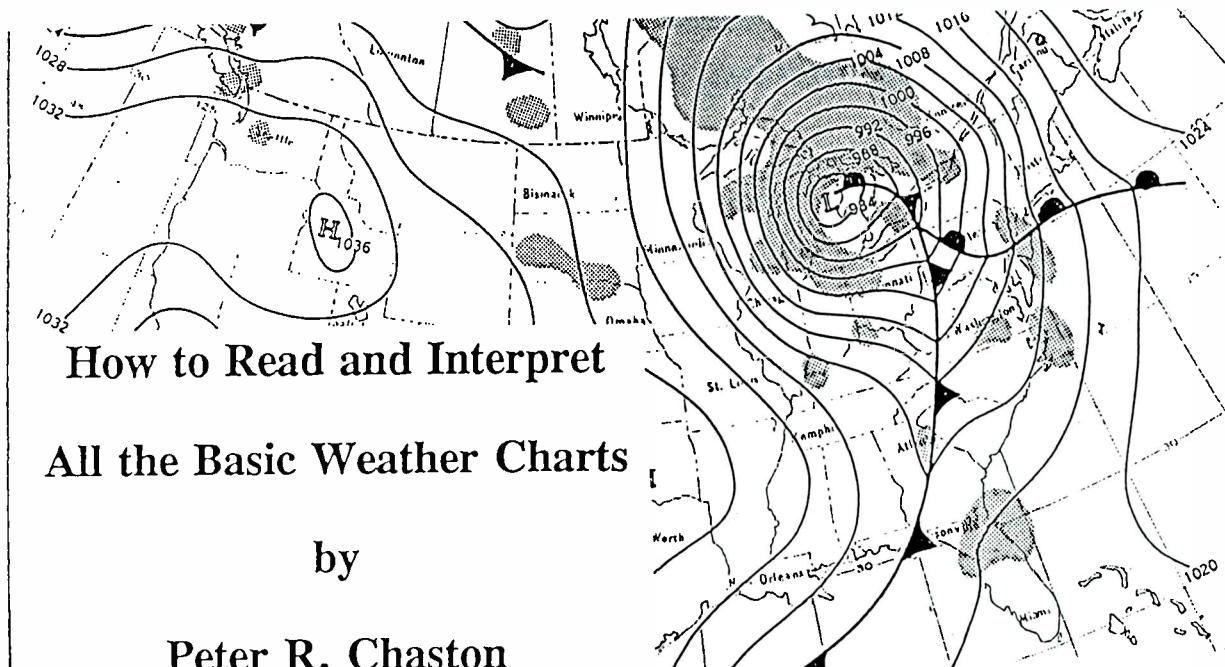
Action Rent A Phone began back in 1989, and has now become one of the leaders in short-term portable cellular phone rentals. Phones may be rented on a daily, weekly, or monthly basis. The phones are dispensed by automatic computerized machines located at airports, hotels, and other in-transit areas.

Rented phones do not necessarily need to be returned to the same locations from which they were first picked up. The company can even pick up phone, if there's a return problem. All rental cellphones are Motorola "flip" phones.

For more information, contact Action Cellular Rent A Phone, Inc., 1996 Union Street, Suite 200, San Francisco, CA 94123. Phone (415) 929-0400. To rent a phone, call 1-800-2-ACTION. ■



# WEATHER MAPS



**How to Read and Interpret  
All the Basic Weather Charts**  
by

**Peter R. Chaston**

- EVERY COMMONLY-USED WEATHER MAP IS DESCRIBED IN DETAIL
- EXPLAINS HOW TO READ THE DATA AND THE ANALYSES
- DESCRIBES HOW TO USE EACH CHART
- EXPLANATIONS OF METEOROLOGICAL PRINCIPLES AND PROCESSES ARE INCORPORATED IN THE MAP DESCRIPTIONS
- NEW "CUTTING EDGE" METEOROLOGY IS INCLUDED
- A VALUABLE REFERENCE
- ALSO FUNCTIONS AS A METEOROLOGICAL TEXT
- COMPLEX ATMOSPHERIC PROCESSES ARE DETAILED IN EASY-TO-UNDERSTAND EXPLANATIONS

Cost: \$29 from: Chaston Scientific, Inc.  
P. O. Box 758  
Kearney, MO 64060

phone: 816-628-4770  
fax : 816-628-9975  
ISBN: 0-9645172-0-5

---

## ORDER FORM

Mail to:  
CHASTON SCIENTIFIC, Inc. NAME: \_\_\_\_\_  
P.O. BOX 758  
KEARNEY, MO 64060 ADDRESS: \_\_\_\_\_

Make check or money order \_\_\_\_\_  
payable to:  
CHASTON SCIENTIFIC, INC. CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

Please send me \_\_\_\_\_ copy (copies) of WEATHER MAPS @ \$29 each = \$ \_\_\_\_\_  
Postage and handling are included = 0.00  
Missouri residents add \$1.44 sales tax per book = \_\_\_\_\_

TOTAL = \_\_\_\_\_  
Please allow 2 to 4 weeks for delivery.

## Scanning Groups & Clubs

When you get into any hobby, whether it's photography or communications, the fun and knowledge can be increased through active participation. My interest in communications has expanded rapidly since I first started listening to my old tube Police Alarm tunable radio many years ago. The local police were transmitting on 37 MHz back in those days, and listening to the dispatch calls was fun. But, then something happened. One day when I turned on my low band Police Alarm the police were no longer there. What happened?

Unknown to me, just an average guy who listened to the dispatch calls, my hometown police were working on a major upgrade of the radio system, a change from low band to VHF. I had very limited knowledge of anything relating to radio in general or the hobby of communications monitoring initially. I was just a high school kid who enjoyed radio. I had read some magazines related to radio, but I had no basic knowledge of the local police radio system, the codes they used, or the pending switch from low band to the new VHF band.

Things are much different today. You are reading *Popular Communications* right this minute because you are generally interested in communications. This is an excellent magazine to give you general information on new products, industry news, and general changes that you are likely to see on the bands. You can buy directories today that give you details about the radio systems that interest you. These directories list users, frequencies, codes, and lots of other useful and fascinating information. And don't rule out that you can always join a scanner club. With all of these options available why join a scanner club?

To answer that question let's visit California. The year is 1975. As we all know, these were the boom years for the Golden Bear State, and things were happening and changing quickly in Los Angeles. The LAPD had been growing at a rapid rate, and at first they added channels to the existing system. Next, like my local police agency, the LAPD started their initial massive expansion to the VHF band. Monitoring in Los Angeles was suddenly getting complex, and few listeners could keep up.

As the frequencies started changing, more mobile and base stations appeared on both the bands. The Los Angeles Police Department clearly was the leader in police radio communications, and those outside the department were having a difficult time keeping up. Faced with these frustrations, monitor listeners started combining their notes and information. Regular meetings

between individuals increased to group meetings, and the result was the foundation of an official group, then a club. This club was named the Radio Communications Monitoring Association or RCMA as we know it today.

By keeping each other informed of new and changing frequencies, codes, ID numbers, and so on, others who also found radio interesting quickly joined the club. RCMA established a charter and started publishing their first club bulletin, the *RCMA Newsletter*. Information was now exchanged in an orderly, written manner through the club publication. Today the *RCMA Newsletter* has expanded into the *RCMA Scanner Journal*, and the club is a nationwide organization. The Board of Directors had the insight to charter RCMA as a nonprofit California Corporation with the primary objective of "promoting the hobby of communications monitoring."

There are many local area groups and publications devoted to this hobby. RCMA is just one of them, however, it is by far the largest. By joining a local scanning or monitoring group, you can have the advantage of collective information and orderly dissemination of the collective efforts. Although a California based group, RCMA saw the possibility of helping others elsewhere, and quickly expanded to cover all areas of the county and most all radio services from aircraft to public safety. Volunteers in every state now collect and send in information contributions to volunteer editors who write monthly columns on these complex and interesting subjects.

Thousands of active hobbyist and many professionals have joined RCMA during the 20-year history. This club and the many others out there have helped scanner novices become professionals at enjoying the hobby. Many have taken steps even further, becoming active licensed radio amateurs. The boundaries of this hobby are endless, and being a member of a local scanner club or group can certainly help in expanding your knowledge of the hobby.

Sometimes it is very difficult to know just where to start when it comes to getting information on a local or area group. As a national club, RCMA publishes a monthly list in the *Scanner Journal* of known clubs and organizations. The calendar lists meetings, amateur radio networks, and local publication information. If you get serious about the hobby, you need to get involved with a club, group, or some network that covers your geographic area. This will alert you to changes that are taking place. It will also give you access to frequency lists that

are related your special listening interests.

It is impossible for a national magazine to publish long lists of local frequencies and codes every month. The *Popular Communications* staff is perhaps the most educated and experienced group of professional communications hobbyists in the nation today, however giving you all of your local news in each monthly issue is impossible. It could be compared to publishing a new national frequency and code directory every month. A national magazine such as *POP'COMM* can bring you information and news that are unavailable to local newsletters. This is where RCMA and other local area clubs fill the gap.

Along with your monthly issue of exciting reading found here in *Popular Communications*, you need to be a member of a local or area scanning or monitoring group. By joining and supporting the volunteers of a scanner club, you get grass roots information pertaining to just your area. You also expand your knowledge of the hobby on a local level, and help promote the hobby of radio communications monitoring. This is the same objective that the volunteers at RCMA started 20 years ago, and they are still here today.

If you would like more information on the Radio Communications Monitoring Association or perhaps learn if there is a local group in your area, send a stamped business size envelope to RCMA, Post Office Box 542, Silverado, California 92676. RCMA and other scanning groups have long worked closely with the staff here at *Popular Communications*. With the desire to expand and promote the hobby of communications monitoring, it is hoped that this information will help in your total enjoyment of a most exciting hobby. That is certainly our objective here at *Popular Communications*.

### Notification Networks

Those who want to know what is going on locally are finding it much easier these days. And, they don't have to monitor a scanner or read the morning paper to keep up. Scanner groups, news reporters, and others who like to know about emergencies are now able to subscribe to services that notify them immediately when an emergency happens.

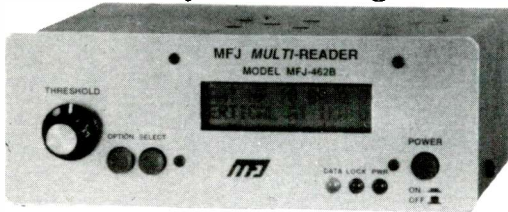
The mailbox has been filled recently with news and information stories about notification services that can reach subscribers by radio or beeper, and advise them of spe-

(Continued on page 82)



# Tap into secret Shortwave Signals

Turn mysterious signals into exciting text messages with this new MFJ MultiReader™



MFJ-462B **Plug this self-contained MFJ MultiReader™ into your shortwave receiver's earphone jack.**  
**\$159<sup>95</sup>**

Then watch mysterious chirps, whistles and buzzing sounds of RTTY, ASCII, CW and AMTOR turn into exciting text messages as they scroll across your easy-to-read LCD display.

You'll read interesting commercial, military, diplomatic, weather, aeronautical, maritime and amateur traffic... traffic your friends can't read -- unless they have a decoder.

## Eavesdrop on the World

Eavesdrop on the world's press agencies transmitting unedited late breaking news in English -- China News in Taiwan, Tanjug Press in Serbia, Iraqi News in Iraq -- all on RTTY.

## Super Active Antenna

"World Radio TV Handbook" says MFJ-1024 is a "first rate easy-to-operate active antenna... quiet... excellent dynamic range... good gain... low noise... broad frequency coverage."

Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz to 30 MHz.

Receives strong, clear signals from all over the world. 20dB attenuator, gain control, ON LED. Switch two receivers and aux. or active antenna. 6x3x5 in. remote has 54 inch whip, 50 ft. coax.

3x2x4 in. 12 VDC or 110 VAC with MFJ-1024 MFJ-1312, \$12.95.

**Indoor Active Antenna**  
 MFJ-1020A **\$79<sup>95</sup>**

Rival outside long wires with this *tuned* indoor active antenna. "World Radio TV Handbook" says MFJ-1020 is a "fine value... fair price... best offering to date... performs very well indeed."

Tuned circuitry minimizes intermod, improves selectivity, reduces noise outside tuned band. Use as preselector with external antenna. Covers 0.3-30 MHz. Has Tune, Band, Gain, On/Off/Bypass Controls. Detachable telescoping whip. 5x2x6 in. Use 9 volt battery, 9-18 VDC or 110 VAC with MFJ-1312, \$12.95.

## Compact Active Antenna

MFJ-1022 **\$39<sup>95</sup>**

Plug this new compact MFJ all band active antenna into your general coverage receiver and you'll hear strong clear signals from all over the world from 300 KHz to 200 MHz -- including low, medium, shortwave and VHF bands.

Also improves scanner radio reception on VHF high and low bands.

Detachable (20 in. telescoping antenna. 9 volt battery or 110 VAC with MFJ-1312B, \$12.95. 3 1/4x1 1/4x4 in.

Copy RTTY weather stations from Antarctica, Mali, Congo and many others. Listen to military RTTY passing traffic from Panama, Cyprus, Peru, Capetown, London and others. Listen to hams, diplomatic, research, commercial and maritime RTTY.

Listen to maritime users, diplomats and amateurs send and receive error free messages using various forms of TOR (Telex-Over-Radio).

Monitor Morse code from hams, military, commercial, aeronautical, diplomatic, maritime -- from all over the world -- Australia, Russia, Hong Kong, Japan, Egypt, Norway, Israel, Africa.

## Printer Monitors 24 Hours a Day

MFJ's exclusive TelePrinterPort™ lets you monitor any station 24 hours a day by printing their transmissions your Epson compatible printer.

Printer cable, MFJ-5412, \$9.95.

## MFJ MessageSaver™

You can save several pages of text in 8K of memory for re-reading or later review.

## High Performance Modem

MFJ's high performance phaselock loop modem consistently gives you solid copy -- even with weak signals buried in noise. New threshold control minimizes noise interference -- greatly

improves copy on CW and other modes.

## Easy to use, tune and read

It's easy to use -- just push a button to select modes and features from a menu.

It's easy to tune -- a precision tuning indicator makes tuning your receiver easy for best copy.

It's easy to read -- the 2 line 16 character LCD display with contrast adjustment is mounted on a sloped front panel for easy reading.

Copies most standard shifts and speeds. Has MFJ AutoTrak™ Morse code speed tracking.

Use 12 VDC or use 110 VAC with MFJ-1312B AC adapter, \$12.95. 5 1/4x2 1/2x5 1/4 inches.

## No Matter What Guarantee

You get MFJ's famous one year *No Matter What™* unconditional guarantee. That means we will repair or replace your MFJ MultiReader™ (at our option) *no matter what* for a full year.

## Try it for 30 Days

Order an MFJ-462B MultiReader™ from MFJ and try it in your own setup -- compare it to any other product on the market regardless of price.

Then if you're not completely satisfied, simply return it within 30 days for a prompt and courteous refund (less shipping).

Order today and try it -- you'll be glad you did.

## Receive Color News Photos, Weather Maps, RTTY, ASCII, Morse Code

MFJ-1214PC **\$149<sup>95</sup>**

Use your computer and radio to receive and display brilliant full color FAX news photos and incredible WeFAX weather maps with all 16 gray levels. Also RTTY, ASCII and Morse code.

Animate weather maps. Display 10 global pictures simultaneously. Zoom any part of picture or map. Frequency manager lists over 900 FAX stations. Automatic picture capture and save.

Includes interface, easy-to-use menu driven software, cables, power supply, comprehensive manual and Jump-Start™ guide. Requires 286 or better computer with VGA monitor.

## Super Hi-Q Loop™ Antenna

The Super Hi-Q MFJ-1782 Loop™ is a professional quality remotely tuned 10-30 MHz high-Q antenna. It's very quiet and has a very narrow bandwidth that reduces receiver overloading and out-of-band interference.

## High-Q Passive Preselector

MFJ-956 **\$39<sup>95</sup>**

The MFJ-956 is a high-Q passive LC preselector that lets you boost your favorite stations while rejecting images, intermod and other phantom signals. Covers 1.5-30 MHz. Has preselector bypass and receiver grounded position. 2x3x4 in.

## Mobile Scanner Ant.

Cellular MFJ-1824BB/BM look-a-like. Covers 25-1300 MHz. High **\$19<sup>95</sup>**

est gain on 406-512 and 108-174 MHz, 19 in. Magnet mount. MFJ-1824BB has BNC/UHF plug; MFJ-1824BM has Motorola plug.

## MFJ Antenna Matcher

MFJ-959B **\$89<sup>95</sup>**

Matches your antenna to your receiver so you get maximum signal and minimum loss.

Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Pushbuttons let you select 2 antennas and 2 receivers. Cover 1.6-30 MHz. 9x2x6 inches. Use 9-18 VDC or 110 VAC with MFJ-1312, \$12.95.

## High-Gain Preselector

MFJ-1045C **\$69<sup>95</sup>**

High-gain, high-Q receiver preselector covers 1.8-54 MHz. Boost weak signals 10 times with low noise dual gate MOSFET. Reject out-of-band signals and images with high-Q tuned circuits. Pushbuttons let you select 2 antennas and 2 receivers. Dual coax and phono connectors. Use 9-18 VDC or 110 VAC with MFJ-1312, \$12.95.

## Dual Tunable Audio Filter

MFJ-752C **\$99<sup>95</sup>**

Two separately tunable filters let you peak desired signals and notch out interference at the same time. You can peak, notch, low or high pass signals to eliminate heterodynes and interference. Plugs between radio and speaker or phones. 10x2x6 in.

## Easy Up Antennas Book

How to build MFJ-38 and put up **\$16<sup>95</sup>**

inexpensive, fully tested wire antennas using readily available parts that'll bring signals in like you've never heard before.

Covers receiving antennas from 100 KHz to almost 1000 KHz. Includes antennas for long, medium and shortwave, utility, marine and VHF/UHF services.

## MFJ 12/24 Hour LCD Clocks

MFJ-107B **\$9<sup>95</sup>**

MFJ-108B, dual clock displays 24 UTC and 12 hour local time simultaneously. MFJ-107B, single clock shows you 24 hour UTC time. 3 star rated by Passport to World Band Radio!

MFJ-105B, accurate 24 hour UTC quartz wall clock with large 10 inch face.

## MFJ Antenna Switches

MFJ-1704 **\$59<sup>95</sup>**

MFJ-1704 heavy duty antenna switch lets you select 4 antennas or ground them for static and lightning protection. Unused antennas automatically grounded. Replaceable lightning surge protection device. Good to 500 MHz. 60 dB isolation at 30 MHz.

## World Band Radio Kit

MFJ-8100K **\$59<sup>95</sup> kit**

MFJ-8100W **\$79<sup>95</sup> wired**

Build this regenerative shortwave receiver kit and listen to shortwave signals from all over the world with just a 10 foot wire antenna.

Has RF stage, vernier reduction drive, smooth regeneration, five bands.

## Free MFJ Catalog

Write or Call toll free... 800-647-1800

Nearest Dealer/Orders: 800-647-1800

Technical Help: 800-647-TECH(8324)

• 1 year unconditional guarantee • 30 day money back guarantee (less s/h) on orders from MFJ • FREE catalog

**MFJ** MFJ ENTERPRISES, INC.  
 Box 494, Miss. State, MS 39762  
 (601) 323-5869; 8-4:30 CST, Mon.-Fri.  
 FAX: (601) 323-6551; Add s/h  
**MFJ... making quality affordable**  
 Prices and specifications subject to change © MFJ Enterprises, Inc.

# POP'COMM's World Band Tuning Tips

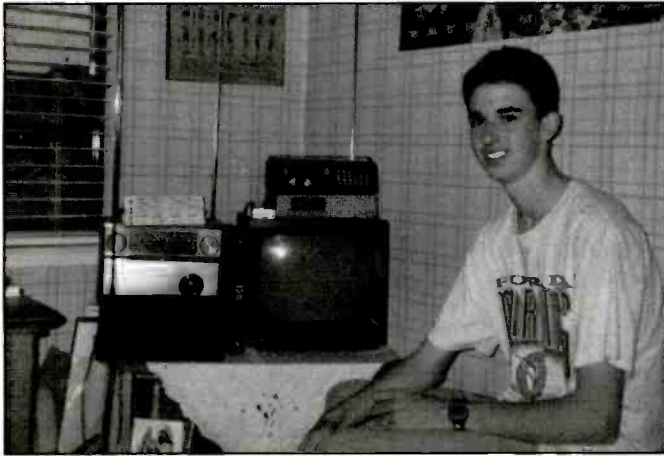
June—1995

Freq.	Station/Country	UTC	Notes	Freq.	Station/Country	UTC	Notes
2460	R. Alvorada, Brazil	0000	PP	6060	RAI, Italy	0500	II
3220	HCJB, Ecuador	0430		6070	CFRX/CFRB, Canada	1200	
3240	TWR, Swaziland	0300		6082	R. San Gabriel, Bolivia	1000	SS
3250	R. Luz y Vida, Honduras	0100	SS	6090	R. Bandeirantes, Brazil	0800	
3260	Estereo Carrizal, Ecuador	0100	SS	6095	Vatican Radio	0250	
3280	La Voz del Napo, Ecuador	0200	SS	6117	La Voz del Llano, Colombia	1000	SS
3300	R. Cultural, Guatemala	0300		6120	Deutsche Welle, Germany	0300	
3306	Zimbabwe Broadcasting Corp.	0300		6150	Caracol Colombia	0330	SS
3310	Channel Africa, S. Africa	0357		6155	R. Austria Int'l	0700	
3325	R. Maya, Guatemala	1100	SS	6155	R. Sweden	0230	
3360	La Voz de Nahuala, Guatemala	0300	SS	6165	R. Netherlands, Bonaire relay	0100	
3366	GBC, Ghana	0600		6165	Swiss Radio Int'l	0530	
3375	R. Clube Dourados, Brazil	0100	PP	6190	BBC relay, Lesotho	0400	
3380	R. Chortis, Guatemala	0130	SS	6195	R. Yugoslavia	0100	
3396	ZBC, Zimbabwe	0256	s/on	6205	HCJB, Ecuador	0200	RR
3925	R. Tampa, Japan	1200	JJ	6245	Vatican Radio	0640	
3965	R. France Int'l	0130	FF	6560	Rep. of Iraq Radio	0330	AA
4549	R. Tropico, Bolivia	0330	SS	7105	Voice of Russia	0100	
4753	RRI Ujung Pandang, Indonesia	1200	II	7115	AWR, Slovakia	0730	
4760	Yunnan PBS, China	1200	CC	7125	RTV Guineenne, Guinea	0530	FF
4765	R. Rural, Brazil	0230	PP	7180	BBC relay, Hong Kong	1300	s/on
4770	Centinela del Sur, Ecuador	0200	SS	7185	Channel Africa, S. Africa	0430	FF
4775	R. Tarma, Peru	0100	SS	7190	R. Moldova Int'l	0200	
4779v	R. Cultural Coatan, Guatemala	0030	vern	7205	R. Bulgaria	0000	
4780	Pyongyang, N. Korea	1200	KK	7255	V of Nigeria	0500	
4805	Rdf. do Amazonas, Brazil	0100	PP	7305	Vatican Radio	0250	
4810	R. 2000, S. Africa	0230	EE/Afk	7345	R. Prague, Czech Rep.	0700	
4815	RTV Burkina, Burkina Faso	0700	FF	7365	KNLS, Alaska	1300	
4820	R. Ukraine	0130	Ukrain	7405	R. Ukraine	0000	
4830	R. Tachira, Venezuela	0200	SS	7465	Kol Israel	0500	
4840	R. Valera, Venezuela	0300	SS	7475	RTT, Tunisia	0500	AA
4845	ORTM, Mauritania	0630	FF	9022	VOIRI, Iran	1930	
4865	La Voz del Cinaruco, Colombia	0600	SS	9200	R. Omdurman, Sudan	1800	
4870	ORTB, Benin	0530	FF	9370	KSDA, Guam	1400	
4885	R. Clube do Para, Brazil	0000	PP	9420	Voice of Greece	0130	GG/EE
4885	Ondas del Meta, Colombia	1000	SS	9435	Kol Israel	0500	
4890	NBC, Papua New Guinea	1100	EE	9445	Voice of Turkey	2330	TT
4910	ZBC, Zambia	0250	s/on	9475	R. Cairo, Egypt	0200	
4930	R. Barahona, Dom. Rep.	0130	SS	9515	R. Romania Int'l	0400	
4935	R. Tropical, Peru	0300	SS	9525	R. Marti, USA	0000	SS
4950	R. Bahai, Ecuador	1030	SS	9530	R. Singapore Int'l	1300	
4965	R. Alvorada, Brazil	0900	PP	9535	R. Japan	1400	
4980	Ecos del Torbes, Venezuela	0300	SS	9535	Swiss R. Int'l	1000	
4985	R. Brazil Central	0130	PP	9540	R. Espana Exterior, Spain	0100	
5025	R. Rebelde, Peru	0200	SS	9560	R. Jordan	1600	
5030	AWR, Costa Rica	0330	SS	9570	R. Portugal	0230	
5035	R. Centafricaine, Cent. Af. Rep.	0430	FF	9570	R. Romania Int'l	0230	
5047	R. Togolaise, Togo	0500	FF	9575	Radio Medi Un, Morocco	0030	FF
5055	TIFC, Costa Rica	0400		9580	R. Tirana, Albania	0330	
5056	RFO, French Guiana	0400	FF	9580	Africa No. One, Gabon	2200	FF
5075	Caracol Colombia	0300	SS	9585	Channel Africa	0254	s/on
5905	R. Metropolis, Czech Rep.	0815		9600	HCJB, Ecuador	0730	
5960	R. Japan via Canada	0100		9605	V of UAE	2300	
5965	R. Budapest, Hungary	0330		9605	Vatican Radio	0330	SS
5975	BBC via Antigua	0100		9610	BBC relay, S. Africa	0230	
6000	R. Havana Cuba	0130		9615	R. Cultural, Brazil	0900	PP
6000	R. Inconfidencia, Brazil	0000	PP	9645	R. Bandeirantes, Brazil	0500	PP
6010	R. Mil, Mexico	0700	SS	9650	R. Korea, S. Korea, via Canada	1130	
6015	R. Austria Int'l, via Canada	0530		9655	R. New Zealand Int'l	1300	
6020	R. Netherlands	0100	DD	9670	Deutsche Welle via Portugal	0100	
6035	VOA relay, Botswana	0430		9690	R. Nacional, Argentina	2300	



Freq.	Station/Country	UTC	Notes	Freq.	Station/Country	UTC	Notes
9690	China Radio Int'l, via Spain	0300		13635	Swiss R. Int'l, via Fr. Guiana	0030	
9700	R. Bulgaria	0000		13660	R. Havana Cuba	0200	USB
9700	R. New Zealand Int'l	0800		13670v	R. Iraq Int'l	2130	AA
9705	R. Portugal	0230		13675	UAE Radio, Dubai	1630	
9710	R. Australia	1300	EE/CC	13690	R. Sweden	1830	
9710	China Radio Int'l	0000		13730	R. Austria Int'l	1230	
9725	RAI, Italy	0100		13750	AWR, Costa Rica	1200	s/on
9735	R. Nacional, Paraguay	0100	SS	13770	Monitor Radio	2000	
9745	HCJB, Ecuador	0730		13785	R. Tashkent, Uzbekistan	1200	
9755	Radio Canada Int'l	0000		13830	Croatian Radio	1600	Croat
9770	V of UAE, Abu Dhabi	2300		15020	All India Radio	1400	
9805	R. France Int'l	1230		15050	RFPI, Costa Rica	1600	
9810	FEBA, Seychelles	1530		15084	VOIRI, Iran	2200	Farsi
9815	Radio Havana Cuba	0200	USB	15095	R. Damascus, Syria	2030	
9830	R. Jordan	2100	AA	15105	R. Moscow, Russia	1500	
9835	R. Budapest, Hungary	0100		15139	R. Nacional, Chile	2200	SS
9840	V of Vietnam	1330		15140	R. Veritas, Philippines	1530	
9860	Swiss R. Int'l, via Fr. Guiana	0400		15168	R. Tahiti	0300	FF/TT
9860	R. Sweden	1100	Swed	15175	BSKSA, Saudi Arabia	1200	AA
9900	R. Cairo, Egypt	2230		15180	R. Ukraine	0130	
9905	Swiss Radio Int'l	0100		15220	Golos Rossii	1200	RR
9950	All India Radio	2300		15235	V of Great Homeland, Libya	2000	AA
9977	R. Pyongyang, N. Korea	1100		15240	Channel Africa, S. Africa	1600	
10058	V of Vietnam	0000	VV	15240	R. Sweden	1330	
10621	Australian Defense Forces Radio	1530	USB	15270	Deutsche Welle via Rwanda	2055	s/on
11550	Family Radio, via Taiwan	1300		15270	HCJB, Ecuador	1930	
11560	R. Cairo, Egypt	1400	AA	15325	R. Canada Int'l	2100	
11595	RS Makedonias, Greece	1800	Greek	15345	RTV Marocaine, Morocco	1800	AA
11615	R. France Int'l	1600		15345	RAE, Argentina	0200	SS
11620	All India Radio	1100		15390	RAI, Italy, via Ascension Is.	0200	
11630	Croatian Radio	1600	Croat	15395	UAE Radio, Dubai	1330	
11650	Swiss Radio Int'l, via Fr. Guiana	2230		15400	R. Finland Int'l	1330	
11665	R. Cairo, Egypt	1800	AA	15415	Libyan Jamahiriya Broadcasting	1430	AA
11670	R. France Int'l, via Fr. Guiana	0130	SS	15430	Radio Japan	2300	
11690	FEBC, Philippines	1200	VV	15445	Radiobras, Brazil	1200	
11700	R. Pyongyang, N. Korea	2330		15445	R. Vlanderen Int'l	1300	
11710	RAE, Argentina	0200		15475	R. Atlantika, Russia	1300	RR, Tu-Fr
11715	China R. Int'l, via Mali	0300		15475	Africa Number One, Gabon	2100	FF
11715	R. Korea, S. Korea, via Canada	1030		15490	HCJB, Ecuador	1700	
11720	R. Bulgaria	2100		15510	R. Australia	0500	
11740	All India Radio	1530	s/on	15530	R. Australia	2200	II
11750	Qatar Broadcasting Service	1330	AA	15555	R. Pakistan	1600	
11765	RAI, Italy, via Ascension Is.	0200	II	15565	R. Australia	1200	
11775	R. Espana Exterior, Spain	1900		15570	All India Radio	1200	
11785	R. Guiaba	0130	PP	15575	R. Korea, S. Korea	0030	
11790	VOIRI, Iran	0030		15590	Vatican Radio	1345	
11800	R. Australia	1300		15615	Reshet Bet, Israel	2300	HH
11805	VOA relay, Thailand	1230		15650	V of Greece	1400	GG/EE
11810	R. Jordan	0530	AA	15675	R. Pakistan	1430	Urdu
11825	R. Tirana, Albania	2200		15675	R. Copan Int'l, Honduras	2300	SS
11830	Vatican Radio	2250		15770	ISBS, Iceland	1410	Icelandic
11830	R. Romania Int'l	0400		17490	HCJB, Ecuador	1000	USB
11835	R. Yugoslavia	1330		17500	RTT, Tunisia	1330	AA
11845	R. Canada Int'l	2200		17520	V of Greece	1430	GG/EE
11850	R. Norway Int'l	1200	Sun	17590	R. Finland	1430	
11870	FEBA, Seychelles	1500		17605	R. Netherlands via Bonaire	1830	
11870	Bosnian-Serb Radio, via R. Yugoslavia	0100		17620	R. France Int'l	1600	
11880	R. Japan via Fr. Guiana	0300		17630	Africa No. One, Gabon	1430	FF
11885	UAE Radio, Abu Dhabi	2300		17655	R. Netherlands via Bonaire	1830	
11890	R. Oman	1430	AA	17670	Swiss Radio Int'l	1500	
11905	R. Thailand	0030		17740	R. Finland Int'l	1430	
11905	R. Universo, Brazil	2330	PP	17745	R. Algiers, Algeria	1930	
11925	R. Mediterranean, Malta	1400		17745	R. Tashkent, Uzbekistan	1200	
11925	HCJB, Ecuador	0600		17755	R. Espana Exterior, Spain	1630	SS
11970	R. Havana Cuba	0030	SS	17775	R. Romania Int'l	1300	
11990	R. Kuwait	1800		17810	R. Japan	2300	
12015	R. Ulaanbaator, Mongolia	1200	Mon/We	17820	R. Canada Int'l	1300	
12050	R. Cairo, Egypt	2100	AA	17870	R. Sweden	1500	
12085	R. Damascus, Syria	2030		17870	RAI, Italy	1730	II
12095	BBC, England	1300		17895	Qatar Broadcasting Service	1400	AA
13590	R. Pakistan	1600		17900	R. Portugal	2000	PP
13605	R. Australia	1100		17905	RFPI, Costa Rica	1900	USB
13615	R. Bangladesh	1230		21455	HCJB, Ecuador	133	

# HOW I GOT STARTED



**P**opular Communications invites readers to submit, in approximately 150 words (more or less), how they got started in the communications hobby. They should preferably be typewritten, or otherwise easily readable. If possible, a photo of the submitter should be included.

Each month we will select one entry and run it here. You need submit your entry only once, we'll keep it on file. All submissions become the property of Popular Communications, and none can be acknowledged or returned. Entries will be selected for use taking into consideration if the story they relate is especially inter-

esting, unusual, or even humorous. We reserve the right to edit all material for length and grammar, and to improve style.

The person whose entry is selected will receive a one-year gift subscription (or one-year subscription extension) to Popular Communications.

Address all entries to: How I Got Started, Popular Communications, 76 N. Broadway, Hicksville, NY 11801.

## Our June Winner

This month, Chris Kelishes, Dana Point, CA, fills us in on his shortwave experience:

"It all began November, 1992, when my Mom brought home my first shortwave receiver. My Mom, a real estate agent, had just sold a house and after speaking to the owner earlier he offered her whatever was left in the house. One of the leftover items was an old General Electric analog receiver which I still have. Before that day I knew very little about shortwave radios and what they were capable of. However, I did know these radios could tune in far away stations.

"To be honest, when I first saw the radio I wasn't too excited. I saw it from the back and thought it was just an old AM radio. When I turned it around and saw the letters "SW," that's when I got excited! The minute I turned it on, I got Radio Moscow and Radio Australia.

"Now, almost two years later, my shack has grown into a new Realistic DX-390 shortwave receiver, a Realistic Pro-2021 scanner, a Realistic Pro-46 handheld, and a mobile CB. Finally, many thanks to my Mom for getting me interested in such a fun and rewarding hobby." ■

## Feel The Comfort Of Extended Operations With The IC-T21A!



Expand your coverage with a **FREE!** SMA/BNC Connector with every radio purchased (See your dealer for details on this limited time offer)

**Backlit Keypad!** with 4 selectable levels of control!

### Maximum Comfort

**Elastomer Construction** — This special material provides a comfortable, positive grip. The compact design fits the natural curve of your fingers and hand—especially welcome during long operating times.

**Backlit Keypad** — Ample spacing between keys for positive, error free operation.

**Large Display** — Indicates 17 different functions, battery capacity and subband frequency.

### Full Crossband Duplex Operation

**Dual Band Receive Capability** — Permits reception of another band (i.e.: 440 MHz on the IC-T21A).

**Full Crossband Duplex Operation** — Possible with the unique "whisper mode" microphone (standard) for telephone type QSO's

### 6 Hours Operating Time\*

**Low Power Consumption** — Consumes only 8 mA while standing by.

**Auto Power Control** — Conserves the battery by monitoring the repeater signal strength and selecting the best matching output power from 5 levels (down to 15 mW).

**Auto Low Power Function** — Automatically selects 15 mW just before battery exhaustion so you can complete your QSO.

\* 5.5 to 6 hours with 1:1:8 duty cycle (Tx high: RX:Standby)

**Battery Capacity Indicator** — Shows battery capacity.

### New Scanning Standards

**Ultra High Speed Scan** — 3 to 4 times faster than most other handhelds (33 channels/sec., 12.5 memory ch./sec.)

**Bonus Band** — Can be scanned while the main band is being scanned (e.g.: 70 cm for the IC-T21A).

**6 Priority Watch Modes** — Check for other signals while operating on a VFO frequency.

### Ultra-Convenient Repeater Operations

**Subaudible Tone Scan** — Detects, displays and programs the tone frequency into the VFO. Permits access to a repeater when you don't know the tone frequency.

**Auto Repeater Function** — Automatically activates repeater settings (duplex ON/OFF, duplex direction, tone encoder ON/OFF) when the operating frequency falls in the repeater output range.

**Repeater Memory** — Quickly recall settings of your last worked repeater (RPT-M key).

**5 DTMF Memories** — Automatically dial your favorite telephone numbers.

**Selectable DTMF Transmission Speed** — Adjust the IC-T21A/T41A to the capabilities of the repeater (5 cps, 2.5cps, 1.6 cps, 1 cps).

### Powerful 6 W Output Power\*

Our newly designed SC-1257 power module provides all the power necessary to reach fringe areas. Accepts 4-16 input.

\*with a 13.5 VDC power source.

### Innovative Memory Functions

**114 Memory Channels** — Store all repeater information.

**Memory Select Channels** — For quick access, up to 30 can be designated Memory Select Channels.

**Memory Transfer** — Quickly transfers a memory channel's contents to VFO. Useful for searching for signals near a memory channel.

**EEPROM** — Memory information is retained virtually forever.

### And More!

\* Includes Flexible Antenna, Belt Clip, handstrap, Rechargeable Ni-Cd Battery Pack and Charger

\* Built-In Pager, Code Squelch, Pocket Beep & Tone Squelch

**ICOM America, Inc. Corporate Headquarters**  
2380-116th Ave. N.E., Bellevue, WA 98004  
©1994 ICOM America, Inc. The ICOM logo is a registered trademark of ICOM, Inc. All stated specifications are subject to change without notice or obligation. All ICOM radios significantly exceed FCC regulations limiting spurious emissions.

**ICOM**

*Experience the Quality™*

Call our Brochure Hotline for FREE Literature on ICOM Radios: (206) 450-6088

CIRCLE 64 ON READER SERVICE CARD



# PIRATES DEN

BY EDWARD TEACH

## FOCUS ON FREE RADIO BROADCASTING

Oops! It was mistake time when we called Vietnam Veterans' Radio Network a pirate sometime back. Diane Mauer, of Wisconsin, wrote in and pointed out that this is a program aired on Radio For Peace International in Costa Rica. The program is a project of Vietnam Veterans Against the War. This is one of the methods they use to "bring to light the real stories behind the Vietnam War."

The group opposed the Vietnam war and opposes those that have followed. Thanks for the information, Diane!

On to some logs. Bob Johnston, in Florida, had WLIS—We Love Interval Signals—on 7415 USB at 0335, mentioning that they'd sent out their 500th QSL card. Also interval signals and some clever IDs. Example: "WLIS—Because Kenneth still doesn't know the frequency." Also mentioned the Blue Ridge Summit mail drop. They signed off at 0400.

Bob had Radio USA at 0430, also on 7415. Dick Pearce bagged them at 0000 on 6955 USB with contemporary and "punkish-sounding" music, and a couple of fake commercials. They announced the Wellsville address.

Bob Johnston had a brief reception on K2000 on frequency 7415 USB at 0450 featuring DJ "Havana Moon" just before he closed down at 0453. Jack Sheldon, of Michigan, also reports this catch at the same time.

Radio Boston is one of several nice logs sent in by Dick Pearce, in Vermont. He logged this one on 6955 at 2332 with music and listener mail.

Bullfrog Radio was heard by Greg Hathaway, in Michigan, on 6956 USB at 2203 with songs by The Doors and the announcer saying he was "on the road." They gave an address in Minnesota for reports.

KICK Radio, heard by Pearce on 9654.8 at 1415 with various music selections, a parody of a Jacques Costeau program. Dick says they announced a Huntsville address so I presume that means P.O. Box 605, Huntsville, Alabama 35804.

North American Pirate Relay Service showed up on 6955 USB at 2220 for Hathaway, who says the show host was "Richard T." They announced the Wellsville address (P.O. Box 452, Wellsville, NY 14895).

Bill Matthieu, in Massachusetts, had Altered States Radio on 7375 at 2124. They played music with changed lyrics, did a parody, and announced the usual address P.O. Box 293, Merlin, Ontario, N0P 1W0, Canada. Pierce tuned this one at 2117.

Hathaway had Radio BlandX on 7375 at 2110 with the host Ralph Johnson playing a lot of hard rock songs, but not announcing any address. (As far as I know this still uses P.O. Box 109, Blue Ridge Summit, PA 17214.—Ed) Incidentally, although it isn't always so indicated, most of the time we should assume that the DJ names announced on the air are fake—even if they seem like they might be real, as in the case of Radio BlandX.

Voice of the Unknown Monkey Spanker was heard by Pearce on 6955.95 USB at 2245; due to a taping accident Dick wasn't able to note any program details.

RBCN, another Pearce log, on 5855 at 0032 playing a tape of one of the forums at the *Monitoring Times* convention, specifically a talk on pirate radio by editor and author George Zeller.

Kevin Jordan, in Pennsylvania, had reception of Solid Rock Radio on 7415 USB around 1445 with a variety of pop/rock music played by Dr. Love, as well as some comedy attempts here and there. They announced the Wellsville address.

Jordan also picked up Voice of Laryngitis on 6955 USB just prior to its leaving the air at 0208 with an ID and some sort of sound effect.

Sheldon had RFM on 6955 USB at 0555 hosted by H.V. Short



*Lindsay Osbourne, a 10-year-old future gymnast, works the controls of Radio Unicorn as an intern. Radio Unicorn uses its facilities to teach the radio business to young people, and has been active as an FM band pirate for about 10 years. Lindsay would like to hear from some international pen-pals—write her at 8-F—Jane Frazier Vlg., Cumberland, MD 21502.*

running a test transmission which consisted mostly of announcements and pop music records.

Pearce had an unknown on frequency 9690 at 0135 running "Hound Dog" behind a repeated announcement, "Is not radio is not Radio USA is not Fake Radio USA. This is Fake Radio which is not radio is not radio..." etc. Dick says the "Volmet" version of "by and large the same thing" was on 7415 at 1445 including "break" but without the "more to follow." The announcer's voice had a computer-generated sound. He announced the address in Providence, RI, but also said that "Radio is Not Radio does not QSL." Well if some of us, including yours truly, are a bit mystified by all that I'm sure more information will find its way in here in time for our next issue.

Thanks to all who contributed this month. I hope you'll continue in the same vein and even be joined by some of the rest of you! Your logs are most useful so please keep them coming my way. Also copies of pirate radio QSLs and other material.

Until next month—keep tunin'!



## COMMUNICATIONS FOR SURVIVAL

### Electronics and Water Don't Mix

**E**mergency responders to ocean areas, lakes, and rivers know the importance of keeping their rescue radio equipment bone dry. The same goes for emergency personnel at a fire scene. With thousands of gallons of water being sprayed on a fire, some of that moisture ultimately creeps into radio equipment and electronic medical telemetry gear close to the action.

"The waterproof equipment brochure and the fine print on the warranty sheet don't agree with each other," comments Ron Evans, EMT 1A out of Chicago, Illinois, pointing to the discrepancy of whether or not his emergency VHF portable radio is repairable after water damage. "The ad says waterproof, but the guarantee indicates no warranty if the unit has water damage on the inside," adds Evans.

Marine electronics intended for on-water use don't necessarily meet the waterproof standards that you might see on a wristwatch. A Casio watch "water resistant 100m" will probably survive submersion for a few minutes while swimming out to a victim on a rescue, but a two-way radio labeled "waterproof" does not necessarily mean it can withstand submersion.

Most two-way radios and portable GPS receivers carry a Japanese Industrial Standard for water resistancy:

Class	Test	Standards
1	Light mist	Usable in fog
2	Light mist	Heavy fog
3	Rainproof	Withstands light drizzle
4	Light splash	Spray resistant
5	Heavy splash	Running water from any angle
6	Running water	Concentrated force of water flow
7	Submerged	Submersible
8	Submerged & Pressure	Submersible to a specific depth

A two-way radio or GPS locator set listed as "waterproof" cannot be assumed as being submersible. There are no marine specifications for the term "waterproof," and the only thing close to those specifications is what one manufacturer details as "water tight," conforming with Code of Federal Regulations 46, Subpart 110. A radio or GPS portable receiver meeting this part of the Code of Federal Regulations will continue to work after a five-minute encounter with a solid stream of water from a nozzle one-inch in diameter delivering at least 65 gallons per minute at 10 feet distance at any angle. Not many sets can sur-



Moisture encased in the display window indicates wet "insides" (or parts) that need to be dried out.

vive this, so any equipment listed as "waterproof" meeting this specification is a good choice for any fire scene where a fire hose may get out of control.

For on-water rescue services, a two-way radio is a lifeline for assistance and communications to other rescue personnel; there's a good chance your radio may go swimming with you during a heavy water rescue incident. One company, ICOM America, has a new two-way radio that is not only 100 percent submersible down to six feet under water for 30 minutes, but also meets tough global marine distress safety system requirements. It is required for personnel on or near the water to carry a radio that will continue to work even if going into the water with the radio on their belt. As long as the radio doesn't go below one fathom of water, it will continue to work once you get back out. This would allow you to holler for help if you should get swept overboard, or need assistance while in a heavy water rescue situation.

Magellan Corporation also offers a GPS receiver that is rated submersible. The portable GPS set floats if accidentally dropped in fresh or salt water. Although the internal electronics are completely protected against submersion, the battery compartment is not. This means the overboard Magellan GPS receiver should be immediately retrieved from the water, and opened up to expose the very wet battery compartment. Batteries should be re-



Effective, but very low tech and hard to operate two-way radio.

moved, rinsed with fresh water, and the battery tray allowed to completely dry. With any battery tray that gets wet, pay particular attention that the little springs holding the batteries in place continue making good contact. The springs, usually made of metal, will quickly rust and give you nothing but intermittent connections in the future. Clean up those contact springs before the bare metal can begin to rust. A liquid rust inhibitor will help keep those springs shiny.

For rescue boats, fixed-mount GPS and depth sounders are indeed submersible. These units can withstand heavy water because the insides have been back-filled with a dry nitrogen gas. This keeps the inside face from fogging, and even more important, it keeps water out of the internal components.

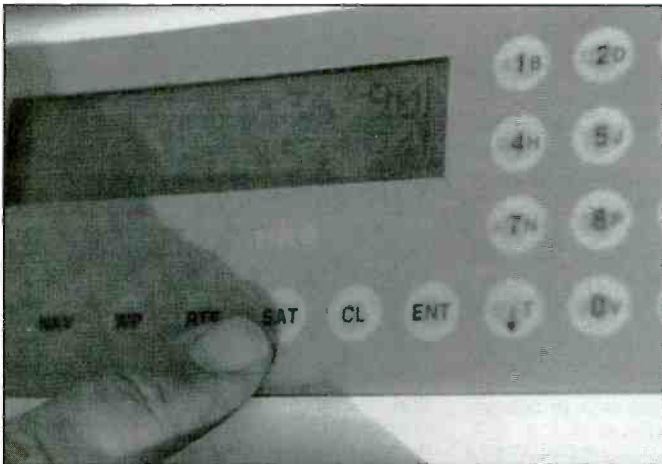




Author West tests waterproof radios and GPS sets aboard a lifeguard boat in Florida.



First dry out the battery compartment. This prevents electrolysis corrosion.



A membrane keypad on a life support monitor will keep water out, and is 100 percent waterproof.



Lifeguard rescue boat bridge station electronics are all rated splash-proof.

A "Mil Spec" rating is also another good way to identify emergency communications and navigation equipment that will withstand wet-weather exposure. "Our new ICOM ICF-30LT and ICF-40LT programmable VHF and UHF handheld transceivers all meet the Mil Spec ratings for water resistant standards," comments Tom Snellings of ICOM America. "While these sets are not designed to be submersible as is our ICOM M15 and M1500 VHF transceivers, these new land mobile radios are ideal for rescue squads because of their weatherproofness," adds Snellings.

So remember when operating within a rescue unit that handles emergency calls near the ocean, lakes, or rivers, double-check all portable electronics for fixed-mount sets can take the harsh environment of an accidental bath or submersion.

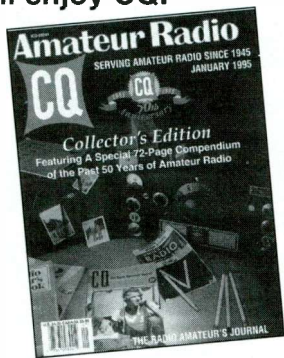


All of these emergency radios and portable GPS set (top) survived the two-hour submersion test.



# CQ Amateur Radio

If you enjoy Amateur Radio, you'll enjoy CQ.



It's a different kind of ham magazine.

Fun to read, interesting from cover to cover, written so you can understand it. That's CQ. Read and enjoyed by over 90,000 people each month in 116 countries around the world.

It's more than just a magazine. It's an institution.

CQ also sponsors these thirteen world famous awards programs and contests: The CQ World Wide DX Phone and CW Contests, the CQ WAZ Award, the CQ World Wide WPX Phone and CW Contests, the CQ USA-CA Award, the CQ WPX Award, the CQ World Wide 160 Meter Phone and CW Contests, the CQ Five Band WAZ Award, the CQ DX Award, and the highly acclaimed CQ DX Hall of Fame.

Accept the challenge. Join the fun. Read CQ.

Also available in the Spanish language edition. Write for rates and details

## SUBSCRIBE TODAY!

CQ The Radio Amateur's Journal  
76 North Broadway  
Hicksville, New York 11801

Please start my CQ subscription with the next available issue.  
Enclose payment or charge information with order. Term and rate (check one):

	USA	VE/XE	Foreign
1 Year	<input type="checkbox"/> 24.95	<input type="checkbox"/> 37.95	<input type="checkbox"/> 39.95
2 Years	<input type="checkbox"/> 44.95	<input type="checkbox"/> 70.95	<input type="checkbox"/> 74.95
3 Years	<input type="checkbox"/> 64.95	<input type="checkbox"/> 103.95	<input type="checkbox"/> 109.95

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Check  M/C  VISA  AMEX  Discover

Card No. \_\_\_\_\_

Expires \_\_\_\_\_

Signature \_\_\_\_\_

(Signature required on all charge orders)

Please allow 6-8 weeks for delivery of first issue.

Phone 516-681-2922; FAX 516-681-2926

**1-800-853-9797**

# NEW PRODUCTS

## REVIEW OF NEW AND INTERESTING PRODUCTS



### IC-2000H Superior Wideband Mobile

ICOM introduces the IC-2000H wideband mobile featuring clear, crisp reception designed to specifically deal with cross modulation interference. The IC-2000H employs a tracking tuning system and high quality RF band pass filters to improve image rejection and inter-modulation characteristics. Now you can pursue your hobby in areas with high quantities of RF devices (i.e., mobile radios, paging systems, cell-phones, cordless phones, etc.) without paying a steep price in performance or from your pocketbook.

Each of the 50 memories can be programmed with a six-character name, allowing you to instantly identify the frequency by name for less confusion and mistakes. Two scratch pad memories and six scan edge memories are also available.

With 50 watts of output you can easily work distant repeaters. The IC-2000H enables you to work fringe areas at full output, or closer stations at a five or 10 watt low power setting.

The ICOM IC-2000H's die-cast aluminum one-piece frame is ruggedly constructed with a large heat sink to provide stable duty cycle operation.

The IC-2700H receives 118 to 174 MHz (118 to 136 MHz AM, 1361 to 174 MHz FM, includes aircraft reception) and transmits 140 to 150 MHz (for MARS/CAP operation).

Advanced scanning features include a call channel, busy channel lockout, auto power off, programmable up switch, and separate volume/squelch knobs.

Optional features include a UT-55 alpha message pager, UT-85 tone scanner, UT-101 code squelch/pager and UT-85 tone squelch/pocket beeper.

The suggested retail price for the IC-2000H is \$430. For further information, please contact your local ICOM amateur radio dealer or ICOM America, Inc., 2380-116th Avenue, N.E., Bellevue, WA 98004, (206) 454-8155.

### Mobile Adapter Chargers

Modular Communications has introduced three models of Vehicular Mobile Adapter Chargers (VMAC's) designed around the Bendix/King (TM) VHF and UHF portable radios. These VMAC's are true "Jerk & Run" adapters. The base model VMAC provides 8 watts of audio power,



external speaker, microphone, installation kit and a broadband antenna. It also provides for rapid and trickle charging of the portable's battery plus a PTT current boosting feature which allows the radio to transmit even when the portable has a discharged battery. The next model adds a 50W broadband RF power amplifier with full emergency vehicle features including siren generator, public address and light bar controls. These VMAC's have a rugged extruded aluminum case so as to withstand the shock and vibration associated with four-wheel drive-off vehicles, aircraft, and emergency vehicle services.

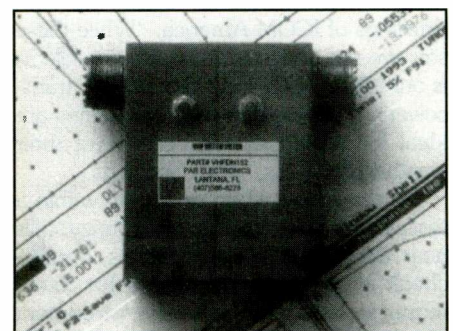
For more information contact Modular Communications, Inc., Mail Code 217, P.O. Box 526770, Miami, FL 33152.

### VHF Intermod Filter

When the antenna input of a receiver is presented with signals that are too strong to be linearly amplified the result is interference known as inter-modulation distortion. This interference manifests itself as noise on the desired signal or being able to copy the overloading station on top of the desired station even though they are on different frequencies. Our research has shown that in the VHF spectrum the biggest offenders are the high power paging services occupying the segment from 152-153 MHz.

Originally designed to eliminate this common problem from 2M amateur transceivers, the filter can perform the same function for scanners. The filter greatly attenuates (up to 50 dB) signals in the spectrum from 152-153 MHz segment yet passes frequencies outside this region.

The dual stage filter is built in a solid brass housing, comes supplied with UHF connectors and is factory pretuned. For amateur 2M use order the VHF DN152 or





the information contact PAR Electronics, 6869 Bayshore Drive, Lantana, FL 33462, (407) 586-8278.

## WeFax Software Antenna Coupler Lock

HF radio manufacturer SGC, Inc., has unveiled a new product called a SmartLock™ to further enhance the severe service capability of the company's SG-230 Smartuner™. The Smartuner is a fully automatic, microprocessor controlled, antenna coupler which covers the HF spectrum from 1.8 to 30 MHz.

In making the announcement, SGC President Pierre Goral said, "There are two antenna conditions the SmartLock is designed to control. One is where a mobile antenna is subjected to violent motion which might normally cause the antenna coupler to automatically retune. The other is to command the antenna coupler to recalculate antenna conditions at the operator's discretion."

The SGC-230 retunes when there is a significant change in antenna conditions. But there are times when retuning is not desirable. The SmartLock control box allows current coupler settings to be locked in place until released by the operator.

The second condition occurs when a small change of operating frequency has occurred and the VSWR on the system is still

below the 2:1 ratio which triggers retuning of the coupler. The SmartLock allows an operator to force retuning to insure optimum transmitting results even when a small frequency change has occurred.

The SmartLock may be used with SG-230 Smartuners manufactured after September 1, 1993. The facility to use a SmartLock was added by SGC earlier this year at the suggestion of a commercial user.

The SmartLock control box, which attaches to the Smartuner with nine feet of cable, costs \$59.95. The SmartLock is SGC Part Number 54-63.

SGC has also announced that owners of earlier versions of the Smartuner, which do not have the additional control line, may upgrade to the latest version of the Smartuner for \$289; this does not include the SmartLock.

SGC manufactures a wide range of other options for its SG-230 antenna coupler product including a 24 VDC power option, shock mountings, including the QMS (Quick Mounting System) to provide no holes installation of HF equipment and numerous antenna for fixed, marine mobile and land mobile applications.

SGC Technical Support may be reached at 1-800-259-7331. For additional information contact George A. Ure, at (206) 746-6310. real-time display mode, all incoming data is stored in a buffer, which gives you the ability to

increase the resolution after the image is received.

- Incorporates a scrollable receive buffer capable of operating in stop or loop modes.

- Includes a complete image processor that gives the user the ability to edit received images to bring out areas of interest. Enhancements include brightness, contrast, gamma, sharpness, negative, blur, false color, and many more.

- Supports BMP, GIF, PCX, TIF, and JPG image formats.

- Integrates an Auto Clock function to "wake up" your system; captures unattended transmissions.

AEA WeFax 256 requires an AEA DSP-2232 or 1232 multi-mode data controller with a receiver and antenna system for either HF, APT VHF, or microwave operation. It also receives a 386 PC-compatible computer or better, Windows 3.1, 2 MB of RAM, 5 MB of free hard drive space, and a VGA 256-color display or better.

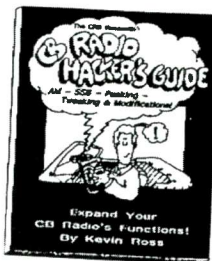
Suggested retail price for AEA WeFax 256 is \$129. AEA WeFax is available from your favorite amateur radio dealer.

For more information, contact Advances Electronics Applications, Inc., P.O. Box C2160, Lynwood, WA 98036; phone (206) 774-5554, or FAX (206) 775-2340, or circle 102 on our Readers Service.

# YOU AIN'T HEARD NOTHIN' . . . YET

Since 1967, CRB Research has been the world's leading publisher and supplier of unique hobby and professional books and information including:

- Scanner Frequency Guides
- Shortwave Frequency Guides
- Military/Federal Comm.
- Undercover Comm.
- Survival Comm.
- Covert Operations
- Electronic Espionage
- Surveillance
- & Other Related Topics!



New titles are constantly being added to our exciting catalog. If it's interesting and unusual, we've got it. You'll see. Ask for our latest FREE catalog.

## CRB RESEARCH

P.O. Box 56, Commack, NY 11725

Phone: (516) 543-9169/FAX: (516) 543-7486

CIRCLE 11 ON READER SERVICE CARD

# CHEEK

## The Ultimate Scanner!

The King of Scanners takes this step-by-step, richly illustrated, bench manual beyond everything ever published on scanner mods. Bill is a perfectionist who will help you convert your scanner into precisely what you've always wanted!

260 pgs, large format, lay-flat binding,  
**FINALLY AVAILABLE!**

\$24.95 until 6/30/95, then \$29.95.

**EMERGENCY RADIO!** Norm Schrein  
Scanning News As It Happens 214 pages, \$14.95  
"Excellent..." Barry Goltwater "A winner..." 911 Magazine  
"Rates a 10!" Dispatch Magazine "Irresistible" Bill Cheek

**SCANNERS & Secret Frequencies** Henry Eisensohn  
320 pages, \$19.95  
"Must reading..." Electronics Now "Useful, knowledgeable..." PopComm  
"A gem undertaking, authoritative" Monitoring Times "You can't miss!" ASG  
"Absolutely the best..." Norm Schrein "A high point!" RCMA

**Underground Database** 100 pages, large format, \$23.75  
Everything that's sort of legal.

**Television GRAY Market** Henry Eisensohn  
Cable & satellite chips, descramblers, etc. 160 pages, \$23.75  
"Explores this shadowy fringe area in depth... good info." PopComm

**INDEX Publishing Group, Inc.** First book \$4 s/h, \$2 ea add'l  
3368 Governor Drive, Suite 273P CA add 7.75% tax  
San Diego, CA 92122 MO/check via mail.  
619-281-2957 (editorial) **Order Line 800-546-6707**

CIRCLE 65 ON READER SERVICE CARD



# BROADCAST DX'ING

BY TIM KRIDEL

## DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

**Free Radio:** North Phoenix, Arizona is the site of an ongoing battle between one micropower broadcaster and the FCC. Dark since 1992, KAFR—"FM 93, Arizona's Free Radio"—was slated to return to the air in early December 1994, according to a press release from the station. The former KAPW—"Arizona's Most Controversial Radio"—had voluntarily ceased broadcasting well over two years ago after having lost its case in the Ninth Circuit Court of Appeals.

Although the publicity gives no details as to the circumstances of the case, it does note that legal counsel is now being supplied by the National Lawyer's Guild, which has previously represented low-power stations in California and Illinois. KAFR's owner, William Dougan, maintains that, because the station will run less than 100 watts, "the FCC has no licensing authority" over its operations, and thus he "does not need to, and does not intend to, apply for any license." Dougan has completed field tests, and concluded that KAFR's signal will not result in any interference to KJCC, on 92.7 MHz, KFLR, on 90.3 MHz, nor affect television reception in its contour. KAFR had originally intended to use 90.7 MHz, but changed to 92.7 MHz for what are described as "technical reasons." The call letters KAFR were, at last check, officially those of an FM station in Angel Fire, New Mexico.



XLTN covers most of San Diego County, California, from a transmitter site in Northern Baja, reports reader Brian M. Johnson, of San Diego.



Sauk Rapids, Minnesota, is the city of license for WHMH-FM and its sister station WVAL-AM. (Courtesy David W. Westphalen, KCOØCQ, Shelby, North Carolina)

### Applied for Permit to Construct New AM Stations

LA Sulphur 1310 kHz 40 watts (KEZM synch booster)

### Permit Issued to Construct New AM Station

TX Forest Hill 730 kHz 9 watts (KKDA synch night booster)

### Cancelled

KWXN Texico, NM 96.5 MHz  
WRRD Blennerhassett, WV 940 kHz 480 watts

### Seeking AM Facility Changes

KFNW W. Fargo, ND 1200 kHz Seeks night drop to 700 watts.  
KMRF Marshfield, MO 1510 kHz Seeks increase to 1 kW.  
KYCR Golden Valley, MN 1570 kHz Seeks 3.8 kW/230 watts power.  
WAYR Orange Park, FL 550 kHz Seeks night increase to 500 watts.  
WHBK Marshall, NC 1460 kHz Seeks increase to 5 kW.  
WJMX Florence, SC 970 kHz Seeks day increase to 10 kW.  
WKZO Myrtle Beach, SC 1520 kHz Seeks move to 1450 kHz, 1 kW day/night.  
WMUZ St. Louis, MO 690 kHz Seeks to add nights with 17.9 watts.  
WVNJ Oakland, NJ 1160 kHz Seeks night increase to 20 kW.

### Changed AM Facilities

KCOH Houston, TX 1430 kHz Increased nights to 330 watts.  
KLLF Wichita Falls, TX 1290 kHz Decreased nights to 73 watts.

### Seeking Changed FM Frequencies

KADY Independence, CA 106.3 MHz Seeks 92.5 MHz, 870 watts.  
KLOH-FM Slayton, MO 103.1 MHz Seeks 106.1 MHz, 50 kW.  
WSRZ-FM Sarasota, FL 106.5 MHz Seeks 106.7 MHz.  
WWDS Muncie, IN 90.5 MHz Seeks 89.5 MHz.

### Changed FM Frequencies

KBRD Ketchikan, AK 105.9 MHz Moved to 89.7 MHz, 7.8 kW.  
KQMX Rolla, MO 97.5 MHz Moved to 106.3 MHz, 6 kW.  
WGFR Glen Falls, NY 92.1 MHz Moved to 92.7 MHz.  
WKBE Warrensburg, NY 100.5 MHz Moved to 100.3 MHz.

### Permits Issued to Construct New FM Stations

AI	Sheffield	89.9 MHz	1 kW
CA	Eureka	88.3 MHz	1.25 kW
FL	DeFuniak Springs	91.3 MHz	3 kW
IA	Lake City	106.7 MHz	25 kW
MS	Potts Camp	95.9 MHz	6 kW
NC	Warrenton	107.3	50 kW



## Applied for Permits to Construct New FM Stations

AK	Cordova	100.9 MHz	1.2 kW
AR	Harrisburg	95.9 MHz	
AR	Maumelle	96.9 MHz	6 kW
AZ	Prescott	89.3 MHz	100 watts
AZ	Winslow	95.1 MHz	100 kW
CA	Livingston	89.1 MHz	230 watts
CA	Santa Cruz	90.7 MHz	316 watts
CA	Welton	104.5 MHz	
GA	Lumber City	88.7 MHz	50 kW
GA	Thomasville	88.1 MHz	55 kW
HI	Princeville	98.9 MHz	
IA	Muscantine	93.1 MHz	6 kW
ID	Sun Valley	107.5 MHz	100 kW
IL	Charleston	91.3 MHz	1 kW
IL	Danville	88.5 MHz	500 watts
IL	Effingham	91.3 MHz kW	
IL	Galatia	98.9 MHz	6 kW
IL	Neoga	98.9	6 kW
IN	Upland	89.7 MHz	150 watts
IN	Veedersburg	92.9 MHz	6 kW
KS	Freedonia	104.1 MHz	6 kW
KY	Ashland	91.1 MHz	800 watts
KY	Clinton	102.1 MHz	
KY	Glasgow	94.1 MHz	
LA	Alexandria	91.7 MHz	1 kW
LA	Franklinton	98.9 MHz	6 kW
LA	Jackson	104.5 MHz	6 kW
LA	Lake Arthur	107.3 MHz	25 kW
LA	Monroe	88.7 MHz	25 kW
MI	Traverse City	104.54 MHz	
MN	Bagley	96.7 MHz	25 kW
MN	Grand Marais	90.7 MHz	25 kW

MN	Grand Marais	95.3 MHz	
MP	Garapan, Saipan	101.1 MHz	3.2 kW
MS	Pascagoula	88.9 MHz	30 kW
MS	Tunica	96.1 MHz	25 kW
MT	Cascade	104.9 MHz	
MT	Helena	91.7 MHz	950 watts
MT	Kalispell	89.9 MHz	850 watts
MT	W. Yellowstone	96.5 MHz	6 kW
NC	N. Myrtle Beach	88.9 MHz	100 kW
NC	Ocean Isle Beach	93.5 MHz	6 kW
NC	Southern Shores	100.9 MHz	50 kW
NC	Spring Lake	89.3 MHz	6 kW
ND	Cavalier	105.1 MHz	44 kW
ND	Rugby	95.3 MHz	6 kW
NE	Falls City	101.3 MHz	6 kW
NM	Gallup	101.5 MHz	6 kW
NM	Taos	99.9 MHz	10 kW
NY	Rensselaerville	89.9 MHz	340 watts
OH	Ashtabula	90.1 MHz	3.6 kW
OH	Athens	95.9 MHz	6 kW
OH	Pleasant City	92.1 MHz	6 kW
OR	Grants Pass	91.1 MHz	250 watts
OR	The Dalles	92.7 MHz	3.7 MHz
PA	Lewiston	90.9 MHz	100 watts
PA	Tafton	88.3 MHz	850 watts
SD	Belle Fourche	102.1 MHz	
SD	Flandreau	107.9 MHz	8 kW
TX	San Saba	97.1 MHz	779 watts
VA	Bristol	90.5 MHz	500 watts
WA	Elma	102.1 MHz	6 kW
WA	Mabton	98.7 MHz	
WA	Omak	1204.3 MHz	
WY	Casper	97.3 MHz	
WY	Kemmerer	107.3 MHz	1.5 kW

## FINALLY - NOW AVAILABLE IN THE USA The Decoder that is the STANDARD of the European Continent.

### HOKA CODE-3 USA Version

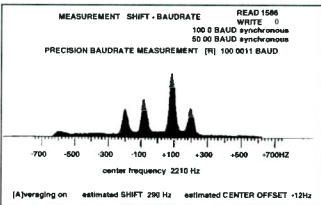
Many radio amateurs and SWLs are puzzled! Just what are all those strange signals you can hear but not identify on the Short Wave Bands? A few of them such as CW, RTTY, Packet and Amtor you'll know - but what about the many other signals?

There are some well known CW/RTTY Decoders but then there is CODE-3. It's up to you to make the choice, but it will be easy once you see CODE-3. CODE-3 has an exclusive auto-classification module that tells YOU what you're listening to AND automatically sets you up to start decoding. No other decoder can do this on ALL the modes listed below - and most more expensive decoders have no means of identifying ANY received signals! Why spend more money for other decoders with FEWER features? CODE-3 works on any IBM-compatible computer with MS-DOS with at least 640kb of RAM, and a CGA monitor. CODE-3 includes software, a complete audio to digital FSK converter with built-in 115V ac power supply, and a RS-232 cable, ready to use.

CODE-3 is the most sophisticated decoder available for ANY amount of money, and the best news of all, is that it is available from a United States dealer.

#### 26 Modes included in standard package include:

- Morse
- RTTY/Baudot/Murray
- Sitor CCIR 625/476-4
- ARQ - Navtex
- AX25 Packet
- Facsimile all RPM (up to 16 gray shades at 1024 x 768 pixels)
- Autospec - Mk's I and II
- DUP-ARQ Artrac
- Twinplex
- ASCII
- ARQ6-90/98
- SI-ARQ/ARQ-S
- SWED-ARQ-ARQ-SWE
- ARQ-E/ARQ1000 Duplex
- ARQ-N-ARQ1000
- Duplex Variant
- ARQ-E3-CCIR519 Variant
- POL-ARQ 100 Baud
- Duplex ARQ
- TDM242/ARQ-M2/4-242
- TDM342/ARQ-M2/4



Simulated Speed Measurement Module

#### Available as extra options

- FEC-A FEC100A/FEC101
- FEC-S \* FEC1000 Simplex
- Sports info 300 baud
- ASCII
- Helmsreiber-Synch/Asynch
- Sitor \* RAW (Normal Sitor but without Synch.
- ARQ6-70
- Baudot F788N
- Factor
- WEFAX
- Option 3 Piccolo .....\$85.00
- Option 4 Coquelet.....\$85.00
- Option 5 4 special ARQ & FEC systems
- TORG-10/11
- ROU-FEC/ RUM-FEC
- HC-ARQ (CRC) and HNG-FEC.....\$115.00
- Option 8 SYNOP decoder, \$85.00

All modes in typical baud rates with possibility of changing to any desired value of speed and shift.

All options are available from the main menu, saving or loading to and from hard/floppy drive in bit form, means loss of unknown signals!

HURRY! For a limited time the Standard CODE-3 package includes FOUR options:

1. OSCILLOSCOPE 2. ASCII STORAGE 6. AUTO CLASSIFY 7. FACTOR

Live Support after the sale. Computer Aided Technologies is dedicated to customer support!

**ORDER NOW** STANDARD CODE-3 PACKAGE \$595.00  
ALL FOUR EXTRA OPTIONS - \$199.95 **ORDER NOW**

NOW AVAILABLE - CODE-30 DSP-Based Decoder with all above options. \$CALL (318) 687-2555 (SHIPPING & HANDLING \$10.00) DEMO (SLIDE) DISK ONLY \$5.00 DEALER INQUIRIES INVITED

### COMPUTER AIDED TECHNOLOGIES

P.O. BOX 18285 - SHREVEPORT, LA 71138

ORDERS ONLY - (318) 636-1234 FAX (318) 686-0449 (24 Hrs)

Live Tech Support (318) 687-2555 - (9 a.m. to 1 p.m. Central M-F)

Nitetime BBS (SCANCAT File Area) (318) 631-3082 (7 p.m. - 6 a.m. Central)

Online support available in Genie's Radio & Electronics RoundTable. Call 800-638-9636 to subscribe to Genie!

(See our ad on page 21, 79 & 85)

Call Toll Free

**1-800-666-0908**

Pricing and Orders Only

## YAESU FRG-100



Worldwide desktop communications receiver  
Covers 50kHz - 30MHz  
AM/SSB/CW  
(FM optional)

- 50 memory channels
- Built in selectable filters 2.4, 4, 6kHz
- WRTH "Best Communications Receiver" 1992
- Many, many more features

### CALL FOR OUR LOW DISCOUNT PRICING

Yacht Boy 400



**GRUNDIG**

World Receivers  
The Ultimate In  
Digital Technology

Satellit 700



AOR AR8000



CALL FOR PRICE

#### SCANNERS

**Bearcat**  
SC150  
BC200XLT, BC220XLT  
BC3000XLT  
BC890XLT  
BC9000 XLT  
BC760XLT, etc

AOR

AR8000  
AR2700  
AR3000  
**TRIDENT**  
TR-2400  
many others

#### SHORTWAVE

Drake R8, SW8,  
Sony, Sangean,  
Grundig,  
Panasonic, Lowe  
Conn Sales, Information  
Tech Help  
(203) 666-6227



**LENTINI COMMUNICATIONS, INC.**

21 Garfield St. Newington, CT 06111

C.O.D.'s OK - SAME DAY SHIPPING

HOURS: M-F 10am - 6pm SAT 10am-4pm

CIRCLE 66 ON READER SERVICE CARD

# KJBC

# 1150 AM

## GOLDEN COUNTRY MUSIC

In addition to country music, KJBC features the popular call-in talk show "Your Two-Cents Worth." (Courtesy Andy Anderson, Midland, Texas)

Programming for the 1.7-watt station will feature "voices from centrist to liberal positions as an alternative to the managed reactionary media so common in Arizona," and as a corrective for the "Rising Tide of neo-fascistic Big Business/Big Money/Big Government Republican 'conservatism.'" No program schedule was given, other than that the station can be heard "five nights a week." The release also notes that the bulk of the programming will come from Free Radio Berkeley, a coalition of six micro power stations in the San Francisco area.

**Free Air Waves:** A Boulder Junction, Wisconsin group called "Free Air Waves" has spent the last four years pursuing its complaint against Eagle River's WRJO-FM. The grass-roots organization contends that the station's 50 kW signal is interfering with television reception, specifically fringe stations such as Wausau's WAOW. The group, formed in 1990, also cites interference caused by FMers WMQA and WHTD, which, like WRJO, have substantially boosted their power. In the case of WRJO, the FCC in October 1994 ruled

several of the complaints resolved after the station's technical consultant visited the complainants' residences and discovered that they were using antenna booster amplifiers. The station was relieved from any further responsibility because, under Section 73.318 (b), "interference complaints resulting from...the use of high gain antennas or antenna booster amplifiers" are excluded from consideration.

However, the Commission did reprimand the station for its failure to act on the complaints in a timely manner, and required that WRJO investigate within 30 days the remaining 104 unresolved complaints. In its decision, the Mass Media Bureau emphasized that WRJO "must respond to all the complaints that have been filed," citing staffers' ignorance of the requirement that a licensee must respond to complaints both within and without the blanketing contour of its signal.

In next month's issue look for Tom Kneitel's *Beaming In* editorial which will comment on micropower broadcasting and Free Radio.

**A Peek into the Future:** A January 1995 decision by the FCC to allot 50 MHz of S-band spectrum for satellite-delivered digital radio has intensified the debate over the effects such broadcasts might have on terrestrial stations. Opponents, foremost the National Association of Broadcasters, argue that the proposed service would drain conventional stations of their listen-



## CQ Has the Perfect Solution for the New Ham! The 1995 CQ Beginner's Guide to Amateur Radio



Most new hams have lots of questions. CQ has the answers. The **1995 CQ Beginner's Guide to Amateur Radio** is absolutely the best source of information for amateur radio equipment and practical operating advice. It's a CQ tradition and available today! But that's not all—veteran hams find our guides to be invaluable too! Filled with practical information from some of our hobby's most seasoned hams you'll find this edition to be our best yet. Here's just a sample of the articles you'll find:

- Your Introduction to Amateur Radio...VHF/UHF, Joe Lynch, N6CL
- Making the Transition to HF, John Dorr, K1AR
- Packet Radio Made Simple, "Buck" Rogers, K4ABT
- Amateur Radio on a Shoe String, Rich Moseson, NW2L
- Software for Amateur Radio, Ed Kalin, K1RT
- DXing Without Sunspots, "Chip" Margelli, K7JA

Only  
**\$5.95**  
(plus \$2.50 s/h)

### And There's Much, Much More!!

In addition to incredible articles, you'll find page after page of equipment listings complete with product specs, prices, and other valuable information. And, who can't use our world-renowned Dealer and Manufacturer listings? Discover exactly where to reach the companies and distributors that serve the amateur marketplace—all in an easy-to-use index of phone numbers and addresses.

You'll want to keep this resource handy for your day-to-day operation. Don't delay, be sure to order your copy of the **1995 CQ Beginner's Guide to Amateur Radio** right away!

For Fastest Service, Order Toll Free **(800) 853-9797**

YES, Send me \_\_\_\_\_ copies of CQ's **1995 Beginner's Guide to Amateur Radio** at \$5.95 each (plus \$2.50 shipping & handling; \$3.50 foreign):

Name \_\_\_\_\_ Callsign \_\_\_\_\_  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 Check  M/O  Visa  Mastercard  AMEX  Discover   
 Card # \_\_\_\_\_ Expiration Date \_\_\_\_\_  
 Signature \_\_\_\_\_ (Signature is required on all charge orders)

Mail your order to: CQ Communications, Inc., 76 North Broadway, Hicksville, NY 11801. FAX 516-681-2926 Also available through your local dealer!





Los Angeles' KZLA-FM is facing competition from San Fernando's KMGX, which has dropped its adult contemporary format to simulcast Garden Grove's KIKF. Got that? The change comes on the heels of KLAC's switch from country to adult standards. (Courtesy Michael Carland, Santa Clarita, California)

ers, especially those in automobiles, as well as divert advertising revenue. An NAB report claims that the effect will be to duplicate programming and "fragment audiences." Supporters counter that satellite radio is a national service, with its revenue coming from national advertising, listener subscriptions, or a combination of the two, and hence has no bearing on local advertisers and local programming. Emphasizing the additional choices the service would provide, the FCC said that satellite radio would serve "all communities, regardless of size or remoteness," including "segments of the United States which are currently unserved or underserved."

**Broadcasting & Cable** reports that four companies have applied to provide programming in the new band, from 2310 to 2360 MHz. Lon Levin, of American Mobile Radio Corp., told the industry magazine that he expected a license within 18 months. CD Radio Inc., foresees having its proposed lineup of 30 channels of commercial-free compact disc-quality music, in addition to 20 channels of news and talk programming, ready by 1997. The FCC issued no timetable, but one official anticipated that rules could be issued within a year, while the consensus in the industry suggests that 1998 is a more realistic figure for when actual broadcasting might begin. Other major hurdles include designing and manufacturing S-band receivers, and educating the public about the new service.

**Narrowcasting:** When is many too many? That question is being asked by members of the Maine radio community as the state's 100th station took to the air this past summer. With fierce competition and stagnant ad rates, some broadcasters are beginning to wonder if Maine's radio dial

may have reached its saturation point.

An article in the *Bangor Daily News*, supplied by Don Hallenbeck, of Pittsfield, Maine, describes the mood as at once pessimistic and optimistic—although the proliferation is expected to continue to result in weaker, mainly AM, stations going dark, successful broadcasters will survive and even thrive by finding clearly defined niches. "Localism" appears to be the key phrase, meaning involvement in the community, often through broadcasting local events such as high school sports. Ratings and demographics determine how much a station can charge for an ad, and while rates range from \$8 to \$35 per ad, one veteran points out that is little changed from the rates of \$8 to \$15 of 45 years ago.

Reader Andy Anderson, of Midland, Texas, tells of a one-kW station in his town that has cultivated a niche with its two-hour show called "Your Two-Cents Worth." Hosted by general manager/program director/sales manager Don Kennedy, the nine a.m. to 11 a.m. (CST) program features Don and co-host J.J. McClain fielding calls from an enthusiastic and loyal audience while offering their view of events and individuals in the news. Andy himself, a regular listener and caller, notes that he has heard the station's one-kW signal as far away as Lubbock, Abilene, and Fort Stockton, Texas, as well as Artesia, New Mexico.

**Seven at One Swoop:** "Black Thursday" is how the staff of Bend, Oregon's KQAK-FM describes the December 8, 1994 accident that knocked it and four other radio stations, including KTVZ-TV and the U.S. Forest Service, off the air. According to *Radio World*, a United Van Lines truck delivering KQAK's new transmitter snagged a guy wire securing the top

section of the forest service's 200-foot antenna tower, which then collapsed into the guy wires of KTVZ-TV's tower, tugging the top section over 10 degrees. The guy wires of the collapsing tower landed on the facility's power lines, cutting off power for two hours to KTVZ, KQAK, KNLR, KLRR, KICE, and KTWB. The KTVZ tower was trussed up temporarily until about 50 feet of the top section is replaced, and the forest service tower was a complete loss.

**Turning to Talk:** Portland, Oregon's KINK-AM is poised to take up both a new format and call letters. The switch to all-talk is an attempt to remedy the 5-KW station's dismal ratings since it began simulcasting KINK-FM two years ago. "We have nowhere to go but up," General Manager Steve Keeney told the *Oregonian*. "The key thing is to do something economically feasible. AM is not the dominant medium anymore, so we have to be careful." The former KGW-AM had enjoyed a lion's share of the market in the '70s and early '80s as a Top 40 outlet, but went dark in July, 1991, following an unsuccessful talk format. Although at press time no names had been confirmed, programming will come from syndicated hosts, possibly including Don Imus, which would eschew the cost of hiring local talent—a factor which apparently contributed to the demise of KGW-AM. According to the *Oregonian* article, supplied by Pat Roberson, KG7HT, the format will be driven by an emphasis on "entertainment with substance" rather than heavy political.

The format change mirrors that of another Portland AMER, KXYQ, which, until December 1994, had been simulcasting KXYQ-FM's adult contemporary programming. Following a deal in which he assumed

## WINDOWS™ Control for Scanners

**ScannerWEAR™  
SoftControl 1.3**

**NOW SUPPORTS:**

- **OptoScan 456/535**
- **AOR 3000/3000A**
- **ICOM R7000/7100**

- Memory banks include 100 channels per bank with frequency, description and mode.
- Search ranges include frequency, step, mode and description.
- Data logging to the file includes date and time stamp, signal strength, tone and number of hits, location\*.
- Spectra analysis in real time.
- CTCSS & DCS controlled scanning.
- OPTOSCAN 456/535 now in stock for \$289



\$99<sup>00</sup>

R·C·S·I

Radio Control Systems, Inc.

CALL (800) 560-7234

Tech Support (619) 560-7008; 10am-4:30pm PST  
8125-G Ronson Road, San Diego, CA 92111  
VISA, MasterCard, UPS COD

ScannerWEAR™ SoftControl STD Windows control for all your basic scanning needs. **\$39.00** Plus tax & shipping

All trademarks the property of their respective owners. \* Requires PerCon Database.

## Changed AM Call Letters

New	Was	
KBOA	KNNT	Kennett, MO
KLBG	KALB	Alexandria, LA
KOTC	KBOA	Kennett, MO
KOTK	KINK	Portland, OR
KOUU	KZBQ	Pocatello, ID
WAME	WVEF	Camden, SC
WWZN	WGTO	Pine Hills, FL
WYLI	WRBJ	Marietta, OH

## Changed FM Call Letters

New	Was	
KBGG	KABL-FM	San Francisco, CA
KIXW-FM	KIXW	Lenwood, CA
KJMY	KLMY	Seaside, CA
KLOK-FM	KSUR-FM	Greenfield, CA
KNCY-FM	KCOE	Auburn, CA
KOUU-FM	KOUU	American Falls, ID
KQSY	KLTO	Nowata, OK
KVRT	KAJU	Victoria, TX
KXDG	KKLL-FM	Webb City, MO
KXOO	KZRU	Elk City, OK
KZBQ	KZBQ-FM	Pocatello, ID
KZFT	KXDE	Merced, CA
WEMR-FM	WYMK	Tunkhannock, PA
WMXE	WAHU	Hudson, MI
WTZT	WHVK	Tullahoma, TN
WVXM	WMTE-FM	Manistee, MI
WVXW	WVXM	West Union, OH
WXWZ	WLYZ	Greer, SC
WZLG	WEIZ	Hogansville, GA

## New FM Call Letters Issued

KAJS	Willits, CA
KAJT	Bandon, OR
KAJU	Victoria, TX
KARN-FM	Humnoke, AR
KECU	Ada, OK
KEJC	Modesto, CA
KEPI	Eagle Pass, TX
KFJY	Grand Forks, ND
KRMC	Douglas, AZ
WAJW	Chesterton, IN
WIUW	Warsaw, IL
WKFM	Huron, OH

## Pending AM Call Letter Changes

Old	New	
WBVS	WVNS	Claremont, VA
WRNB	WIQR	Prattville, AL
WSBH	WMBM	Miami Beach, FL
WXOL	WVCY	Oshkosh, WI

## Pending FM Call Letter Changes

Old	New	
KDSQ	KDVE-FM	Denison, TX
KLHI-FM	KMGT	Lahaina, HI
WSKO	WZKI	Buffalo Gap, VA
WZPQ-FM	WZPQ	Carrollton, AL
WZZP	WVLI	Kankakee, IL

management of the station, Portland radio broker Ivan Kafoury reprogrammed KKYQ-AM as "The Voice 1010 AM." It comes as no surprise, then, that the new all-talk format will be sports-oriented during the morning, since Kafoury, who has an option to buy the station, was one of the founders of all-sports KFXX-AM, in Oregon City.

Unlike KINK-AM, however, KXYQ-AM's programming will be entirely local in origin, necessitating the "barter" system, whereby the show's originator receives an allotment of time in which to sell advertisements, and thus pay for the show. For the KXYQ-AM personalities, this means they will have to double as salesmen working entirely on commission since, as Kafoury admits, "The only way I can make this thing go is that I don't have any salaries."

**Beethoven, Inc.:** As we reported in the January issue, Seattle's KING-AM was sold to Bonneville Holding Co., whose stable includes KIRO-AM/FM/TV. KING-FM's Station Manager and Program Director Peter Newman checks in to clarify that the 50-kW KING-AM was actually sold for \$1.5 million. Peter also reports that, under the agreement, KIRO assumes the sales obligations of the FM station in exchange for a guaranteed monthly payment based on revenue and ratings. KING-FM has been donated to Beethoven, Inc., a new non-profit corporation owned by the Seattle Symphony, Seattle Opera, and Corporate Council for the Arts. What this agreement means, Peter explains, is that the station

will become a major fund-raising tool for Seattle classical music groups. He also points out that KING-FM is the only station in the country to operate under such an agreement, one which makes the station both commercial and non-profit. According to Arbitron, KING-FM is currently the highest-rated classical-format station in the United States, and in 1994 won for the second time the NAB's Marconi Award for "Best Classical Station."

**QSL:** Longtime reader David W. Westphalen, Registered Monitor KCO0CQ, checks in with some kind words about the column, and seeks to correspond with others who, like him, are "very active in all forms of radio, CB, SWL, scanners, ham, and broadcast band DX'ing." Those who wish to contact him, especially to swap QSLs, can reach him at 1530 E. Dixon Blvd. #1, Shelby, North Carolina 28152.

**In Brief:** CBS Radio Network took out a full-page ad in the January 24 issue of *USA Today* to advertise its second season of the "House of Blues Radio Hour," a national weekly program featuring rock and blues music by and interviews with artists such as Buddy Guy, Eric Clapton, Robert Cray, and ZZ Top. The ad includes a list of 99 stations carrying the show, among them Chicago's WLUP-FM, Anchorage's KNIK-FM (listed as "KINK-FM"), New York's WNEW-FM, and New Orleans' WRNO-FM, which was recently purchased by EZ Communications for \$7.5 million.

News-talk KMOX also took out a full-page ad in the February 5 issue of the *St.*

*Louis Post-Dispatch* to announce that former CNN reporter Charles Jaco will host a new, two-hour program called "News-Makers." Beginning February 6, from 2 p.m. to 4 p.m., weekdays, Jaco will offer "a unique perspective of local, national and international news and information."

A third duopoly has been formed in Orlando, Florida, with the sale of WHTQ-FM and WHOO-AM to Granum Communications, Inc., according to an article in the *Orlando Sentinel*, supplied by reader Finckbune, of Deland, Florida. New York-based Granum, which already owns WMMO-FM, purchased the two stations from TK Communications of Fort Lauderdale for \$11.5 million. At stake is the lucrative 25-to-54 group, and plans are to fine tune WHTQ's classic-rock format to make WMMO and WHTQ "more complementary than competitive," said Peter Ferrara, Granum's chief operating officer.

According to BIA Publications' *Investing in Radio 1995* report, Chicago's WGN-AM was the top-billing station in the country for 1994, with revenues of \$37.5 million. At least in the major markets, AM is still going strong—five of the top 10 stations listed were AMers, and the highest-ranked FM station was New York City's WKRR, at number five, with revenues of \$30 million.

**Thanks:** Want to see your name in lights? Okay, how about print? Then pass along news clippings, station and shack photos, QSLs, and bumper stickers. Until then, 73s. ■



# SATELLITE VIEW

BY DONALD E. DICKERSON, N9CUE

## INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

### The Wind

One of Goddard Space Flight Center's Mission-to-Planet Earth projects is the Wind satellite. Launched November 1994, the spacecraft is in position between the Sun and Earth. This satellite gives scientists a unique opportunity to study the enormous flow of energy and momentum known as solar wind.

The Wind spacecraft will be in position to measure the properties of the solar wind just before it collides with the Earth's magnetic field and atmosphere. The solar wind consists of electrically charged particles, mostly protons and electrons.

The collision of this material with the Earth, hurled from the Sun's corona, makes for dramatic global effects. One spectacular example is the production of the Northern and Southern lights, or auroras. Amateur radio operators using the VHF region and above are familiar with this effect. Experienced operators can reflect voice and CW signals off the charged curtain of light to make contacts with stations thousands of miles away—much farther than the usual line-of-site short range communications heard on VHF/UHF.

#### S-Band

2,000 -4,000 MHz (2 to 4 GHz)

#### NASA S-Band

2,000-2,300 MHz (2 to 2.3 GHz)

*This band is used for data and telemetry transmissions to and from space probes the shuttle, military satellites, etc.*

Solar winds or storms can be so strong that they disrupt electrical power systems, radio broadcasts, two-way radio transmissions, and can even disrupt spacecraft operation. Power outages are common; virtually every HF signal heard over a shortwave radio can simply disappear over a period of only a few minutes.

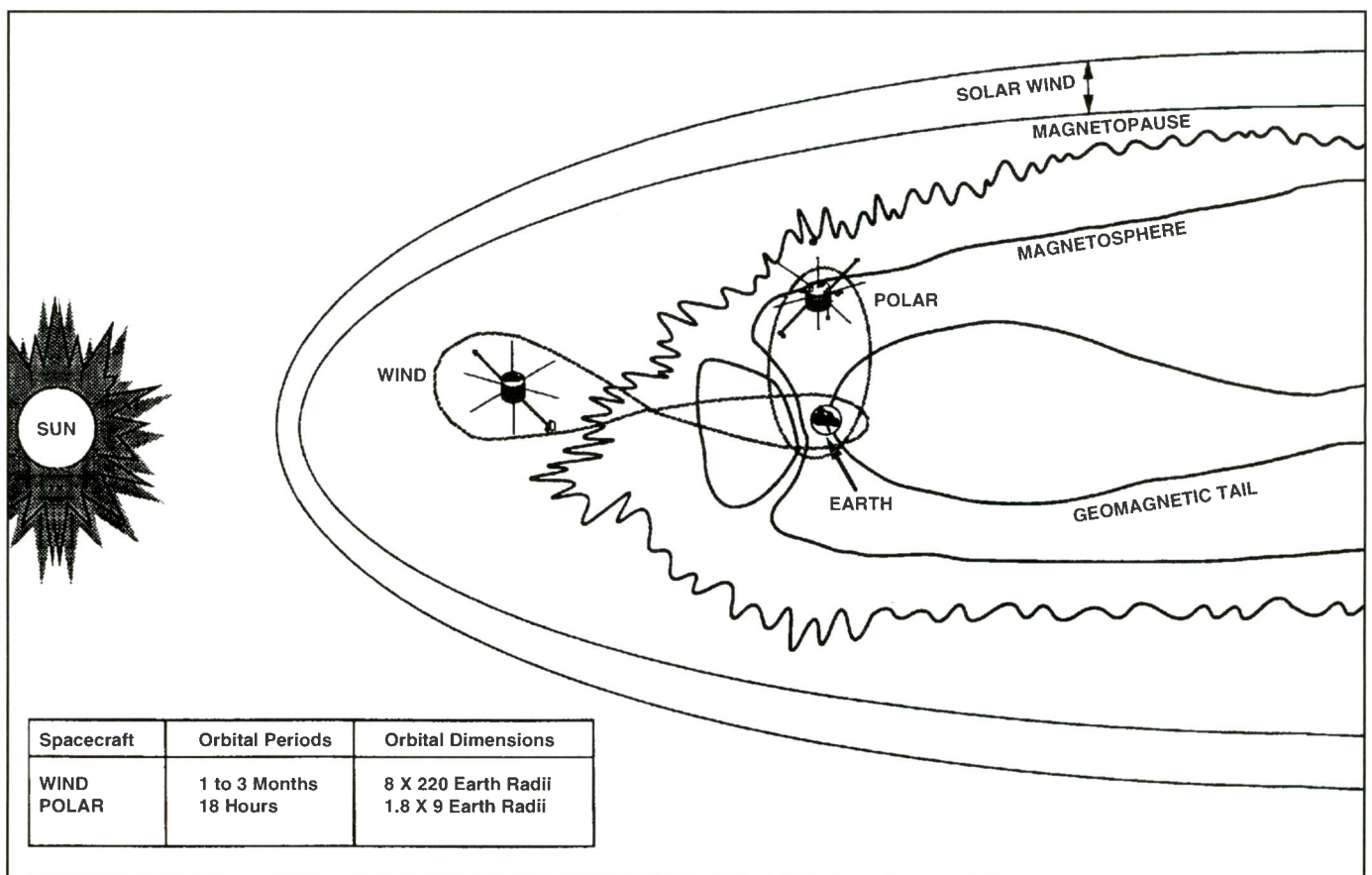
The mission's scientific goal is to measure the mass and momentum of energy speeding toward the Earth from the Sun. It is important to discover how this energy

affects the Earth and near Earth space so sophisticated satellites can be protected against adverse effects. The Air Force has a research program aimed at predicting space weather conditions. If they can be predicted, spacecraft damage due to solar storms can be avoided.

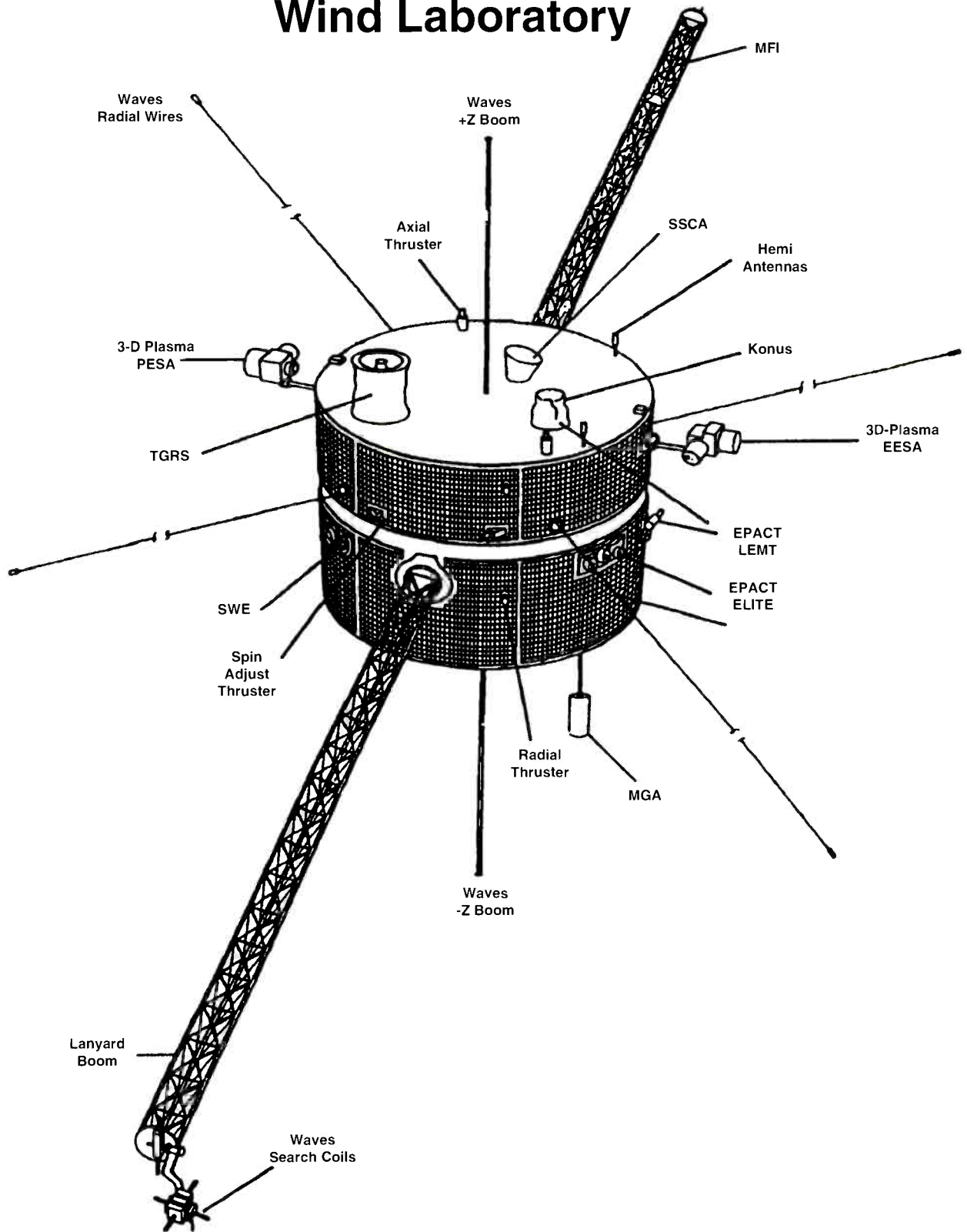
The Solar Wind approaches the Earth at a tremendous velocity. As its momentum compresses the outward extension of the Earth's magnetic field on the day side of the planet, supersonic shock waves are formed on the day side of the magnetosphere. This is known as bow shock because of its similarity to the wave at the bow of a moving ship.

The spacecraft will make a figure-eight orbit around the Earth with a perigee of 18,000 miles (29,000 km) and a apogee of 990,000 miles (1,600,000 km). The spacecraft will then take position upstream from the Earth in the solar wind, maintaining a distance of between 930,000 and 1,050,000 miles from Earth.

The spacecraft is a spin-stabilized, cylinder-shaped spacecraft measuring 7.87 feet in diameter and 5.91 feet in height. The



# Wind Laboratory





### Radio and Plasma Waves (Waves)

The Sun and Earth emit radio waves that affect particles in the interplanetary plasma and carry some of the energy flowing there. The Radio and Plasma Waves instrument measures the properties of these waves and other wave modes of the plasma over a very wide frequency range.

### Solar Wind Experiment (SWE)

SWE measures ions and electrons in the solar wind and the foreshock regions at a rate of once per minute for ions and 20 times per minute for electrons. Measurements made in the foreshock are important for understanding the structure of the bow shock. From these measurements, the solar-wind velocity, density, temperature, and heat flux can be deduced. Electron and ion velocity distributions should reveal properties of the flowing plasmas and their pivotal role in the transfer of mass, momentum, and energy from the Sun to the Earth. Because the solar wind is an extension of the corona from which it is accelerated, these measurements also assist in studies of the Sun.

### Magnetic Fields Investigation (MFI)

MFI investigates the structure, intensity, and fluctuations of the interplanetary magnetic field, which influences the transport of energy and the acceleration of particles in the solar wind. Magnetic field measurements from MFI are especially important to interpretation of other data from Wind.

### Energetic Particle Acceleration, Composition, and Transport (EPACT)

The EPACT investigation measures properties of high-energy ions in the solar wind. This direct sampling of solar matter studies events on the solar surface and the incorporation of solar material into the solar wind. Their distinctive high charge, solar-wind ions can be used as tracers for the transfer of flow particles from the solar wind into the magnetosphere. EPACT will also provide information on shock waves in the interplanetary medium.

### Three-Dimensional Plasma Analyzer (3-D Plasma)

This investigation measures ions and electrons with energies above that of the solar wind and into the energetic particle range. It studies particles upstream of the bow shock and in the foreshock region, as well as the transient particles emitted by the Sun during Solar particle events following solar flares. In addition, this instrument covers the energy gap between the SWE and EPACT instruments.

### Solar Mass Sensor (SMS)

This investigation determines the abundance, velocity, spectra, temperature, and thermal speeds of solar wind ions. The SMS instruments will enable the isotopes and many elements to be studied. These ion studies, along with the EPACT and other plasma investigations, will provide another analysis of the events on the solar surface. This investigation adds to the knowledge of how solar wind is formed and accelerated for the solar surface into the interplanetary medium.

### Transient Gamma Ray Spectrometer (TGRS)

TGRS observes transient gamma-ray events. It makes the first high-resolution spectroscopic survey of cosmic gamma-ray transients and measurements of gamma-ray lines in solar flares. The cause of the transient events, which occur at great distances from the Earth, represents one of the intriguing mysteries of present-day astrophysics.

### Gamma Ray Spectrometer (Konus)

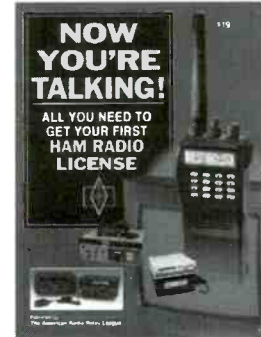
Konus performs gamma-ray burst studies similar to the TGRS studies, but at lower resolution with broader coverage. When their data are combined, they provide coverage of the full sky. Konus also performs event detection and measure time history. The Konus investigation is the first Russian instrument to fly on an American satellite.

It's time you found out...

What over 185,000 people already know.

**NOW YOU'RE TALKING!**

was written with you, the reader, in mind.



There's never been a more exciting time to get your Ham license. You can use Amateur Radio as a fun, friendly method of local communication, an invaluable tool in emergencies, or even experience the thrill of talking to Astronauts and Cosmonauts in orbit.

Whether you want to enter Amateur Radio as a Technician and choose to skip the code, or as a Novice licensee, *Now You're Talking* will provide you with the information you need in bite-size, easy-to-understand diagrams, photos and sketches, you'll be familiar with all the questions used to make up the FCC test... and you'll be ready for it.

In addition to study material that won't let you down, you'll find invaluable operating hints and tips you'll use once you pass your test. *Now You're Talking: All You Need to Get Your First Ham License* is the book you'll use even after you've passed your exam.

You can shop around for bargains, or you can join the thousands of licensed amateurs who have used *Now You're Talking* to pass their exam. Order your copy today:

Enclosed is \$19 plus \$4 for shipping (a total of \$23) or charge \$23 to my  
( ) VISA ( ) Mastercard  
( ) Discover ( ) American Express

For more Information Call  
1-800-326-3942

Signature \_\_\_\_\_

Acct. No. \_\_\_\_\_

Expiration Date \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

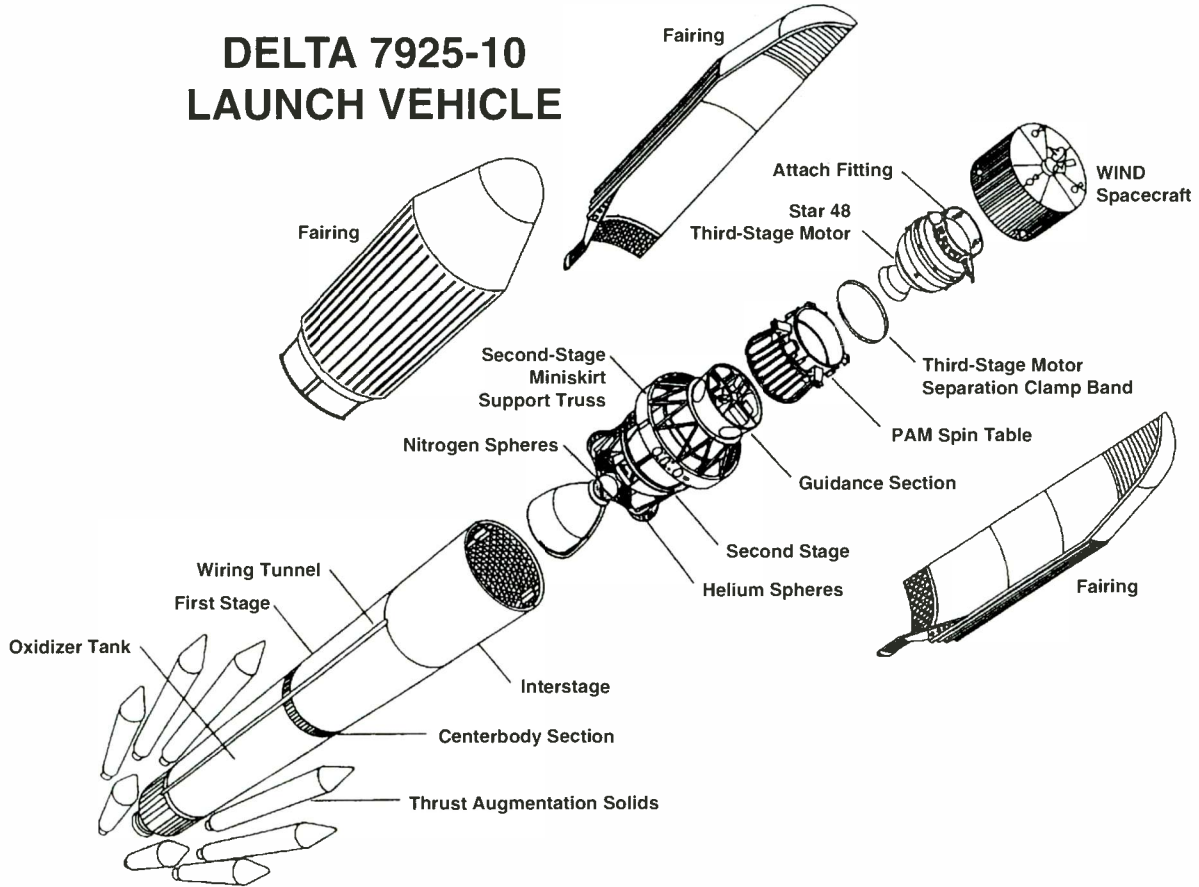
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

PC

**THE AMERICAN RADIO RELAY LEAGUE**  
225 MAIN STREET  
NEWINGTON, CT 06111

CIRCLE 51 ON READER SERVICE CARD

# DELTA 7925-10 LAUNCH VEHICLE



## *Timestep* The Weather Satellite System

Images available as often as every 4 minutes.

Full screen color animation of up to 1000 frames.

Direct temperature readout.

Latitude / Longitude and political boundaries.

Easy to use mouse operation.

3D Cloud images.

Automatic operation.



HRPT Image of southern Hudson Bay

If you want to see the world's weather right now from anywhere in the world, including the Americas, Europe, the Middle East, Japan and Australia, then we have a system for you. Watch local weather systems or track hurricanes and tropical storms. We can supply simple systems for beginners or advanced HRPT systems for enthusiasts. All component parts are available separately. Systems and satellites available include HRPT, WEFAX, APT, NOAA, Meteor, Okean, GOES, Meteosat and GMS. Color brochures available.

**Spectrum International Inc. PO Box 1084 Concord Mass. 01742 USA**  
Tel. (508) 263-2145 Fax. (508) 263-7008

Manufactured by: Timestep PO Box 2001 Newmarket CB8 8XB England  
Tel. 01440 820040 Fax. 01440 820281

spacecraft weighs 1,973 pounds and is designed to operate for three years.

Goddard Space Flight Center will provide command and control, command management, orbit and attitude computation, mission analysis, data capture and processing and science operations. The Jet Propulsion Laboratory's Deep Space Network will provide tracking command and data acquisition for the mission.

The ground segment of the project includes of the following facilities: JPL's Deep Space Network will use sites at Canberra, Australia; Madrid, Spain; and Gladstone, California. They will provide telemetry, tracking, and command (TT&C) communications between spacecraft and Goddard Space Flight Center using NASCOM (NASA's Communications network). JPL will require a minimum of two hours a day to transact TT&C. JPL will be using S-band frequencies for both uplink and downlink from the spacecraft.

The payload Operations Control Center at Goddard will be the focal point of all command and control operations associated with the spacecraft. This Control center will monitor spacecraft health and safety, operations and control, resource management and engineering data and analysis. Central data handling and remote data analysis facilities are also located at Goddard. See you next month. ■



## GETTING STARTED AS A RADIO AMATEUR

### Amateur Radio at the Special Olympics

**H**ams will help out next year at the Olympic Games in Atlanta, Georgia, but a comparable public service opportunity comes up in just a few weeks: The biggest sporting event in the world this year is the 1995 Special Olympics World Summer Games at the Yale Bowl in New Haven, Connecticut, and surrounding venues July 1 through 9. More than 700,000 spectators are expected; and there will be 7,000 Special Athletes from 140 countries, plus their coaches, families, friends, celebrities, VIPs, heads of state, other "honored guests," possibly President Bill Clinton and Vice President Al Gore, and 1500 media representatives. Organizers expect worldwide press and broadcast news coverage, and exciting special events, such as a Tall Ships celebration, enormous fireworks display, and more surprises.

Ham radio operators have been asked to participate in many phases of this extravaganza. I'm serving in the volunteer position of Amateur Radio Liaison to work with the Special Olympics Deputy Commissioner of Telecommunications (who happens to be a ham, Dr. Chuck Bruder, N3AGA) to arrange and coordinate ham participation. Here are the "Projects" planned for Amateur Radio:

- Message centers to originate and send free radiogram greeting messages from Special Athletes and the general public, who want to say hello from the Games to the folks back home.

- Special-event station W1SO (call sign courtesy of Bill Carpenter of Bristol, Connecticut) operated by local clubs and individual amateurs to make HF and VHF contacts with amateurs all over the world, commemorative QSL cards or certificates will be available.

- Communication assistance with bicycle races and other road events.

- Voice and ATV communication for sailing events.

- ARRL Connecticut Section ARES and Search-and-Report team members standing by in case emergency communication is needed.

- Back-up communication support to key locations during the Games, and help in any unexpected situations.

Because of security and the number of

people involved, the Special Olympics requires all 45,000 expected volunteers to be registered in advance so they can be issued necessary credentials and access passes. Although by the time you read this, there may not be time to get officially signed in as a volunteer. If you want to assist with any on-site activity, you're welcome to get in touch to see how you can help.

Helping me as Personnel Manager for Amateur Radio volunteers is Lance Seelbach, N1TAN. Get in touch with Lance at 58 S. Quaker Lane, West Hartford, CT 06119; 203-231-7244; e-mail n1tan@aol.com. He can direct you to the Project Manager for the area you want to help with, and he's keeping a data base of ham volunteers.

If you can't attend the Games in person, you can still participate. There will be plen-

ty of NTS radiogram traffic passed to almost every place in North America and elsewhere, and all hams are invited to contact W1SO on HF and VHF.

Spread the word anywhere there may be interest (word of mouth, telephone BBSs, packet radio, club newsletters, etc). "Share the Spirit" of the 1995 Special Olympics World Summer Games!

*For further information contact:*  
Brian Battles, WS10, Amateur Radio Liaison, 1995 Special Olympics World Games, c/o QST Magazine, 225 Main St, Newington, CT 06111; 203-666-1541, fax 203-665-7531; e-mail: bbattles@arrl.org; packet WS10@W1EDH.CT.-USA.NOAM (AX.25), ws10@ws1o-2.ampr.org (TCP/IP) ■

### Special Olympics on the Internet

#### Web Page

One of the hottest electronic communication developments is the Internet's World Wide Web (WWW), a means of browsing through on-line documents, artwork, and data files via a reasonably "friendly" graphical user interface.

Thanks to Paul Curtis, N1LNA, of Greenwich, Connecticut, anyone with Internet access to a Web browser (such as Mosaic, NetScape, etc) can keep up with information, announcements, and news updates regarding Amateur Radio support for the 1995 Special Olympics World Summer Games. There's even an on-line form you can fill out to be included in e-mail news updates or to get information on how you can assist as a volunteer at the site of the Games. The Uniform Resource Locator (URL) is "www.terrapin.com/hamradio".

Please give it a try and spread the word. If you have any questions, please contact Paul Curtis, N1LNA, pc Curtis@novell.terrapin.com

#### Mailing List

Although it's mainly useful for hams who expect to assist on-site at the Games,

anyone with a serious interest, suggestion or question may post messages to this list. Anything you send onto the list is "reflected" (i.e., widely distributed by being re-mailed as e-mail) to all current subscribers. Please keep that in mind, and only post items that may be of interest or importance to several or all subscribers; don't send one-to-one messages here—use direct e-mail for that.

**To subscribe, send mail to:**  
listserv@netcom.com

The subject line of your message is ignored. To subscribe, in body text, just enter: subscribe arrl-special-olympics

**To unsubscribe:**  
unsubscribe arrl-special-olympics

**To get more information:**  
help

Special thanks to Mike Ardai, N1IST, for setting this up; the list is sponsored by the Boston ARC. If you have questions, Mike can be reached at n1ist@netcom.com. For information on the Boston ARC, subscribe to barc-list.

# COMMUNICATIONS CONFIDENTIAL

## YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

To lead off, let's look at a note from Rick Baker, OH. "Lots of SAR traffic this month. The longest was when the Ukrainian cargo ship M/V Salvador Allende sank in the North Atlantic; sadly with the loss of 31 crew. A very intensive effort was made to locate and rescue the survivors from this ship involving the rescue aircraft from the Canadian Forces, U.S. Coast Guard, Air Force, Navy, Marine Corps, and Army. The Army Air National Guard used two HH-60G Pave Hawk helicopters from the 106th Rescue Group, NY, that were in the air for 14 straight hours and underwent ten aerial refuelings! But one of them did find and rescue one of the crew members. SAR comms were up and down the dial, especially noted on 2182, 2670, 5696, 5717, 8980, 8983, 9007, and 11202 kHz."

Items from the Navy News Service which were forwarded by Rick included: "The U.S. Navy Burke-class Aegis Guided Missile Destroyer USS Mitscher (DDG57) was commissioned in December 1994 at NAS Pensacola, FL.

"Naval Station Ingleside, TX, received its first Osprey-class coastal mine hunter, USS Heron (MHC 52). The ship's arrival increased the number of ships home ported at Ingleside to 15."

Jim Moody, OH, tells us he uses a Yaesu FRG-100 with a Alpha Delta Sloper antenna mounted a height of 4 meters.

First-time contributor, Chris Tiller, GA, writes, "Hello. I am almost 15 years old, have been a Ham since 1991, and I recently upgraded. My Dad bought me an ICOM IC-735, and I use a G5RU longwire. I aspire to be a pilot, therefore I am interested in their comms."

Other first-time contributors include Rick Summer, IL; Wes Linscott, ME; and Robert Pizzi, CA.

Wes indicated he uses a surplus R390A and has started logging CW markers of the various shore stations around the world. For the period of October through December 1994, he logged 102 different stations from 58 countries. He added a second receiver, the Radio Shack DX-390; and uses a 75-foot longwire with these receivers.

Robert tells us, "My shack is located on the central coast of California at an altitude of 4,000 feet above sea level. The equipment used is Kenwood R-5000, PC GOES/WEFAX from Software Systems Consulting, Packard Bell 486 computer, HP 4L Laserjet, and an eavesdropper antenna."

Kurt Mueller, Switzerland, plans to vacation at the same place he did last year, so he is anticipating again having the excellent noise-free reception at that site.

1995 USAF THUNDERBIRDS AIR DEMONSTRATION SCHEDULE			
<b>APRIL</b>		<b>AUGUST</b>	
1 SAT	EGLIN AFB, FL	5-6 SAT/SUN	CHICAGO, IL
2 SUN	PATRICK AFB, FL	12-13 SAT/SUN	MID-SEASON BREAK
8 SAT	LUKE AFB, AZ	19 SAT	HILL AFB, UT
9 SUN	VANDENBERG AFB, CA	20 SUN	BOZEMAN, MT
15-16 SAT/SUN	EASTER BREAK	26-27 SAT/SUN	FREDERICK, MD
22-23 SAT/SUN	LOVELAND, CO		
29-30 SAT/SUN	MCGHEE TYSON ANGB, TN		
<b>MAY</b>		<b>SEPTEMBER</b>	
6-7 SAT/SUN	FT LAUDERDALE, FL	3-4 SUN/MON	OFFUTT AFB, NE
13 SAT	RANDOLPH AFB, TX	9-10 SAT/SUN	TOLEDO, OH
14 SUN	REESE AFB, TX	16-17 SAT/SUN	ROSWELL, NM
20-21 SAT/SUN	ANDREWS AFB, MD	23-24 SAT/SUN	LIBERAL, KS
27-28 SAT/SUN	COLUMBIA, MO	30 SAT	SALINAS, CA
31 WED	USAF ACADEMY, CO		
<b>JUNE</b>		<b>OCTOBER</b>	
3 SAT	HOLLOMAN AFB, NM	1 SUN	SALINAS, CA
4 SUN	DURANGO, CO	7 SAT	LANGLEY AFB, VA
10-11 SAT/SUN	HANSCOM AFB, MA	8 SUN	CHARLESTON AFB, SC
14 WED	WHITEMAN AFB, MO	14-15 SAT/SUN	MARCH AFB, CA
17-18 SAT/SUN	HAMILTON, CANADA	21-22 SAT/SUN	EL PASO, TX
24-25 SAT/SUN	DAVENPORT, IA	25 WED	KEESLER AFB, MS
		28-29 SAT/SUN	NAS NEW ORLEANS, LA
<b>JULY</b>		<b>NOVEMBER</b>	
2-4 SUN/TUE	BATTLE CREEK, MI	4-5 SAT/SUN	DAYTONA BEACH, FL
8 SAT	GRAND FORKS AFB, ND	11-12 SAT/SUN	HOMESTEAD AFB, FL
9 SUN	ELLSWORTH AFB, SD		
15-16 SAT/SUN	SPRINGFIELD, IL		
22-23 SAT/SUN	NAS BRUNSWICK, ME		
26 WED	CHEYENNE, WY		
29-30 SAT/SUN	SCOTT AFB, IL		

Tom Severt, KS, notes he ran across a new form of scrambled speech. It is hard to describe, but it sounds as if you haven't tuned in the SSB signal correctly, no matter how you tune it. You can hear speech patterns in it, though, and I think the language might be Spanish as you can sometimes hear them rolling some syllables. Also, there have been quite a few sweep jammers, white noise, and other odd signals around lately. I found an odd sort of data transmission mode in the lower 3 MHz band on 3171, 3230, 3271 kHz, and others. If anyone can shed some light on these it would be appreciated."

Perry Crabill Jr., VA, continues to add to his beacon totals. "You will see that I have picked up another Cuban (UBY, 268 kHz), and another South American (CLO, 210 kHz, Colombia). The real DX, however, was IPA, 280 kHz, on Easter Island in the Pacific; that's 5,004 miles from this QTH, and almost twice my previous best DX. My NDB total is now 1,030; the RSM loop and the DSP-59+ filter allow me to continue to find new stations."

Wayne Rankin, CA, advises, "Marine band beacons are disappearing at an incredible rate in the Southern California area. Looks like the USCG is going to make

good on its decision to retire most beacons by the year 2000. Recently missing are 285, NE, Newport; 1294, SB, Santa Barbara; 296, LB, Long Beach; 308, CI, Channel Islands; 3198, RB, Redondo Beach; and 325, LA, Los Angeles Light."

Stan Forsman, CA, sends in the following for the indicated individuals:

For Al Hemmalin, RI—"His WWW with dash on 304 is probably W on 303 from Cape Whittle, Quebec, Canada, using DA3ID format."

For Gerald Brookman, AK—"His DY with dash on 351 is probably NY on 350 from Enderby, BC, Canada, using DAID format. His SRI on 398 is probably SRI on 399 from Saint George Island, AK."

For Bjorn Vaage, CA—"His LLJ on 397 is Challis, ID." Stan says he is still using an old RBL-5 and a 100-foot longwire.

A. Reader, TX, forwards this letter: "Some further information about the antenna photographs in the November 1994 column. The Antenna Products LPH-89's shown on page 70 are also nomenclatured AS-3482/GRC, and have been produced by other manufacturers. The 'unidentified' antenna in the next photo, page 74, appears just a few pages later in the Antenna Products catalog, and is apparently an ICV-



IV. ICV stands for Inverted Cone Vertical, and this seems to be the smallest version of the IV, which covers 4 to 30 MHz. Think of it as a discone mounted upside down. Both of these appear at many USAF facilities which have HF communications as-sets. Usually present also at these facilities are one or two conical monopoles by Hy-Gain or Antenna Products, but your correspondent may have missed these, or was unable to get photos.

Finally, the reports of the demise of Field Station Augsburg, Germany also pictured on page 74 have been greatly exaggerated. While the Air Force's AN/FLR-9(v) (correct terminology) at San Vito, Italy, and another at Clark AB, Philippines, have both been decommissioned and dismantled; the Army's Field Station Berlin is gone, and Augsburg is still in full operation with their mission only slightly modified."

Donald Wiekem, IL, sends in an article from the Sunday edition of Sterling, Illinois' *Daily Gazette*. The article concerned a "Mystery Tower" near Tampico, IL. I sent a copy to the article to Perry Crabill, Jr., VA, who, before retirement, was an engineer for C&P Telephone in Washington, DC, a local Bell System telephone service provider. Although he never worked for AT&T or Long Lines, he was exposed to technical information about the equipment and systems used by Long Lines, and was associated with them on joint projects for government communications. Some of these microwave systems were installed specifically to serve military bases and other large U.S. Government installations.

Here's what Perry had to say about the article: "The 'Mystery Tower' in the newspaper article you sent me appears to be one of the early microwave radio relay towers that AT&T's Long Lines Department built back in the early 1950s. The concrete construction shown was used for the TD-2 system operating between 3.7 and 4.2 GHz. It gave the structural rigidity required for the narrow-beam microwave antennas used, and was relatively inexpensive. These towers were spaced every 25 miles or more along the route, with line-of-sight transmission paths between adjacent stations.

The first coast-to-coast system of this type went into service in August, 1951. It provided six broadband radio channels about six MHz wide. Five of these radio channels were used for service; the sixth was a spare which could be automatically be switched to replace any of the working channels if needed because of microwave fading or equipment failure. Each 6 MHz channel could carry one television program or be multiplexed with L-carrier to provide 600 voice channels. A TD-2 system fully loaded with voice multiplex equipment could carry 3,000 message channels.

Normally the microwave equipment operated from batteries that floated on commercial power, and provided uninterrupted operation in the event of power failure.

Closure of MARS station AGA7BI, Bitburg AB, Germany.



Eifel Amateur Radio Club - DAIBT

Bachstrasse 23 • D-54657 Neidenbach • Germany • Ph. 06563-8405 • CompuServe 100115.1164

Don Schimmel  
c/o CQ Communications  
76 North Broadway  
Hicksville, NY 11801-2953 USA

Reference: Communications Confidential, *Popular Communications*, Feb 94, page 61

We were happy to see our MARS station's QSL card (AGA7BI) displayed in the above referenced article. I feel it is important for your readers to know a few facts about the station. Especially since the station has since been forced to close, now entering into the history of what was. When Bitburg Air Base, Germany was announced for closure, we knew that an end of an era was coming. Bitburg Air Force, Germany officially closed 30 Sep 94 as part of the reductions imposed on the military. The services that this MARS station provided will be missed.

I was the station's custodian for a number of years, up to the end. It was supported by both military and affiliate MARS operators. Many hours were donated by the operators, providing morale and welfare messages and phone-patches to friends and family throughout the States. During Operation Desert Storm, hundreds of morale and welfare messages to and from specific locations were relayed. Base Support Team members provided communication support for three aircraft mishaps. Many stories of joy could easily be discussed, however, there is not enough space here to adequately tell them now. Placing loved ones in touch with each other and relaying their messages made the long hours worth it.

The station equipment configuration consisted of three separate transceiver locations, remoted to a single operation site (building 300). Each site was located about one mile apart for survivability. Also, the operation site had a back-up transceiver and ten kilowatt generator. Military radio equipment used were: HF transceiver, RT-1446/URC (RF-350), HF amplifier, AM-7223/URC (RF-355), antenna coupler, CU-2310/URC (RF-351), and remote control, C-11329/URC (RF-342). Commercial equipment used were the Kenwood TS-930s and TL-922. We used several inverted-L antennas and one log periodic (Hy-Gain LP-1007) beam mounted atop a 100 foot tower.

We are thankful for the assistance and for the operating space that was provided by base organizations. Thanks also to personnel of the 36 Communications Squadron for the daily operation and maintenance support they provided. Without their continued support, the MARS station would not have existed. Questions and comments or requests for QSL's can be sent directly to me.

Sincerely,

Daniel V. Wolff, Jr.  
President, EARC  
DA1DW, KA7AGN,  
ex-AFA7DW, ex-AFF7C

Closure of MARS station AGA7BI, Bitburg AB, Germany.

Each location had standby generators, usually Diesel, with autostart to keep the batteries from running down. Intermediate relay stations were unnamed, with elaborate alarm systems connected to manned terminal hub stations to monitor operation.

The system originally used square shielded lens antennas different from those shown in the picture. These were suitable only for the 3.7 to 4.2 GHz range, and were replaced with the newer horn reflector antennas shown on top of these routes later for additional capacity. Horn reflectors also allowed the addition of 10.7 to 11.7 GHz when further channel capacity was needed.

At some point in the proliferation of AT&T microwave systems, the newer stations used steel towers for antennas support instead of concrete; my notion is that this was fairly early on. I understand in recent years the use of terrestrial microwave has been greatly reduced because of the use of satellite facilities and fiber optic systems for long-haul traffic."

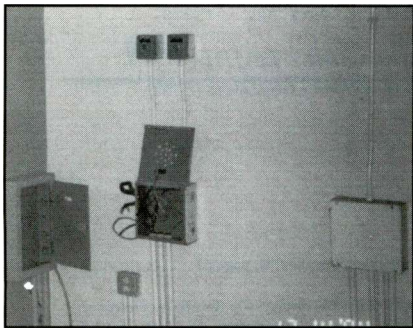
Our thanks to Perry Crabill for these de-

tails concerning the "Mystery Tower."

An unknown contributor sent us a copy of Signet, a newsletter put out by the Black Cat Aviation Group, 19 Crescent Road, Hustanton, Norfolk, England, PE36 5BU. Although primarily concerned with UK and European military aviation, there were also loggings and/or information of U.S. Army, Air Force, and Navy units. For further details write the above address.

Another extremely interesting newsletter has crossed my desk—issue six of the ENIGMA (European Numbers Information Gathering and Monitoring Association) newsletter. It contained a statement that 4XZ located in Haifa, a supposed Israeli Naval Station, may not be what it claims. Rather, it's suspected of being a station that transmits Mossad CW broadcast traffic.

The list of frequencies which accompanied the details about 4XZ showed 2800, 4241, 4331, 6379, 8012, 8437, 10046, 12984, 13509, 14545, 15733, 16495, 17050, and 23503 kHz. A look at Ferrell's CFL (eighth edition) shows some additional frequencies in use by this activity.



*Underground "office" showing some of the conduits.*



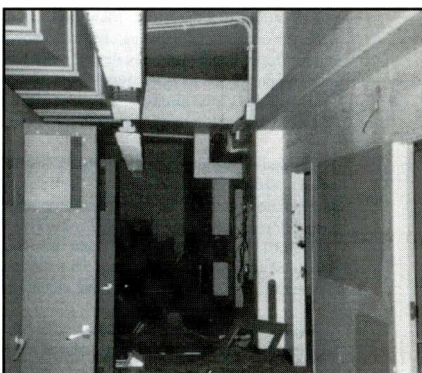
*Massive door from underground bay to internal ramp running up to the maintenance bay.*



*Tranmitter/Receiver (?) room with racks and shells of equipment.*



*Antenna switching console in underground bay. Computer (?) racks can be seen in background.*



*Row of offices behind the backs of computer racks shown in photo to left.*



*Stairway from ground level offices and checkpoint down to underground bay.*

The NR..., which appears as part of the message header, actually represents the group count but with digits reversed. Thus, NR32 would signify a group count of 23 groups. "This is very much like the format used for Nancy Adam Susan transmissions. Probably indicates Hebrew or Arabic targets as their numbers are reversed."

The ENIGMA Newsletter also had an interesting section which described HFSLM transmissions. I noticed they continue to call these signals SLB's (Beacons). This newsletter is very informative, but unfortunately it is not available for U.S. subscriptions. However, as I receive pertinent extracts from the newsletter, the information will be carried in this column.

Bruce Rossi, AZ, sends details of his follow-up visit to the Lida Junction 'mystery' installation. (See this column in the June 1994 POP'COMM.)

"Three amateur radio friends and myself participated. One operated his HF amateur station from his home in Yuma, while two others and I traveled to the site in my pickup, each of us equipped with 2 meter handhelds. I had my Yaesu 757 HF transceiver with a Hustler whip antenna for HF operation from my mini 4x4 pickup.

"We left Yuma on a Monday, and arrived at the site on Wednesday having stayed Monday night in Las Vegas, Tuesday night

in Beatty. We drove into the site Wednesday being sure not to pass any warning signs. All was as I left it last summer. No tire tracks or any sign of activity.

"After our daily commo check with Yuma, two of us were dropped off at the site with a flash camera, our 2 meter radios, and flashlights. The third man drove off a mile back from the building outside of the antenna farm, maintaining HF contact with Yuma, and contact with us on 2 meters. We entered the building through an unlocked man-way cover for what appeared to be the coaxial conduits into the lower level. Noticing we lost radio contact as soon as we entered the building, we exited and informed the truck of the lost commo situation. We gave an action time for us and re-entered the building.

The building (see accompanying photos) had three levels: the top—storage areas with warehousing shelves; the second (ground)—maintenance shop, offices, and living quarters; the bottom (underground)—massive open bay with side rooms for the transmitter and operations offices.

On the windowless ground level, the personnel door entered into two large offices and a waiting room. A hallway ran to the dorm-type rooms and common kitchen and bathroom facilities. What looked to be

a guard checkpoint into a double security door behind the two offices led into a short hall and the stairwell into the below ground open bay. Another hallway went from the two offices to the maintenance bay. The mentioned massive blast door (June 1994 POP'COMM) went directly into the maintenance bay from the outside.

In my judgment, the facility operations had its emphasis—and thus indeed its mission—on communications reception, processing, and transmitting. It had a main frame computer (punch cards were strewn all over the place) and appeared to accommodate teletype equipment in the open bay, considering the spacing of the cable channels in the floor. The one table remaining in the building was an antenna switching console with diagrams of the antenna farm on it. The shells for the transmitter and radio receivers were in a separate room and appeared to be small scale, maybe less than 54 kW. Each of the five offices had involved exposed multiple conduits and switching boxes. The entire underground area could be isolated and normally accessed only through massive doors onto an internal ramp to the maintenance area above ground, and security doors above a stairway to the offices and living areas above ground.

"We left the building and called the man





Logo of the 36th Communications Squadron. They provided the operational and maintenance support for MARS A7ABGI.

in the truck to come and pick us up. We told him what we had seen and on our drive back to the highway, we gave our Yuma colleague a run down on the visit.

"We drove straight to Las Vegas, over-nighted there, and departed Thursday, arriving back in Yuma Friday morning."

Thanks so much Bruce for your interesting description of the return visit to the "mystery" site. If any readers can identify this installation, we would like to hear from you.

**UTE Loggings SSB/CW/RTTY/SITOR/etc. All Times in UTC.**

- 183.5: Lower PLI, WA6MPG, Burbank, CA. (WR)
- 200: Beacon UAB, Anaheim Lake, BC, Canada at 1015. (SF)
- 201: Beacon MNN, Marion, OH at 0555. DSB. (PC)
- 202: Beacon NSI, San Nicholas Island OLF, CA at 0407. (BV)
- 204: Beacon RMD, McDermitt, OR at 1018. (SF)
- 206: Beacon GLS, Galveston, TX at 1004. (JO)
- 209: Beacon GDW, Gladwin, MI at 0305; Beacon IB, Atikokan, Ont., Canada at 0143. (RH)
- 210: Beacon CLO, Cali, Colombia at 0600. 100 Hz; 2472 miles. (PC)
- 212: Beacon OVE, Oroville, CA at 0916. (SF)
- 216: Beacon ME, Matane, PQ, Canada at 0654; Beacon YFA, Ft. Albany, Ont., Canada at 0925. (AH)
- 223: Beacon YKA, Kamloops, BC, Canada at 0958. (SF)
- 233: Beacon CNH, Claremont, NH at 0657; Beacon PPK, Palisades, (La Guardia), NJ at 1829; Beacon UM, Church Falls, Nfld., Canada at 0652. (AH)
- 237: Beacon EZF, Fredericksburg, VA at 0821. (JO)
- 239: Beacon TCU, Tecumseh, MI at 1605; Beacon VO, Val-d'Or, PQ, Canada at 0343. (RH)
- 242: Beacon OZW, Howell, MI (Livingston Co.) w/automated voice wx. Hrd at 2249. (RH)
- 249: Beacon JC, San Jose, CA at 0830. (SF)
- 250: Beacon YMH, Marys Harbour, Nfld., Canada at 0444. (RH)
- 254: Beacon GS, Greensboro, NC at 0531. DSB. (PC)

- 257: Beacon ETC, Tarboro, NC at 0640. New. DSB. (PC)
- 260: Beacon TOY, Tongoy, Chile at 0755. 4960m; Beacon YAR, Yaritagua, Venezuela at 0903. 2177m. (AH)
- 263: Beacon GR, Grand Rapids, MI at 0205; Beacon YGK, Kingston, Ont., Canada at 0314. (RH); Beacon LQL, Willoughby, OH at 0615. DSB. (PC)266; Beacon FA, Fresno Air Terminal, CA at 0604. (BV)
- 268: Beacon UBY, Bayamo, Cuba at 0632. 1300 miles. (PC)
- 269: Beacon FN, Flint, MI (Bishop) at 0308; Beacon TIL, Tiffin, OH at 2136. (RH)
- 272: Beacon YQA, Muskoka, Ont., Canada at 0548. (JO)
- 275: Beacon R1, Thetford Mines, PQ, Canada at 0715. (AH)
- 278: Beacon ADG, Ardian, MI at 0217; Beacon NM, Matagami, PQ, Canada at 0240. (RH)
- 279: Beacon QZL, Oneonta, NY at 0324. DSB. (PC)
- 280: Beacon IPA, Isla de Pascua (Easter Island), owned by Chile. Hrd at 0704. 5335 miles. (AH) Also hrd by Crabill, 5004 miles, hrd at 0740. DSB.
- 282: Beacon GWF, Lancaster Fox Field, CA at 0609. (BV)
- 283: Beacon UZG, Zaragoza, Cuba at 0540. 1428m. (AH)

**Abbreviations Used For Intercepts**

AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identification/led/location
LSB	Lower Sideband mode
OM	Male operator
PP	Portuguese
SS	Spanish
tfc	Traffic
USB	Upper Sideband mode
w/	With
wx	Weather report/forecast
YL	Female operator
4F	4-figure coded groups (i.e. 5739)
5F	5-figure coded groups
5L	5-letter coded groups (i.e. IGRXJ)

Save on **ALL** **Radio Shack** Scanners & Radios WITH MANUFACTURERS WARRANTY IN U.S. (copy available on req.)

**3 WAYS TO SAVE**

**1 FREE**  
SHIPPING & HANDLING  
48 STATES

**2 BIG**  
PRICE REDUCTION

**3 NO TAX**  
COLLECTED  
49 STATES

440 MHz FM Ham Trans.

~~\$300~~ **\$259**

True FM - superior clarity.  
12 VDC jack - 5 watt output  
CTSS encoder, DTMF dialer.  
Multifunction scanning, A/C charger.  
Hi-capacity NI-CAD battery pak.

2-meter FM HAM Trans.

~~\$260~~ **\$225**



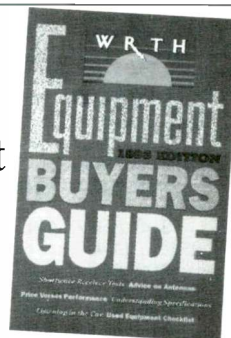
**CALL 1-800-433-SAVE** 9-5 Central Mon.-Fri.  
FREE: Since 1981

The Difference Is The Price

**USRADIO**

USRadio 377 Plaza, Granbury, Tx. 76048

**1995 WRTH Equipment Buyer's Guide**



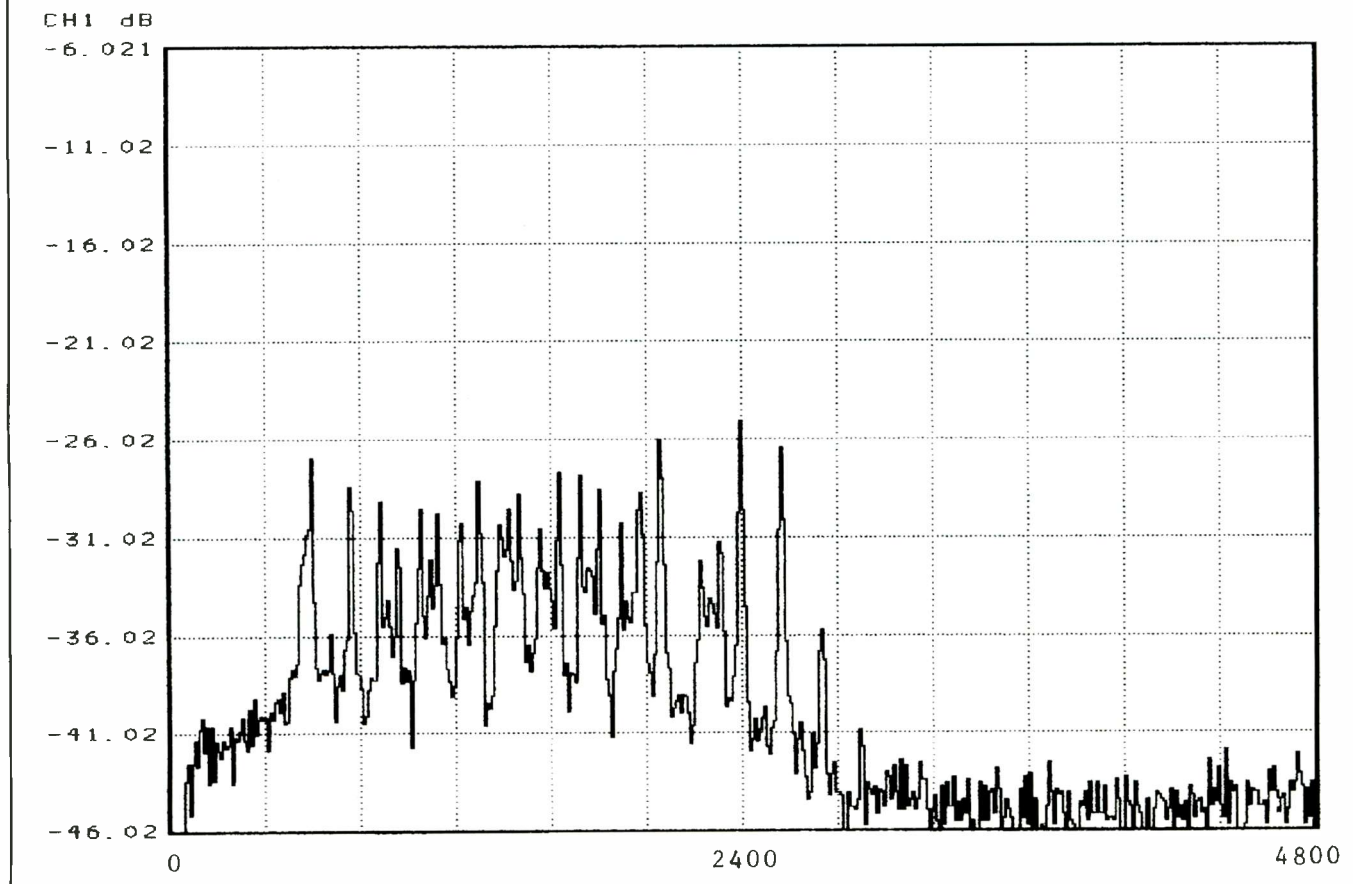
Your #1 source for advice on what to buy in equipment and accessories for SWL'ing. Objective reviews and equipment evaluations make this new volume a must for all SWL's. WRTHBG95 ©1995 **\$24.95**  
Shipping \$4 USmail \$7 Foreign

**Free** 24 page catalog jam-packed with books for SWL's CB'ers, scanner buffs and Radio Amateurs. Send for your free copy today!

**Radio Bookstore**

MasterCard PO Box 209 Rindge, NH 03461 AMERICAN EXPRESS  
VISA **(800) 457-7373**

## SPECTRUM ANALYZER CH 1



Kevin Tubbs, VT, reported this signal as USB on 4306 kHz, VFT-f15a.

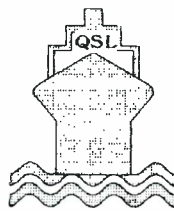
**284:** Beacon UYF, London, OH at 0133. (RH)  
**287:** Beacon SMR, Santa Marta, Columbia at 0841. 2117m. (AH)  
**291:** Beacon 9Q, Amos, PQ, Canada at 0723. Beacon NP, Nobska Point, MA at 0810. (AH)  
**294:** Beacon ZIP, Zipaquira, Colombia at 0818. My first SA beacon. (JO)  
**296:** Beacon LGD, La Grande Muni, OR at 0629. (BV)  
**300:** Beacon ABL, Ambalema, Colombia at 0757. 2562m. (AH)  
**302:** Beacon L, Point Loma Light Station near San Diego, CA at 0414. (BV)  
**303:** Beacon MRT, Marysville, Union County, OH at 0227. Morse code ID & automated voice wx. Ex-263 kHz. (JM)  
**305:** Beacon RO, Rosewell, NM at 0535. DSB; 1513m. (PC)  
**306:** Beacon HI, Hatteras Inlet, NC at 0550. MCNT; new freq., ex-309. (PC)  
**307:** Beacon R, Snug Harbor, Ont., Canada at 1010. (JO)  
**308:** Beacon MC, Mason City, IA at 0622. DSB. (PC)  
**311:** Beacon MVI, Monte Vista Muni, CO at 0637. (BV)  
**318:** Beacon: SSB, San Sebastian, Venezuela at 0126. 2198 miles. (AH)  
**320:** Beacon YTC, Itacoatiara, Brazil at 0745. 3189m. (AH)  
**326:** Beacon DC, Princeton, BC, Canada at 0416. (BV)  
**327:** Beacon FXC, Cayenne, French Guiana. 2973m. Hrd at 0855. (AH)  
**329:** Beacon AMN, Alma, MI at 2143. (RH); Beacon YHN, Hornepayne, Ont., Canada at 0944. (JO)  
**330:** Beacon BH, Bar Harbor, ME at 0932; Beacon CZM, Cozumel, Mexico at 0829. (AH)

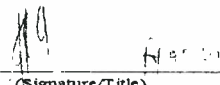
**332:** Beacon YFM, La Grange 4, PQ, Canada at 0940; Beacon QT, Thunder Bay, Ont., Canada at 2039. (JO)  
**333:** Beacon STI, Mountain Home, ID at 1058. (SF)  
**335:** Beacon RWN, Winimac, IN at 1401; Beacon YLD, Chapleau, Ont., Canada at 0237. (RH)  
**336:** Beacon MCZ, Williamston, NC at 0053. (JO)  
**338:** Beacon PBT, Red Bluff Muni, CA at 0645. (BV)  
**340:** Beacon YY, Mont Joli, PQ, Canada at 0244. (RH)  
**344:** Beacon FCH, Fresno, CA at 1055; Beacon XX, Abbotsford, BC, Canada at 1055. (SF)  
**346:** Beacon EMV, Emporia, VA at 1250. (JO)  
**347:** Beacon ANQ, Angola, IN at 0348; Beacon YG, Charlottetown, PEI, Canada at 1115. (RH)  
**351:** Beacon NO, Reno Cannon Int'l, NV at 0658. (BV)  
**353:** Beacon HOT, Higuerote, Venezuela at 0720. 217m; Beacon UHG, Holguin, Cuba at 0221. 1465m. (AH)  
**356:** Beacon TIM, Georgetown, Guyana at 0223. 2550m. (AH); Beacon MBV, South Hill, VA at 2358. (JO); Beacon UUV, Sullivan, MO at 0647. DSB, new. (PC)  
**360:** Beacon BFI, Beef Island, Virgin Islands at 0938, 1640m; Beacon KIN, Kingston, Jamaica at 0718, 1662m; Beacon PI, St. Petersburg, FL at 1040, 1136m. (AH)  
**370:** Beacon PAI, Paoima Barton Heliport, CA at 0419. (BV); Beacon UCM, Camaguey, Cuba at 0927, 144m; Beacon VVC, Villavicencio, Colombia at 0755, 2592m. (AH)  
**371:** Beacon TVY, Tooele, UT at 1042. (SF)  
**373:** Beacon 2R, Tyendinaga Mohawk, Ont., Canada at 0850. (JO)  
**374:** Beacon LV, Livermore, CA at 1038. (SF)  
**375:** Beacon 7B, St. Thomas, Ont., Canada at

0352; Beacon USE, Wauseon, OH at 1156. (RH)  
**378:** Beacon CPM, Compton, CA at 0419. (BV)  
**379:** Beacon CM, Channel Head, Nfld., Canada at 0348. (RH)  
**380:** Beacon COL, Barra Del Colorado, Costa Rica at 0723, 2247m; Beacon UCY, Cayojabo, Cuba at 0608, 1455m. (AH)  
**382:** Beacon IRS, Sturgis (Kirsch), MI at 2057. (RH); Beacon XGV, Fadgette, AL at 0652. DSB. (PC)  
**385:** Beacon MR, Monterey, CA at 0934. (SF)  
**391:** Beacon EBY, Neah Bay, WA at 1015. (SF)  
**392:** Beacon CLY, Worcester, MA at 0932; Beacon VEP, Vero Beach, FL at 0628. (AH)  
**395:** Beacon CWV, Claxton, GA at 0752. DSB, new freq., ex-215 kHz. (PC); Beacon XEN, Xenia, OH at 0343. (RH)  
**397:** Beacon SB, San Bernardino Norton AFB, CA at 0421. (BV)  
**400:** Beacon HU, Sacramento, CA at 1013. (SF); Beacon RO, Rochester, NY at 0520. DSB. (PC); Beacon SWL, Wooster, OH., at 2134. (RH); Beacon BGA, Bucaramanga, Colombia, 2397m; Beacon HIV, Santo Domingo, Dominican Republic, 1599m; Beacon R, Cochabamba, Bolivia, 408m; Beacon TRU, Trujillo, Peru at 0924, 2464m. (AH)  
**403:** Beacon 2X, Hope Brook Mines, Nfld., Canada at 0541, 400 Hz, new. (PC); Beacon MOG, Montague, CA at 0930, ex-382 kHz. (SF)  
**404:** Beacon LVV, Delevan, WI at 0200. (RH)  
**407:** Beacon LET, Leticia, Colombia at 0730, 3160m. (AH)  
**411:** Beacon RD, Redmond, OR at 0925. (SF)  
**412:** Beacon MTU, Mitu, Colombia at 0912, 2793m. (AH); Beacon CTZ, Clinton, NC at 0749. (JO)  
**413:** Beacon YHD, Dryden, Ont., Canada at 0203. (RH)  
**414:** Beacon LYI, Libby Great Falls, MT at 0426. (BV)



To: Radio AA4JN - This confirms your reception of radio transmissions from the vessel



Date: 21 Sept 1994 Time(UTC): 1412 Freq: 12480.5 kHz Mode: SITOR-A  
Approx. location (QTH): 08N - 045W  
Voyage from/to: SEPETIMA, BRAZIL to SPANCROW IT, MALTIM Xmr Power: 250 W  
Vessel type: BULK CARRIER Antenna: VERTICAL ENTR ATACH  
Remarks: RECEPTION OF XMISSIONS:  
SENDING MESSAGE VIA  
MARITIME DIS- STATION PANAMA.  
  
(Signature/Title)

Jim Navary, VA, heard this ship, then learned there had been a fire on board two months later which claimed the ship's Radio Officer's life. "The timing really makes this macabre in that my card was postmarked three days after his death."

- 416: Beacon BKL, Cleveland, OH at 0236. (RH)
- 419: Beacon RYS, Grosse, Ile, MI at 0921. (JO)
- 430: Beacon LML, Lomalinda, Colombia at 0950.
- 2644m; Beacon VA, Varadero, Cuba at 1001, 1412m. (AH)
- 435: Beacon ILY, Washington, GA 0647. (JO)
- 445: HPP, Panama IntelMar Coastal radio in CW at 0105 sending msg re reported distress signal on 121.5 MHz. Req all ships maintain lookout for possible source. At 0110, sent t/c list. (JO)
- 454: C4JM, M/V Tarpon Sealane in CW at 0138 wkg WLO, Mobile, AL w/AMVER msg. (JN)
- 478: WNU, Slidell, LA in CW at 0430 w/maritime wx. (B)
- 500: ZBM, Bermuda Harbor rdo in CQ at 0119 w/"QSW 476 Khz". At 0125 on 476 kHz xmtng navig wrngs & wx. (JN)
- 518: NAVTEX test from Tofino CG rdo, Canada, callsign VAE. Station identifier is letter H. Marine forecast is sent at 0110 and 1310 UTC. High Seas forecast sent at 0510 and 1710 UTC. Comments welcomed re new service. Address is: "PO Box 345, UCLUELET, BC, Canada, VOR 3A0. Phone (604) 726-4623 or FAX (604) 729-7019" (WR)
- 520: Beacon IQS, Sallisaw, OK at 0520. DSB, new freq., ex-239 kHz. (PC)
- 521: Beacon INE, Missoula, MT at 1105. (SF)
- 1635: FFU, Brest, France at 0437 in USB wkg LAFU2 (on 2048 kHz) after being hailed on 2182 kHz for R/T t/c. (RB)
- 1752: EJK, Valentia, Ireland in USB at 0636 w/Navig wrngs. (JN)
- 2020: CG2959, Leonard J. Cowley, Canadian Fisheries vessel wrkg M/T Imperial Acadia/VGFP at 0506 in USB. (JN)
- 2056: WLO, Mobile, AL in CW at 0415 w/maritime wx. (B)
- 2147: KIL784, Belle Chasse Louisiana LTD Coast wkg Seminole Chief, Seminole Princess, Seminole Brave, Seminole Warrior and others river towboats. USB. (JN)
- 2182: USCG Cape Hatteras Group w/PAN PAN notice of 40 year old man reported overboard from Queen Elizabeth 2. Hrd at 1037 in USB. (JN); DAN, Norddeich, Germany w/MAYDAY relay re M/V Linito (LART4); vessel in distress & immediate assistance is requested.; PBK, Netherlands CG w/navig wrng re drifting bulkcarrier Linito in the Waddenze. USB at 2302; U/i vessel clg Yarmouth CG re oilrig in distress about 13 miles off English coast. MAYDAY relay fm Ukrainian M/V Salvador Allende, UWAG, whose crew has abandoned ship. (RB)
- 2338: FQV, Swedish Navy. RTTY 50B. Coded msg signed by Frida Frida. Hrd at 2338. (AB)
- 2678: USCG Great Lakes icebreaker USCGC Mackinaw (WAGB-83), NRKP, at 0620 in USB clg Grp Sault Ste. Marie, NOG, no joy. (RB); USCG group May-

- port in SCB wkg USCGC Confidence. Advised that alarm on 2182 kHz was MAYDAY relay from St. John's CG Radio for Vsl Salvador Allende, abandoned w/32 POB (4 life rafts). (JN)
- 2716: SAB, Goteborg Radio, Sweden in ARQ 100 w/ererer + call for selcal FMVU at 2312. (AB)
- 2887: New York at 0148 in USB wkg Leisure World 382, Air France 031 w/positions. (RB)
- 2893: MTO, Rosyth, Scotland in RTTY 75/850 at 0130 w/rptng naval cryptic msg. (B)
- 2953: YL w/Victor Lima Bravo 2 at 2145. Also 4665/6745 kHz. Mossad. (SM)
- 3024.4: USCG Cutter Seneca (WMEC-906) in USB at 0227 w/SAR comms. (TS)
- 3090: SLHFM "L" in CW at 2105. (AB)
- 3195: SLHFM "R" in CW at 0133. (AB)
- 3228: Romeo Delta in USB at 2200 w/nbr msg for '457', 110 Gruppen. (AB)
- 3245: U/i CW stn at 0415 w/cut nbrs & SK at 0419. (B)
- 3268: DCVE, M/V Herm Schepers dropped anchor in Gulf of Rosas due windforce 12. ARQ 100 at 0124. (AB)
- 3280: OLX, Prague in USB at 0259 w/YL-Czech 5F# msg. //w 5301 kHz. Also on at 0400. (TS)
- 3292: YL/SS in AM w/5F# msg at 0500. (TS)
- 3308: HEP, Interpol Zurich, Switzerland in CW at 0010 w/VVV DE HEP mkr. (AB)
- 3335: Scrambled speech here in USB at 0205 w/sweep jammer in background. (TS)
- 3390: MGJ, Navy Faslane. Availability msgs. This is not Glasgow. This is the submarine base in Faslane about 65 km NW of Glasgow. RTTY 75B. Hrd at 0036. (AB)
- 3450: At 2300 YL/GG w/697 Strich zero zero and off. (SM)
- 3455: Speedbird 292 (747) MIA-LGW at 0126 wrkg unknown stn. (CT)
- 3485: This is Aviation Weather New York. Then gave wx for Miami, NASA, Tampa Bay, North Palm Beach and Atlanta. Then signed off. Hrd at 0548. (NN)
- 3494: United 916 (747) Dulles-FRA at 0159 w/selcal JEQS on NY ARINC. (CT)
- 3627: JMS, Prob RR Diplo in RTTY 75/500 at 2235 w/cipher t/c. (B)
- 3728: DK2TB at 1541, DK8MC at 1653, and DF9NW at 1653. These Amateur stns sending SSTV color pictures in MARTIN-1. SSTV/135. (AB)
- 4002: YRR2, Meteo, Romania in RTTY 50/425 at 0130 w/wx. (B)
- 4014: 5ST, Antananarivo, Madagascar (ASEC-NA) in ARQ-E3 48/340 at 0045. (PS)
- 4028: YL/SS rptng "Atencion 94976" & 5F# msg in AM at 0501. (TS)
- 4029: "Atencion 69655" then 146 grps & ends w/3 finals. (TM)
- 4146: Hollywood Marine, Houston, "KDL Hou-

- ston", wkg various Hollywood Marine towboats in USB at 0413. (RB)
- 4234: Fort de France Naval, Martinique w/FUF VVV mkr in CW at 0156. (SW)
- 4263: ZLO, Irirangi Naval, New Zealand in CW at 1221 w/mkr. (WR)
- 4270: YL w/Papa Charlie Delta and into 5L grps at 2030. In background was OFJ, Helsinki, Finland. (SM)
- 4297.1: HWN, Paris Naval, France in RTTY 75/850 at 0722 w/WY's and SG's. (PS)
- 4340: WLO, Mobile, AL in FEC at 0635 w/wx. (TS)
- 4423.5: XFM, Manzanillo, Mexico in CW at 0644 w/mkr. (PS)
- 4463: YL/EE w/Foxtrot Tango Juliet callup in AM at 0502. Parallel xmsn on 4880 kHz. Mossad. (PS)
- 4470: YL/EE counting stn w/3-2F msgs here every night in AM at 0100. (TS)
- 4495: Strong AM carrier here at 0301. At 0315, YL/EE rptng 978. At 0319 sent 146 146 38 38 and 5F# msg, signed off w/00000. (TS)
- 4512: ETD3, Ethiopia Meteo running RY test tape backwards at 0300. Mode was 50/425. (B)
- 4568: Carrier fired up on 4574 kHz at 2010, then off at 2015. at 2020 on this freq OM/RR w/875 875 875 1. Then 8031 58, 8031 58 and into 5F grps. (SM)
- 4570: SLHFM "V" in CW at 2300. (AB)
- 4594: YL/GG rptng Golf Kilo fm 0130-0135 every SAT. Then into 5F grps for 571. (SM)
- 4625: FOGHORN. Heard only just before sunrise. (WR)
- 4650: VVV 709 DE TRC, u/i, in CW foll by 5F grps in EE read by YL. Hrd at 2055. (AB)
- 4665: YL w/Victor Lima Bravo 14 Bravo 088 at 2010. Also on 6745 kHz. (SM)
- 4724: AGGREGATE requesting working freq for NIGHTWATCH from McClellan GHFS: X-208 (3134 kHz) Primary, X-209 (4742 kHz) is secondary. (NP)
- 4764.5: CCS, Chile Naval in RTTY 100/850 at 0310. (B)
- 4780: At 0200 YL w/Kilo Papa Alpha 91 Charlie 28120. (SM)
- 4891: Two CW stns wrkg simplex at 0701. One passing 5FL t/c to the other. Stn wud send # grp, IMI, rptd grp, sent comma, and then the next grp. Both stns using hand-sent CW, very sloppy. (TS)
- 5205: YL/EE in USB at 0036 w/nbrs mssg. (JM)
- 5266: Sweep jammer here at 0359. Also next night at 0445. (TS)
- 5277: PANTHER, U.S. Customs, Bahamas in USB at 0205 wkg 32C who advises has them weak. PANTHER adv 32C to contact CAMSLANT. (RB)
- 5283: CW stn at 0355 rptng 757. Sent 5F grps ad signed down w/000. (TS)
- 5301: OLX, MOI Prague, w/VVV DE OLX & 5F grps to 831 in CW at 2158. (AB)
- 5399.7: RFFP, MinDef Paris, France in ARQ-MS-200/271 at 0417. Circuit carrying t/c fm RFFA & RFFVA which are both MOD stns in Paris. (PS)
- 5411: White noise here at 0407. Sig had bandwidth from 5408-5415 kHz. (TS)
- 5418: Atencion 84328 at 0600 THU, then 5F grps by YL/SS. One hour later Atencion 51091 and into grps. (TM)
- 5419: 5L grps in MCW at 0500. (TM)
- 5535: USAir 1778 (767) PHL-ORY clg Speedbird London at 0059; Speedbird 226 (DC10) ATL-LGW at 0105 clg Speedbird London. (CT)
- 5550: Avianca 020 (747) Bogoa-JFK at 2347, selcal BQKG. (CT)
- 5598: Lufthansa 463 (747) MIA-FRA at 0227, selcal AFKM. (CT)
- 5658.5: OM/SS outbender in USB signing on freq at 0411. (TS)
- 5692: YL/SS at 0600 rptng 923 923 923 00000. (TM)
- 5696: India 7 Delta at 2108 w/CAMSLANT Chesapeake requesting switch to 3E5 freq: "Sir, those frequencies are manned, but you must contact us first on primary HF and then we'll go to that freq." (NP); CAMSLANT wrkg Rescue 1501, Rescue 103, & Rescue 306 in USB at 0220 w/SAR of life raft from u/i vessel in N. Atlantic. I had copied a NAVTEX bulletin earlier advising of distress signals on 121.5 MHz in the same area. (TS)
- 5716: YL/EE in AM at 2118 w/3+2 grps. (PS)
- 5760: EE nbrs stn/5 char grps in AM at 0235. (B)

## SHOCKING MANUALS!

Survival Electronics, Computers, Phones, Security, Weaponry, Racketry, Energy, Financial, Medical. 150+ offers also include Special Projects, Research Services and Hardware. By John Williams, former Senior Electronic Design Engineer (Lockheed), Professor of Computer Science (NMSU). As seen on CBS "60 Minutes," Forbes, etc. Since 1971. New Catalog \$4. Add \$5 total \$4. VISA, MC, OK. No CODs, P.O.s. Educational purposes only.

**CELLULAR & CORDLESS PHREAKING:** Describes how cellphones are reprogrammed and scanned, forcing ACK, Test Mode, control data formats, operating systems, computing encoded MINS, ESNs, SIDHS - much more. Keypad mods of 100+ cellphones detailed. Plus cordless hacking; scanner mods. \$69.

**PBX HACKING:** Average loss to PBX hacking is \$90,000! Step-by-step descriptions on how they are hacked; countermeasures. \$39.

**PHONE COLOR BOXES:** As designed by phone phreakers: Plans for 15 phone color boxes - Red, Blue, Black, Silver, Orange - more! \$29.

**BEYOND VAN ECK PHREAKING:** Plans for surveillance systems used to eavesdrop on the emanations from computer monitors and TVs. \$29.

**SECRET & SURVIVAL RADIO:** Describes the optimum freqs, equipment, modes and circuits for secret, survival and security situations. Includes small transmitters and receivers; ultrasonic, infrared and fiberoptic comms; improvising and optimizing antennas. 70+ circuit diagrams. \$29.

**COMPUTER PHREAKING:** Describes both computer infections and how computers are penetrated. Includes 2 PC disks: (1) FLUSHOT+ protection system. (2) Disk loaded with hacker files. \$39.

Also, VOICE MAIL HACKING (\$29), STEALTH TECHNOLOGY (\$29), STOPPING POWER METER (\$29), RAINERS MANUAL (\$29), EM BRIBBLASTER (\$29), UNDER ATTACK! (\$29), HIGH VOLTAGE DEVICES (\$29), ATM (\$39), CONS & SCAMS (\$29), PHREAKING CALLER ID & ANI (\$29), HACKER FILES (\$59), ROBOPHONE (\$29) - more!

**CONSUMER ELECTRONICS.** 2011 Crescent Dr., P.O. Drawer 537, Alamogordo, NM 88310. Voice: 505-434-0234, 505-434-1778 (8AM-8PM MST, Mon-Sat). Fax: 434-0234 (for orders only, 24-hour, 7-days/wk. If you get answering machine press "\*" then "1" any time).

## CB RADIO OWNERS!

We specialize in a wide variety of technical information, parts and services for CB radios. 10-Meter and FM conversion kits, repair books, plans, high-performance accessories. Thousands of satisfied customers since 1976! Catalog \$3.

### CBC INTERNATIONAL

P.O. BOX 31500PC, PHOENIX, AZ 85046

## PAY TV AND SATELLITE DESCRAMBLING

all new info VOLUME 6 all new info

Volume 6: Our entire collection of all current cable satellite and wireless turn-ons.

- Pay TV Volumes 1-5 (all different Vol. 1 basics)
- Wireless Cable Hacking
- Complete Wizard (VCI+)
- Satellite and DBS Handbook (includes Hacker Info)
- Hacker Video
- Cellular Phone Hacking

\$15.95 each or 3/\$34.95 or 5/\$52.95

Newsletter \$29.95/12 issues. Catalog \$1.

All our info \$129.95 (includes sub)

### SCRAMBLING NEWS

3494 DELAWARE AVENUE BUFFALO, NY 14217-1230  
Voice/FAX (716) 874-2088 BBS (716) 871-1915

CIRCLE 76 ON READER SERVICE CARD

- 5762: YL/SS in AM at 0607 w/5F grps. (PS)  
5766: FJ42/59 sending VVV CQ mkr at 0456. (TS) These are Italian Navy call signs. (Ed.)  
5775: OIX, Prague, in CW at 0800 w/5F mssg. (TS)  
5800: CW stn sending cut nbrs (1-0= ANDUWRIGMT) here at 0500. Also on 4174 kHz, but not // (TS)  
5831.3: RFLI, French Forces, Fort de France, Martinique in ARQ-E3 96/340 at 0829. RTI relaying t/c for RFLIGS. This circuit is tied into 5709 kHz. (PS)  
5870: CW stn (poss W5GIO?) at 0504 w/5L grps. Ended w/Dec 87 BT. (SW)  
6215: USCG San Juan, PR w/kg several S/V relaying MAYDAY info fm S/V Dream Catcher who has been demasted & has poss coronary case on board. Hrd at 0036. Then at 0331, M/S Nordic Empress w/kg M/S Sun Viking, LIZA3, req QSY to '404' re SAR comms. Both are Royal Caribbean Cruise Line ships. Both in USB mode. (RB)  
6227: USAV General Frank S. Besson Jr., (LSV-1), in USB at 1659 w/kg unk USAV "AATF" re position/ETA Ft. Eustis. (RB)  
6269: U.S. flagged crude tanker S.S. Tonsina, KJJDG, at 0002 w/ARQ tx to Keyship for ETA El Segundo. (RB)  
6321: SVS, Athens, Greece in CW at 2154 w/mkr. (WL)  
6324: WCC, Chatham, MA in FEC at 0440 w/t/c list & wx. (TS)  
6335: WFF, CCG Frobisher Bay, NWT, Canada in CW at 2311 w/wx. (WL)  
6435: PWZ, Rio de Janeiro Naval Radio, Brazil in CW at 0536 w/NAVAREA wrngs. (TS)  
6470.5: 9YL, North Post Radio, Trinidad clg C6TU w/QSX 6 MHz. (JN)  
6477.5: KPH, San Francisco in CW at 1336 w/mkr VVV DE KPH QXS 4 6 8 12 MHz K. (DS)  
6501: COMMSTA Honolulu w/Offshore forecast at 0617, also on 8764 kHz. (NP)

M/V Polydoros (Cypriot-registry, 57,319 ton coal carrier built in 1979 and 908 feet long, owned by Poly Doros Shipping Co., Greece, and operated by Orwell Investment Corp.) caught fire late November 20, 223 miles south of Nantucket and 220 miles east of Atlantic City, NJ. The fire was brought under control November 21, but before controlled, killed Hepolito Elanga, 26, of the Philippines, the ship's Radio Operator. Loaded with 99,000 metric tons of coal, she sailed from Norfolk, VA, for Taranto, Italy, on November 18. After sending a distress signal, a U.S. Air Force C-141B Starlifter located the ship, and the U.S. Coast Guard Bear-class Medium Endurance Cutter U.S.C.G.C. Campbell (WMEC 909) arrived to assist. 24 of the crew were rescued by helicopter, while the captain, and three officers remained aboard (they later went aboard Campbell). The 24 spent the night in a Boston, MA, hotel, before flying to Zurich, Switzerland, and then to the Philippines.

This item was posted to an Internet mailing list dealing with ships and maritime topics.

PREPARED BY THE AMERICAN RADIO ASSOCIATION FOR ALL OUR SHIPMATES.

NOVEMBER 27, 1994

THE LONE CREWMEMBER WHO DIED ABOARD A BURNING COAL CARRIER IN THE ATLANTIC OCEAN WAS THE RADIO OFFICER WHO WAS OVERCOME BY SMOKE WHILE SENDING OFF A MAYDAY SIGNAL. THE COAST GUARD SAID THE RADIO OFFICER WAS FOUND SLUMPED OVER HIS EQUIPMENT AFTER FIRE BROKE OUT SUNDAY ABOARD THE GREEK-REGISTERED POLYDOROS. BEFORE HE DIED, HE WAS ABLE TO RADIO FOR THE HELP THAT SUMMONED COAST GUARD HELICOPTERS THAT RESCUED 24 OF HIS CREWMATES LATE SUNDAY, CREWMEMBERS SAID. "HE WAS AT HIS STATION," SAID A SEAMAN, WHO FOUND THE RADIO OFFICER. "HE WAS SENDING A MESSAGE, BUT HE WAS ALREADY DEAD WHEN WE CAME TO HIM." "WE ARE LONELY TODAY," SAID THE 2ND MATE. "HE WAS A GOOD MAN AND GOOD FRIEND." ALL 25 CREWMEMBERS ABOARD THE VESSELS WERE FROM THE PHILIPPINES, WHILE THE FOUR OFFICERS WERE GREEK. THE OFFICERS ABANDONED THE BURNING SHIP AT DAWN MONDAY AFTER FLAMES ENGULFED THE SHIP'S PILOT HOUSE. THE SHIP'S CREWMEN WERE AIRLIFTED TO SAFETY IN A DARING RESCUE MISSION BY COAST GUARD HELICOPTER CREWS SEVERAL HOURS AFTER THE FIRE BROKE OUT SUNDAY AFTERNOON IN THE CREW'S QUARTERS. BT ..

Excerpt from the American Radio Association's weekly Free Press broadcast, "The weekly union newspaper of the sea."

- 6519: USCG Diligence (WMEC-616), NMUD, at 0504 w/kg Group Miami in USB re SAR for S/V Tax Shelter, a 47 foot ketch w/3 POB. Advises MAYDAY recd 2336 after Diligence apparently proceeding into area to search. (RB)  
6577: Continental 234 (767) EWR-SJU at 0203, selcal DKJ.M. (CT)  
6604: New York Radio w/aero wx in USB at 0100. (B)  
6640: United 940 (767) ORD-FRA at 0152, selcal AGBR. (CT)  
6643: Condor 203 in USB at 0233 w/kg Berna Radio LDLOC. Patch to Condor maintenance, Frankfurt. (JN)  
6655: Tokyo w/kg Korea Air 072 in USB at 1328. A/c wanted higher altitude. Tokyo cld back at 1331 to say that ATC advises unable to go higher. (DS)  
6675: OM/RR net. One signing. Hrd at 0110 in LSB. Poss RR fishing fleet. (RS)  
6679: Honolulu Radio in USB at 0436 w/VOLMET. (TS)  
6693: YL/RR VOLMET in USB from 1716-1719. Ferrell's CFL id's as Kuibyshev. Weak sig w/weaker OM/EE's underneath. Latter prob USN net. (DS)  
6738: Lajes wrkg PP w/FOX 11 (flight of two C-130s) at 2254, discussing Customs requirements and ETA. Lajes requested tail nbrs of the two a/c but Fox replied they unable to do so for security reasons. (CR)  
6739: WOLFSUIT (a/c) w/DSN PP via Andrews GHFS to ABDUCTION w/flt ops normal mssg. Hrd at 0637. (NP)  
6745: YL/EE rptng VLB14B05. Hrd at 0225. (RS)  
6781.3: RFFXL, French Forces Versailles, France, circuit ZXL, at 0054 in ARQ-E/72 w/ZID XZL001 & DE FAVIERS. This odd since circuit was id'd in past as Beirut to Versailles. (RB)  
6796: YL/SS w/Atencion 59200 then 5F grps at 0900 THU. (TM)  
6800: Atencion 57200 at 05600 then 95 grps (5F/SS), down w/2 finals. (TM)  
6856: Atencion 93028 at 0800 then 113 grps (5F/SS) and down w/2 finals. (TM)  
6863: CW stn sending 5F grps at 0547, signed down w/000 000. (TS)  
6871: 946 946 946 4 4 4 4. The 4 was in EE but the 9 & 6 were in SS. Sounded slurred. Hrd at 0500. (TM)  
6902: RTTYU 75/425 wx data. (SW)  
6933: YL/SS in AM at 0200 w/5F grps. (RS)  
7038: SLHFM "C" in CW at 1450. (AB)  
7039: SLHFM "F" old 40M Ham band intruder. (WR)  
7039.2: SLHFM "F" old 40M Ham band intruder. (WR)  
7363.5: L9A44, W7B13, L9R44 and M4R44. Having "Grand Junction People" transport an air hose to the site. Two YL's exchanging a recipe. These stns ID w/these horrible call signs in EVERY transmission. (WR)  
7365.5: K12XBA base & two mobiles testing remote vehicle location system. (WR)  
7453: SLHFM "R" in CW at 1452. (AB)  
7600: Scrambled speech in USB at 0517. (TS)  
7627: KWS78, US Embassy Athens, Greece in CW at 0217 w/mkr. (WL)  
7682: Atencion 54528 then 5F by YL/SS, off w/two finals at 0413 on WED. (TM)  
7685: RBV75, Moscow Meteo at 1455 in RTTY 50B. (AB)  
7720: AA6USA, U.S. Army MARS, Ft. Sam Houston, TX, w/kg AT6TLA passing MARSGRAMS in Packet at 2238. Note first "A" is dropped from call for Packet protocol. (RB)  
7740.7: Poss Egyptian Embassy t/c in ARQ w/5L grps at 2355. (RB)



7784: KAWN wx in RTTY 75/425 at 0000. (SW)  
7866: YL rptng Sierra Yankee November 2 at 1730. Mossad. (SM)

7871.7: LNA2, Norsk Telcom Sveio, channel mkr & data bursts. Hrd in CW at 1432. (AB)

7976: At 0800 Atencion 25053 and then 82 grps. Down w/two finals. (TM)

8001.5: RHHJ, Papeete, Tahiti in ARQ-E3 96/340 at 0616. French Forces on circuit HJL w/tfc. (PS)

8063: YL/GG rptng Charlie November every WED at 0200 & into 5F grps for 005 and 831. Rptd on MON at 0230. 005 and 831 are addresses used by Whisky Lima. (SM)

8122: VLRD. HMAS Townsville, Australian Navy clg control?? Cld by Darwin control who said to QSY to Alpha 4. (JN)

8146: MFA Warsaw w/mssgs to several Embassies in Polish language. POL-ARQ at 1536. (AB)

8175: OM/RR w/258 258 258 00000 between 1600-1605. (SM)

8186: YL/SS in AM at 0610 rptng Atencion 24036 and 5F grps. (TS)

8408.5: Russian refrigerated cargo fleet mssgs TG s to Vladavostok. (RB)

8493: Royal Navy London, coded fleet mssgs in RTTY 100B at 1232. (AB)

8517: WLO, Mobile. AL w/commercial for services of both WLO and WSC. Mentioned services offered & hours of operation. CW at 0529. (SW)

8582: XSN. Ningbo, China in CW at 2258 w/mkr. (WL)

8968: BADLUCK wkg McClellan GHFS w/req for working freqs for station NIGHTWATCH. Primary X-210 is 11229 kHz & Secondary S-311 is 11494 kHz. Hrd at 1945. (NP)

8972: FALCON 01, Dutch Navy in USB at 1356 wkg BLUE STAR requesting relay to NYWL (USCGC Thetis). Then wrkg NYWL who accepted FALCON 01's guard. (JN)

8993: ARIA 1 (Advanced Range Instrumental Aircraft) and ARIA 2 wkg ARIA Control at 0534 in USB. Trying establish comms link w/ABNORMAL 10, Vandenberg AFB, Western Test Range, Op's Center. (RB)

9017: WAR46, Alternate National Military Command Center/Joint Communication Center, wkg

**NEW**

**OLD**

4724.....4725

6739.....6738

8968.....8967

8992.....8993

11175.....11176

11244.....11243

13200.....13201

15016.....15015

17976.....17975

**NOTE - NEW 24H FREQ OF 6712 KHZ ANNOUNCED FOR LAJES GHFS PER ANDREWS GHFS.**

*Norm Pihale, MN, provided this list of new/old USAF GHFS frequencies.*

NIGHTWATCH 01 for rdo cks at 1931 in USB. (RB): MASH 72 (KC-135) w/PP thru Andrews GHFS on X-904. (NP)

9238: YL/SS in AM at 0603 w/5F grps. (TS)

10033.9: 221 letter grps from Ambassador

Ahmed Maher Elsyead in SITOR, ARQ. (WR)

10054: New York Radio w/aviation wx at 1630 in LSB. (SW)

10102.6: Guinea in RTTY 50/425 at 2330 w/RYS. (B)

# NEW ARRIVALS!



## Eagle 2000

10 METER BASE STATION

Inv. #E00-02000

All Modes! AM-FM-CW-USB-LSB · 30 Watts · C.O.D. \$419.99

Water · Variable RF Power · Echo · Roger Beep · 10 KHz · SWR-NB-ANL · Frequency Counter \$436.79 Regular

## Eagle 5000

10 Meter Base Station

Inv. #E00-05000

All Modes! AM-FM-CW-USB-LSB · 100 Watts ·

Variable RF Power · Frequency Counter · Speech Processor · \$599.99 C.O.D.

Split Memory · SWR · NB/ANL · Roger Beep Regular \$623.99



## EMPEROR TS-5010

THE ROYALTY OF RADIOS!

"All Mode" Transceiver · AM/FM/LSB/USB/CW ·

Remote Control Channel · Dual Function Control

Switches · Programmable 10 Memory Channels ·

Continuous RF Power · Multifunction LCD Display

· Frequency Lock · SWR Meter · RTT Control ·

Scanning Channels · 25 Watt Output Power · VFO

& Mic Gain Control

Inv. E00-00001

C.O.D. \$219.99

Reg.

\$228.79

**COPPER ELECTRONICS, INC.**

3315 GILMORE INDUSTRIAL BLVD., LOUISVILLE, KY 40213 • 502-968-8500

**CALL 1-800-626-6343**

FOR FREE FULL LINE CATALOG  
ON CB's, MISC. SCANNERS & ANTENNAS

# UNLOCK FULL 800 MHZ

\$40

FREE CELLULAR FREQUENCY CHARTS

- 100s of satisfied customers
- Warranty & Service Plan Protection
- Same-day Service — FREE insured UPS return

PRO	BC
34.37	200
39	205
43	700A
46	760
2004.5.6	855
2022	890
2026	950
2027	2500
2030	
2032	

FOR DETAILS CALL:  
**508-768-7486**

SHIP TO:  
**Cellular Security Group**  
106 Western Avenue,  
Essex, MA 01929

Note: Certain modifications may be in violation of F.C.C. rules and regulations. Cellular Security Group assumes no further responsibilities beyond those stated in this ad.

**10125:** U/i diplo stn. 6-tone tune & addressee WQL in CW foll by RTTY 75/500 w/11177 header & 5L grps at 1322. (AB)

**10235:** OTH radar at 0655. (TS)

**10424:** BPA. prob RR diplo RTTY 75/500 at 1520. (B)

**10500:** YL/GG rptng Charlie Delta fm 0000-0005. Then into 5F grps for 162 and 262. (SM)

**10780:** Cape Radio wkg ARIA 2 who wants to try data flow on SATCOM. Cape Radio sez they'll try to get SAIL 4 on freq. USB at 1902. (JN)

**10873:** RFVI, French Forces Le Fort, Reunion Island in ARQ-E3/100 w/C de V. Circuit REI at 2206. (RB)

**10972.8:** HBD20, Berne, Switzerland in SITOR-A 100/220 at 1153. Swiss MFA w/nx in FF. (PS)

**11174.9:** TALON 82 to Andrews GHFS at 1930 "We've taken a lightning strike and are returning to the base (RTB) so maintenance can take a look at possible damage." (NP)

**11176:** REACH 80219 in USB at 1607. In flight emergency. Flame out in #1 engine, cause unknown. 75 PAX on board. Says cutting it close on fuel. (Patch to Dover via MacDill). (JN); REACH 220 in pp w/HILDA via MacDill at 2137. REACH requested HILDA pass on to Hunter Army Airfield that they had 137,000 lb. of cargo onboard, including "1.1E" of Class A explosive. (CR); REACH 118KW (C-141B) in pp w/Rota, Spain thru MacDill AFB at 2138. REACH had ETA of 0015 at ROTA, but when asked, could not disclose cargo because of Commsec regs, suggesting that Rota call McGuire AFB, NJ for that info. (CR)

**11229:** BAGLOCK wkg NIGHTWATCH at 1948 w/sig check on X-210. (NP)

**11232:** NATO 01 (NATO a/c) in USB at 1634 wkg Trenton Military for wx. (PS)

**11330:** Lufthansa 462 (B747) FRA-MIA at 1713, FL370 at Jesse. (CT)

**11384:** Honolulu Aeradio told u/i (prob military a/c) 01 to contact Guam on VHF 118.74 or UHS 279.5 MHz. Honolulu pointed out that a/c was well within VHF range of Guam. USB mode at 0807. (DS)

**11387:** Karachi, Pakistan Volmet at 1345 in USB. (AB)

**11396:** American 1385 (A300) JFK-Barbados at 1721, at Grann temp -51, FL390; Continental 632, St. Thomas-EWR at 1841, selcal EHR5. (CT)

**11430:** HMF55, Korean Central News Agency (KCNA) at 2237 in RTTY 50/170 w/nx in FF. (RB)

**11494:** BAGLOCK wkg NIGHTWATCH at 1950 w/sig ck on S-311. (NP)

**11545:** YL rptng Delta Alpha w/electronic tones fm 0930-0935 & then 'Message for 034 034 65' and into 5F grps. Rptd at 1100 on 13890 kHz. (SM)

**12180:** VKK, Prob RR Diplo. RTTY 75/500 at 1515 w/cipher t/c. (B)

**12580.5:** KFS, San Francisco Maritime in TOR/FEC at 2225 w/football scores. (B)

**12611:** VCT, Grand Banks Radio, Nfld, Canada in CW at 2203 w/mkr. (WL)

**12868:** WNU34, Slidell, LA in CW at 1705 w/CQ QSX mkr. (SW)

**13054:** UIW, Kaliningrad in RTTY 50B at 1254 w/mssg to RTM, Gornow in Cyrillic. (AB)

**13059:** EBA, Madrid Naval Radio in CW at 1949 w/nav wrng. (WL)

**13077:** Taipei Radio w/t/c list in EE. USB at 1101. (DS)

**13200:** Offutt GHFS at 1745 in USB w/EAM bcst. (RB)

**13209.5:** Rasper, 8 dots & 1 dash. Hrd at 1831. (Ed.)

**13269:** NY Radio w/aviation wx at 1731 in USB. (SW)

**13300:** Tokyo Aeradio at 0603 told Japan Air 73 to contact Tokyo Control on VHF 133.6 MHz. On another day at 0709, Tokyo told Singapore 12 to contact Control on VHF 125.8 MHz. (DS)

**13306:** REACH 80219 in USB at 1453 wkg NY & indicates in-flight emergency. One engine flamed out. Enroute Dover but unsure if enough fuel. May divert. QSY 13205 for Gander. See 11176 kHz. (JN)

**13415.3:** PCW1, MFA, Hague, Holland in CW at 1424 w/mkr. (AB)

**13510:** CFH, Canadian Forces Halifax in RTTY 75/500 at 1630 w/wx. (B)

**13636:** SLHFM "C" in CW at 1425. (AB)

**14001:** At 1400 YL w/'PCD2' and at 1430

w/'FTJ2.' Unusual place for Mossad transmissions. (SM)

**14236:** KAC, Prob RR Diplo in RTTY 75/500 at 2100 w/cipher t/c. (B)

**14356:** GFL24, Bracknell, England Meteo in RTTY 50/425 at 1625 w/wx. (B)

**14467:** KRN, Prob RR Diplo in RTTY 75/500 at 1745 w/cipher t/c. (B)

**14467.3:** Hamburg (Pinneburg), Germany in RTTY 50/407 at 1835 w/mkr: CQ CQ CQ DE DDH47/DDH9/DDH8 FREQUENCIES 147.3 KHZ 11039 KHZ 14467.3 KHZ. This was foll by a line of RY's and then sequence rptd. (Ed.)

**14498:** SUC, Cairo, Egypt in RTTY 50/850 at 1625 w/aero wx. (B)

**14605:** VKX, Prob RR Diplo in RTTY 75/500 at 1500 w/cipher t/c. (B)

**14738.4:** At 1415 MIG sent RTTY mssgs (75/500) WFO. This is prob RR Diplo. Frequently uses 100 baud when has lots of t/c to pass. This link does not repeat t/c on a secondary freq as do others in this network. (Ed.)

**14750:** Rabat, Morocco in RTTY 50B at 1240 w/nx. (AB)

**15920.4:** CFH, Canadian Forces Halifax in RTTY 75/850 w/freq list at 1615. (B)

**16055:** YL/EE rptng Mike Delta from 1330-1335 then 5F grps in EE for 241. (SM)

**16126.5:** BPXL, u/i stn in RTTY 50/370 at 2024 w/very odd t/c "BPXL" foll by "BO ICICICIC 1/1755" then into sloppy CW. (PS)

**16220:** YL/EE rptng Victor India fm 1300-1305 on MON then off. On WED 1330 on 15610 kHz 'VI' again w/'Message for 101 101 51 Groups' and into 5F grps. (SM)

**16355.3:** CQ DE CLP4 QSA 0 QRX 11 GMT NIL 73...faded out. CLP4 is Bissau, Guinea Bissau. Hrd at 18111 in CW. (Ed.)

**16448:** WNY, Prob RR Diplo in RTTY 75/500 at 1910 w/cipher t/c. (B)

**16683.5:** M/V Villa de Mogor, fishing trawler in Sitor-A at 1530 w/mssg re cuttlefish and prawn catch. (JN)

**16719.8:** CW station at 1819 sending nx items in EE concerning Philippine matters. (Ed.)

**16830:** HEC, Berne, Switzerland in CW at 1350 w/mkr. (WL)

**16843:** JMS, Prob RR Diplo in RTTY 75/585 w/RV's & into 5L grps. Off w/QRU QRU SK SK. Hrd at 2208 w/cipher t/c. (B)

**17940:** Universal Houston (LDOC) in USB at 1523 wkg SJM1010, Southern Air and N59JR at 1553. (JN)

**18173.5:** STK, Khartoum, Sudan Aero stn in RTTY 50/425 at 1645 w/RV's. (B)

**18228:** PSN, Prob RR Diplo in RTTY 75/500 at 2247. (B)

**18762.4:** P6Z, MFA, Paris, France in FEC-A 192/340 at 1530 w/5L grps foll by "PARISCAL." (PS)

**18891:** At 1700 EE opr w/528 528 528 0 0 0 0 0. (TM)

**19171:** CNM85, Rabat (Tangier), Morocco MAP news service w/nx in FF. Garbled—keying problem. RTTY 50/425 at 1600. (B)

**19957:** PSN, Prob RR Diplo in RTTY 75/500 at 2240. (B)

**21260:** OTH radar at 1907. (TS)

**22394.5:** LPS, General Pacheco, Argentina w/ARQ "Sitor Free" phasing & CW id at 1753. (RB)

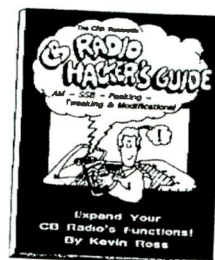
**22555:** LSA, Boca, Argentina at 2115 w/CW mkr. (WL)

Contributors this month were: Ary Boender, Netherlands; Al Hemmalin, RI; Bjorn Vaage, CA; C.M. Reed, PA; Chris Tiller, GA; Dave Sabo, S. Korea; Jim Moody, OH; Jim Navary, VA; James Osborn, VA; Norm Pihale, MN; Perry Crabill, Jr., VA; Paul Scalzo, Canada; Rick Baker, OH; Russ Hill, MI; Robert Pizzi, CA; Rick Sumner, IL; Simon Mason, England; Sue Wilden, IN; Tom Mazanek, OH; Tom Severt, KS; Wes Linscott, ME; Wayne Rankin, CA, and finally, Ed.—Don Schimmel, WV, and NN—No Name, Canada. Thanks to all. ■

# YOU AIN'T HEARD NOTHIN' . . . YET

Since 1967, CRB Research has been the world's leading publisher and supplier of unique hobby and professional books and information including:

- Scanner Frequency Guides
- Shortwave Frequency Guides
- Military/Federal Comm.
- Undercover Comm.
- Survival Comm.
- Covert Operations
- Electronic Espionage
- Surveillance
- & Other Related Topics!



New titles are constantly being added to our exciting catalog. If it's interesting and unusual, we've got it. You'll see. Ask for our latest FREE catalog.

## CRB RESEARCH

P.O. Box 56, Commack, NY 11725

Phone: (516) 543-9169/FAX: (516) 543-7486



TWO POWERFUL



# HAM RADIO VIDEO COURSES FROM ARRL

Everything you need to pass your Novice, Codeless Technician and General Class Amateur Radio license tests — plus Morse code. Guaranteed!

These breakthrough courses are fast, easy and fun!

## Get the Best, When You Need the Best!

- Only the American Radio Relay League (ARRL), the national organization of Amateur Radio Operators, has more than 75 years experience in helping people—just like you—become hams. With our expert help, **you'll be on the air in no time!**
- ARRL Video Courses demonstrate **every** important concept on video. You succeed because you completely understand the material, not because of rote memorization.
- Only the ARRL has the resources to make sure you have the latest, most accurate information on video. With the ARRL, you **know** your course is fully updated for the current FCC exams.
- Your course is produced in association with King Schools, whose award-winning "Monster Graphics" let you see your instructor and "the action" at the same time.
- With the ARRL, expert help is only a phone call away. Call us any business day, **toll-free**, to have your questions about ARRL Video Courses or your FCC exam answered personally.



**COLORED BANDS SHOW**

**RESISTOR VALUES**



## Here's What You Get—

*Expert Information That's Easy to Understand!*

### TECHNICIAN CLASS COURSE (No Morse Code Required)

Your complete ARRL Technician Class Home Study Video Course Includes:

- Three exciting video tapes—five hours of invaluable instruction—covering everything you need to pass your Novice and Technician Class written exams.
- A 164-page Course Book with detailed notes.
- Every exam question—with correct answers and detailed explanations.
- Six practice exams to "tune you up" for the real thing. On the big day, you'll be more than ready!

### GENERAL CLASS COURSE

Your complete ARRL General Class Home Study Video Course Includes:

- Three exciting video tapes—four hours of invaluable instruction—covering everything you need to pass your General Class written and Morse code exams.
- A 96-page Course Book with detailed notes.
- Every exam question—with correct answers and detailed explanations.
- Three practice exams to "tune you up" for the real thing. On the big day, you'll be more than ready!
- *Morse Academy* software—so you'll learn Morse code the right way, the Farnsworth way.

### With our ironclad guarantee, you risk nothing!

We're so sure you're going to pass your Amateur Radio license tests with the ARRL Technician and General Class Video Courses that we make this exceptional guarantee:

1. Examine either course for 20 days. If it's not what you expected, simply return it for a full refund—no questions asked.
2. You will pass your FCC codeless Technician-class *written* exam within one year, or you can return your course for a full refund—every penny. Or, you will pass your FCC General-class *written* and *Morse code* exams within one year, or you can return your course materials for a full refund. **You pass, or you don't pay!** (Include a dated proof of purchase and the date and location of your VEC-administered exam session when you return your course.) And...
3. In addition, the veteran hams at ARRL Headquarters are available to answer your questions and provide expert advice and information. We're only a phone call away—and we won't let you fail!



## Choose from 4 Great Deals:

1. Your ARRL Technician Class Video Course, only ..... **\$99**
2. Your ARRL Technician Class Video Course, Plus The Technician Class Computerized Exam Review Software (a \$49 value), all only ..... **\$119**
3. Your ARRL General Class Video Course, including *Morse Academy* Morse code training software, only ..... **\$99**
4. Your ARRL General Class Video Course, *Morse Academy* software Plus The General Class Computerized, Exam Review Software (a \$49 value) all only ..... **\$119**

To Order, Call 1-800-32-NEW HAM or Tear Out And Mail Today

OK! I want to start enjoying the World of Amateur Radio. Rush me:

- Complete Technician Class Video Course ..... \$99
- Complete General Class Video Course ..... \$99
- Extra Course Book  Tech.  Gen. (with course purchase only) ..... \$19
- Complete Course And Computerized Exam Review Software  Tech.  Gen. All only ..... \$119

#### Exam Review Software

- Macintosh  IBM Compatible (\$12k, hard drive)
- Specify  3 1/2"  5 1/4" Disks

Order now and get in on the fun of Amateur Radio!

Ship To: Name \_\_\_\_\_ Address \_\_\_\_\_

City \_\_\_\_\_ State, ZIP \_\_\_\_\_ Tel (\_\_\_\_) \_\_\_\_\_

**VHS Format**  
Charge To:  MC  VISA  AMEX  Discover Card No. \_\_\_\_\_ EXP \_\_\_\_\_

Check or Money Order Enclosed

TOTAL PURCHASE \$ \_\_\_\_\_

Shipping and Handling \_\_\_\_\_

UPS Surface, \$5  FEDEX 2-Day Delivery, \$15

In CT add 6% Tax \_\_\_\_\_

In CA add 7.5% Tax \_\_\_\_\_

TOTAL AMOUNT \$ \_\_\_\_\_

**The American Radio Relay League**  
Helping Hams Get Started Since 1914

225 Main St, Newington, CT 06111  
203-666-1541 • Fax 203-665-7531

PC ALSO AVAILABLE FROM YOUR LOCAL AMATEUR RADIO DEALER

# HANDI-CHAT

BY TED LISLE, KD4EXK

## FOR THE HANDICAPABLE COMMUNICATIONS HOBBYIST

Hello again, and welcome. Summer is once again upon us, which means there should be ample opportunities for VHF DX. Last June set new records for Sporadic E propagation, so keep those ears open. First of all, I have an announcement concerning the 3.898 MHz

"Gator Trader's Net," mentioned in the February installment. On Friday, November 25th of last year, net conductors Bill Applegate (KJ8I) and George Crofford (KM4FY) announced that the UTC Saturday edition was being discontinued. Due to the heavy volume of listings, the net was requiring more than four hours per week of on-air time, plus preparation and record keeping. For the foreseeable future, the net will be restricted to UTC Tuesdays from approximately 0000 to 0200. Even with this change, and despite the absolutely abysmal summertime conditions on 75 meters, this remains one of the best—if not *the* best—swap net currently on the air.

This month it's my pleasure to visit with an old friend. In the field of assistive technology for the handicapped, no name ranks higher than that of T.V. (Tim) Cranmer. Through the years, he has originated or collaborated on a host of projects ranging from a specially-modified abacus for blind students, to an outboard synthesizer for personal computers. Therefore, it should come as no surprise to learn that Tim is an avid electronics and communications enthusiast, and an Extra-Class amateur radio operator.

Tim was born in Louisville, Kentucky in 1925, and attended the Kentucky School for the Blind. The 1930's and early 1940's were hard years for the nation. The post-war technological revolution lay over the horizon, and opportunities for technical education for the blind were virtually nonexistent. Therefore, Cranmer's technical background was strictly informal, stemming from "a lifetime association with technical people, each of whom knows more than I do." By diligently gathering information and insight from each, he eventually reached a point where, as he says with a chuckle, "I may know more than any one of them."

According to Tim, the catalyst was an interest in chemistry. "I was in my very early teens, when my brother-in-law explained to me how an old rusty knife was really just iron combined with oxygen," he recalled. "If you were smart enough, you could remove the oxygen, and return the knife to something like its original condition." Wishing to learn more, he borrowed a copy of First

Principles of Chemistry—the only braille text he could find—devouring it over one weekend "without sleeping." His interest peaked, he signed up for a course in inorganic chemistry from Hadley—the nation's only correspondence school for the blind—in Wynetka, Illinois, following that up with a course in physics. It was not long before his voracious reading led him from the world of beakers and retorts to that of tubes, crystals, and condensers (for those under 30, that's the Early-Bronze-Age term for capacitors). "I got books on 'wireless radio' out of England. It was then that I started associating with people who built crystal sets, one-tube radios, etc."

Thus inspired, he not only became a builder himself, but also went on to author a series of articles for Bob Gunderson and the Braille Technical Press, headquartered at the New York Institute for the Blind. Subjects included solid-state temperature sensing, how to encapsulate electronic components using dental plastic, and a one-transistor QRP (low-power—5 watts or less) transceiver known as "The Cricket."

His interest in technology led to a career in vocational rehabilitation. Beginning as a job placement specialist in the Kentucky Bureau of Rehabilitation's Division for the blind, he eventually rose to the rank of division director. In 1976, the division was reorganized as an autonomous bureau, and Tim became its first Director of Technical Services.

As could be expected, this steady professional growth paralleled development as a communications hobbyist. First licensed as an amateur radio operator in 1957, he has retained his original call, K4MMB. His HF rigs have included both a Viking 2 and a Ranger from E.F. Johnson, and a Halicrafter HT32. The present rig is a Kenwood TS440S. Like most of us, he has experimented with various modes on several bands, but his first love remains 40-meter CW. For Tim, as for most true aficionados, code is an aesthetic experience, a personal art form. "There's something very satisfying about the code...I think that it is the process itself that gives the pleasure." Aesthetics aside, however, he is willing to move with the times. These days most of his dots and dashes are generated by an AEA (Advanced Electronic Applications) Morse Machine, interfaced to an IBM-compatible computer.

Coupling radios to computers has become an integral part of the communications hobby. Making both more user

friendly has been a goal of assistive technology specialists in general, and of Tim Cranmer in particular. In meeting this goal, no single factor has been more important than speech access. Computers have been speaking their minds for more than a decade, ever since Texas Instruments developed a synthesizer for the 499A. Most approaches have combined a sound board (either external or interfaced through a parallel or serial port) with one or more software modules. The one notable exception to this trend has been the Speaqualizer, developed by the Research and Development Committee of the National Federation for the Blind, under the chairmanship of Cranmer. Any computer user knows that loading TSR (Terminate and Stay-Resident)'s is a tricky proposition, and all developers of text-to-speech and screen-reading software have had to tackle the compatibility problem. The Speaqualizer solves the problem by avoiding it. The secret of this external, keyboard-driven device is highly intelligent firmware, which handles allscreen-reading duties, negating the need for special software.

Over the past 15 years, inexpensive EPROM's have brought digitized speech to a wide variety of devices—from automobiles, to clocks and watches, to radios. The first communications receiver to feature an audible frequency readout was a Ten Tec; the prototype of the read out device used herein was developed by the Technical Services branch of the Kentucky Department for the Blind, under auspices of T.V. Cranmer. "We did a speech modification and gave it to Ten Tec," he recalled with pride. "They have greatly improved it, simplified it, miniaturized it; but you can still get speech output with Ten Tec equipment."

In closing our conversation, Tim offered some observations on the shape of things to come. "The piano was developed in about 1709, but it took over 200 years for it to stabilize and become a mature product." Given the frantic pace of current technology, "It's going to take another hundred years for this whole communications industry to mature." I think you may have something, Tim. Thanks for your time, and for all the good work. I know all our readers join me in wishing you good luck.

Well, that does it for this time. It has been said that letter writing is a lost art; but our readers know that is not true. So let me hear from you. By now, you know your input matters. Until August, take care. ■



# Now The Company That Takes You Around The World Lets You Take The World Around With You.



**The Drake SW8 – Finally, Professional Desktop Performance In An Affordable, Portable World Band Shortwave.**

The company that has been setting the standards in premium-quality world band shortwave performance now puts top-of-the-line features and technology at your fingertips with the SW8...wherever you want to take it. Designed for both desktop use and easy portability, the

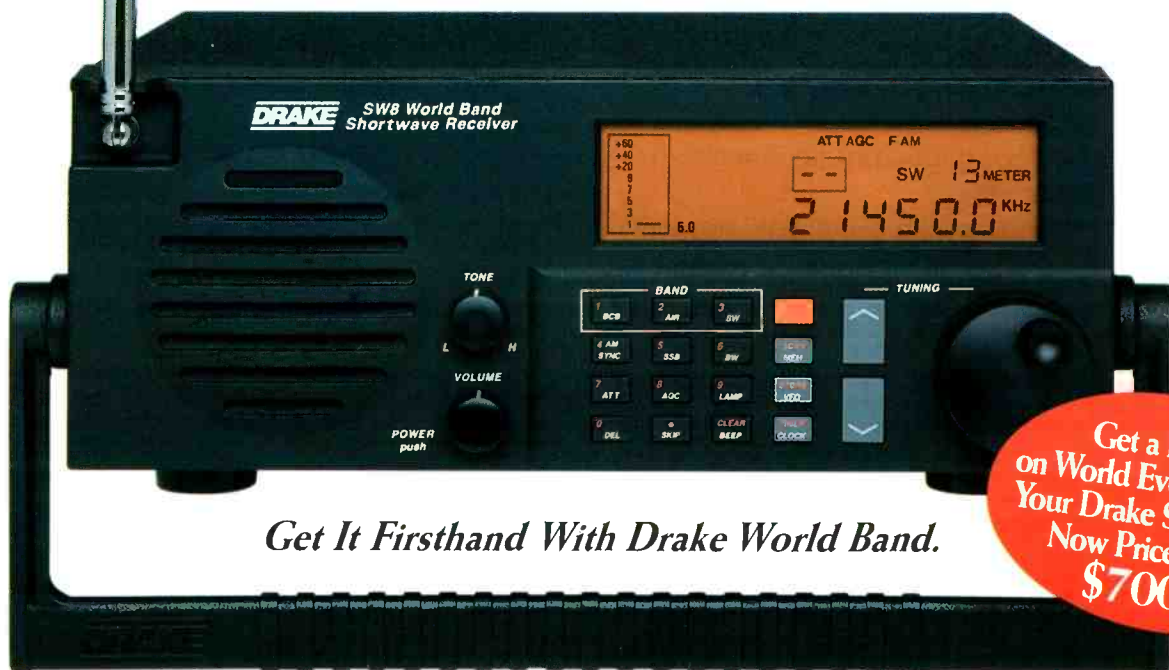
Drake SW8 includes many of the same features that have made Drake a perennial favorite of experts – superb audio, versatility, and the unique combination of professional quality and functional simplicity. So tune in the world and get the best of all worlds – quality and affordability, desktop

technology and portability.

The Drake SW8.

To order your SW8 direct, for more information, or for the dealer nearest you call:

**1-800-968-7426**



*Get It Firsthand With Drake World Band.*

**Get a Handle  
on World Events...Order  
Your Drake SW8 Today.  
Now Priced under  
\$700.00**

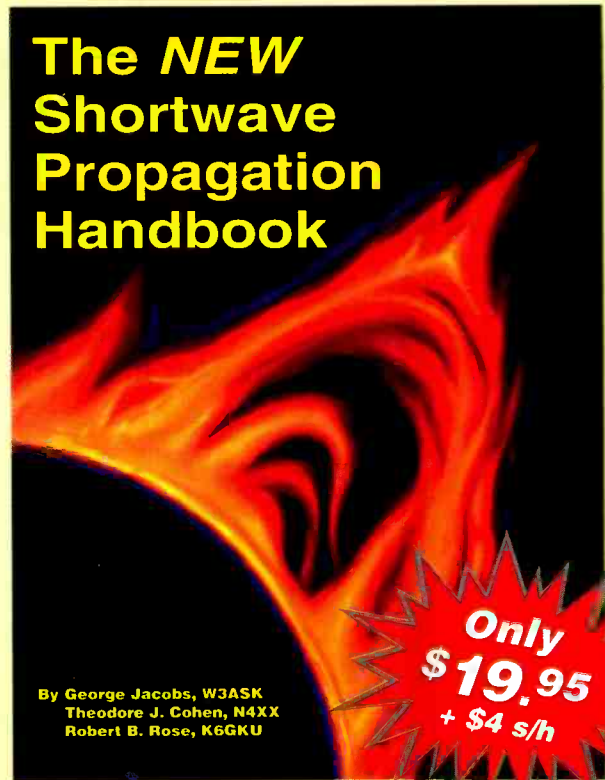
The single most comprehensive source of information  
on HF propagation is now available from CQ!

# The NEW Shortwave Propagation Handbook

Completely  
updated!

CQ has been a leader for nearly 50 years in providing timely and invaluable information on HF propagation. Thousands of radio enthusiasts were helped by our first propagation handbook. Now, you can take advantage of the information and techniques presented in this completely updated and revised volume. It's certain to be a classic.

Authors George Jacobs, W3ASK, Ted Cohen, N4XX, and Robert Rose, K6GKU, have spent years gathering information from individuals and organizations around the world. Collectively, they have devoted much of their professional and radio careers to advancing ionospheric science. This knowledge and experience can now be at your fingertips in this truly unique reference source! Be sure to order yours today!



**Here are just some of the highlights that make this book a must for your library:**

- Principles of ionospheric propagation
- Solar cycle predictions
- "Do-it-yourself" propagation predictions/charts
- Ionospheric forecasting
- Analysis of HF propagation prediction software
- Unusual HF and VHF ionospheric propagation
- Expansive references and data sources
- Specific predictions for the upcoming Cycle 23
- How to access NOAA's geophysical databases
- Scores of charts, tables, and summary information
- Stunning photography including the largest ever observed solar flare in 1989
- Complete overview of WWV and WWV propagation services

**Order toll-free 1-800-853-9797**

**YES**, Send me \_\_\_\_\_ copies of CQ's **The NEW Shortwave Propagation Handbook** at \$19.95 each plus \$4 s/h:

Name \_\_\_\_\_ Callsign \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Check  M/O  Visa  Mastercard  AMEX  Discover  Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Mail your order to: **CQ Communications, Inc., 76 North Broadway, Hicksville, NY 11801. FAX 516-681-2926**

Also available through your local dealer!



## 27 MHz COMMUNICATIONS ACTIVITIES

**T**here's big product news brewing at Cobra—the legendary Cobra 2000 GTL base station has been discontinued. The 2000s in distribution channels now are the last of the breed. For years, this top-of-the-line base station has been considered the Rolls Royce of CBs, and for good reason: it offered noticeably better performance for both AM and SSB operation.

But for diehard CBers, this is not a time for mourning. By the time you read this, the 2000 GTL will be replaced by the Cobra Model 2010 GTL WX, a 40-channel AM/SSB CB base station with seven weather channels and NOAA weather alert tone. The 2010 will retain all the circuitry that made the 2000 a superb performer, but it has been totally restyled—it now looks like a ham transceiver. In addition to weather channels and weather alert, the 2010 will have its own dedicated power microphone and special circuitry designed to prevent squealing when the microphone gain is cranked up. I plan to take a hands-on look at the 2010 as soon as production models become available.

### **Cobra Named Official Sponsor of REACT**

In a move that could have a beneficial impact on the traveling public, Cobra Electronics Corporation has been selected as an official sponsor of Radio Emergency Associated Communications Teams (REACT) International, an organization which promotes the use of two-way radio communications to ensure on-road safety.

"The agreement with REACT is a part of continuing efforts by Cobra to make auto travel safer and more secure," said Steve Yanklowitz, Chief operating Officer, Cobra Electronics. Cobra recently expanded its product line with new CBs that offer weather alert capability.

As part of the agreement with REACT, Cobra will assist the organization in providing emergency services to motorists. All Cobra CBs include a single-touch button to access channel 9.

Cobra will also provide technology updates so REACT volunteers will be aware of all the state-of-the-art communication products which can increase the effectiveness of their safety efforts, according to Mr. Yanklowitz.

Formed in 1962, REACT is the only national organization dedicated to monitoring emergency channels for distress calls from motorists. REACT includes thousands of members throughout the United States, divided into hundreds of local teams, each providing volunteer emergen-

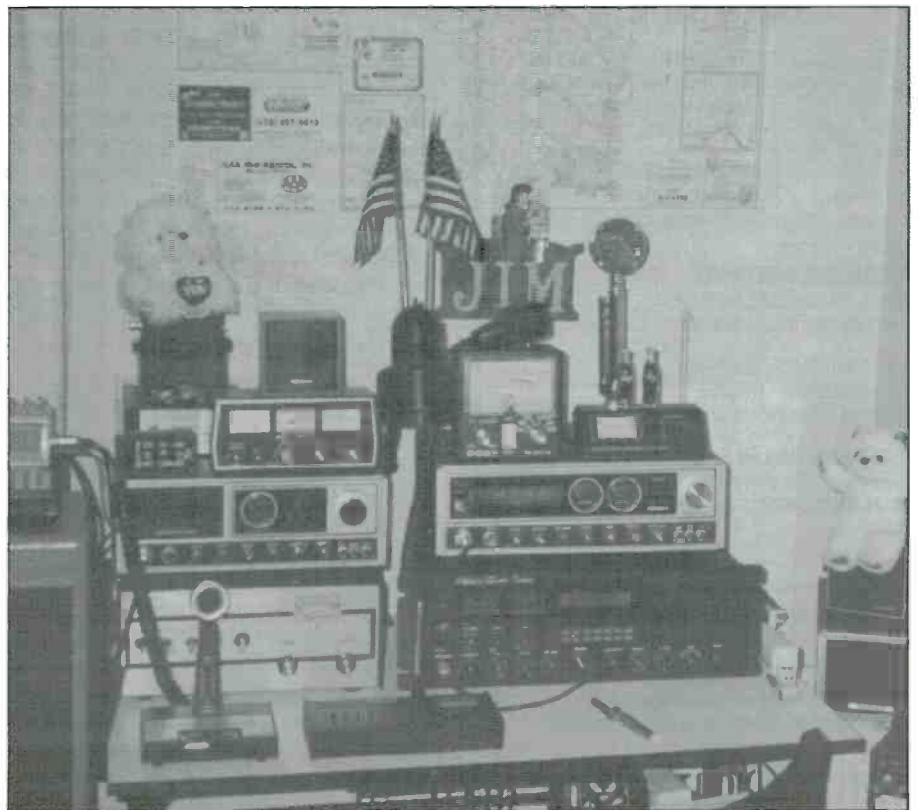


*The Cobra 2010—with dedicated power mike, weather channels, and weather alert—will replace the legendary 2000 GTL.*

cy communications support in its local area. In addition, REACT teams assist government authorities and relief organizations, such as the American Red Cross, during local emergencies. Since its formation,

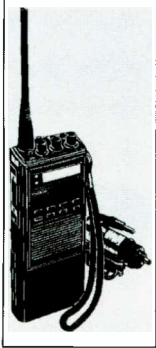
REACT efforts have helped save millions of lives.

The REACT logo will be added to all Cobra CB packaging. In addition, Cobra will reprint and distribute REACT pam-



*Jim Yealy's shack is neat as a pin. He has been on the air about two years.*

# GMRS Radios & Accessories



Finally!! A radio has been made with the serious GMRS & React user in mind! Maxon has developed a 2 to 5 watt, 10 channel, repeater capable radio with CTCSS included at a reasonable price! This unit has features you would normally expect to find only in commercial radios:

- high/low power setting
- Scan function
- Programmable CTCSS tones
- 2 freq. programmable channels!

Plus many other features to numerous to mention here.

**MAXON GMRS-210+3** 10 ch. 2-5 watt .....\$239.00

**Many accessories available:**

- WTA-13G VOX headset.....\$48.90
- WTA-4GM 1/4 wave mobile antenna .....\$28.90
- Maxrad 5/8 wave mobile antenna .....\$49.00
- Miniature speaker mikes, throat mikes and ear mikes also available for added privacy and convenience.
- MAXON GMRS-21A** 1 watt H.T. ....\$149.00
- UNIDEN GMR-100** 1 watt H.T. ....\$159.00

Many models of **ICOM & YAESU** HT's & mobiles in stock. **We have the lowest shipping rates!**  
 Shipping info.: Orders shipped in 24 hours with cert. ck. or money order. COD's shipped via UPS in 24 hours.  
 \$7.50 for pkgs. to 3lbs.

**Sports-Communications Dist.**

P.O. Box 36, Scotts Mills, OR 97375  
 (800) 573-2256 fax: (503) 873-2051

CIRCLE 79 ON READER SERVICE CARD

## TUNE IN SHORTWAVE'S DARK SIDE!

**CLANDESTINE BROADCASTING DIRECTORY**



**CLANDESTINE BROADCASTING DIRECTORY** - Times, frequencies, addresses, backgrounds ..... **\$12.95**

**UNO, DOS, CUATRO** - Those Spanish numbers stations, with frequencies ..... **\$13.95**

**PIRATE RADIO DIRECTORY** - Stations, frequencies, formats, addresses, more ..... **\$12.95**

**SECRET SIGNALS** - European numbers stations - frequencies, times, formats .. **\$12.95**

**THE CLANDESTINE FILE** - Clandestine radio since 1984 - stations, freqs, addresses, much more ..... **\$25.00**



See your radio book dealer or order direct  
 \$ U.S. only • Add \$2 s/h (\$3 foreign)  
 \$1 each add'l book  
 Full catalog \$1 (free with order)

VISA/MasterCard Orders  
 Call 1-800-420-0579 (8 am-6 pm CST)

**Tiare Publications**  
 P.O. Box 493  
 Lake Geneva, WI 53147

CIRCLE 80 ON READER SERVICE CARD



Trevor Fletcher, shown here with his impressive collection of gear, is definitely "radioactive."

phlets—"Getting Help by CB Radio" and "An Invitation to Join"—and include them in all CB packages. In recognition of Cobra's sponsorship, Norm Goldberg, Cobra's National Marketing Communications manager, has been appointed as an At-Large Director of REACT's International Board. For more information, call or write: REACT International, Inc., P.O. Box 998, Wichita, KS 67201; phone (316) 263-2100, fax (316) 263-2118.

In recent years, some REACT teams have abandoned monitoring CB Ch. 9, while others continue to do a superb job of helping others with the "emergency and traveler's assistance channel." For the sake of folks who need help on the road, let's hope the news of Cobra's sponsorship will re-ignite enthusiasm for Ch. 9 not just with REACT, but with CBers everywhere.

### From the Mail Bag

Somebody really ought to make an addition to the dictionary. Under the entry for "Warm Welcome" it really should say "See also POP'COMM readers." Since my first column appeared a few months ago, I've received more mail than I ever expected—letters welcoming me aboard, thoughtful questions, pictures of your radio shacks, interesting QSL cards, and lots more besides.

All I can say is, "Thanks!" It's the mail from readers that make this column fun. I read every piece of mail that you send, and I promise to answer as many letters as I can. So, please, keep those cards and letters coming.

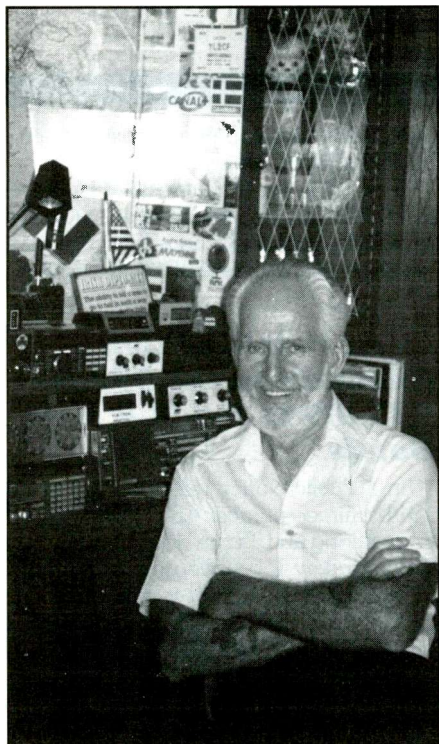
Hector Perez wrote from San Juan, Puerto Rico, to say he's been a CBer since 1978 and has since become a ham. He notes that sometimes he can't raise anyone on 2 meters, but 24 hours a day he can normally find somebody on CB to "give you a hand with a flat tire, to get you a can of gas, to help you in distress or simply chat and exchange ideas." That's been my experience, too, Hector—somebody seems to be on CB just about all the time.

Douglas Stingley of Salem, OR, forwarded a clipping from *Truckers News* that says a Christian Ministry to truckers has laid claim to Ch. 12 as a Christian alternative CB channel. It's an interesting idea, and I haven't run into anyone who has heard it on the air. But as much as I admire the motivation, the FCC rules clearly state that all channels are available to everyone for all legal types of communications. The only exception is that Ch. 9 is reserved for emergency and traveler's assistance communications. Therefore, no group can say, "This is our channel and no one else can use it." For more information on the ministry, contact Raleigh Huls, Highway Melodies, Box 7324, Grand Rapids, MI 49510 or phone (616) 452-6936.

Morand Jacques wrote from France to offer this list of French calling frequencies:

- |        |                         |
|--------|-------------------------|
| 26,285 | Calling DX-USB          |
| 26,965 | Calling local German FM |
| 27,185 | Truckers AM             |
| 27,005 | Calling local German AM |
| 27,065 | Emergencies AM          |





Patrick Burke has the right idea: radios and maps just go together!

subject. A lot will depend on the limitations/opportunities of your particular situation, whether you live in the city or country, how much room you have, how much money you want to spend.

Here are some general guidelines. First, everybody needs a vertical omni-directional antenna. That's because many CB signals, such as those from mobile units, are vertically polarized. From the signals that I have heard on the air, it seems clear that the Shakespeare Big Sticks and Antron 99s perform well—there are probably other verticals that do a good job too.

Second, if you want to increase the strength of your transmitted signal and boost the loudness of signals that you receive, a rotatable beam antenna—the bigger, the better—will help considerably. The problem with rotatable beams is that, particularly as they get bigger, they require some sort of fancy support structure, like a tower or a push-up pole and guy wires, to keep the beam up in the air. Obviously, this can add considerable expense and complexity to the business of improving your antenna system.

As might be expected from my Scottish ancestry, I've come up with a thrifty alternative that I think works pretty well. I use an aluminum vertical antenna attached to

a TV rotator which, in turn, is strapped to the chimney on top of our house. Also attached to the TV rotator—in horizontal orientation—is a three-element beam from Maaco, but any of the ham 10-meter monobander Yagi antennas could be adapted to the same use.

The advantage of this set-up is I don't need a tower because the beam is mounted flatside. The disadvantage is that the beam delivers maximum wallop *only* when I'm talking with another flatside beam. It's a compromise, but the price was right (about \$200 a few years ago), and I don't have to maintain a tower.

**WARNING:** working with antennas and support systems (chimneys, towers, push-up poles, etc.) can be extremely dangerous. If you have any doubts about your competence, seek advice from professionals who know what they are doing. It may cost a little more, but, hey, I want you as a reader for a long, long time!

Finally, Trevor Fletcher of Edmonton, Alberta, and Patrick Burke of Fort Wayne, IN, sent in photos of themselves and their neat operating set-ups. Thanks, guys!

Next time I'll have some interesting equipment news, and we'll dip into the Reader's Mailbag. Please write to me here at *Popular Communications*. ■

- 27,085 Calling local FM
- 27,275 Calling local AM
- 27,315 Calling DX-FM
- 27,345 Calling DX-LSB
- 27,455 Calling DX-USB international
- 27,500 Calling CW
- 27,540 Packet radio LSB (low tones AX-25)
- 27,555 Calling DX-USB
- 27,681.25 Emergencies British FM
- 27,731.25 Calling local British FM
- 27,781.25 Truckers British FM

Morand also wants to know where he can get information about U.S. CBing. Well, besides this column, the best single source is a book written by *Popular Communications* own Tom Kneitel. Called *Tomcat's Big CB Handbook*, this 221-page large format volume is witty, intelligent, informative, and great fun to read. It's packed with information about AM, SSB, Ch. 9, freebanding, tips on how to set up your station, a no-holds-barred history of CBing in the U.S., and lots of humorous stuff, too. Nothing else I've seen even comes close. You can get a copy for \$15.95, plus \$5.00 s/h (\$6 to Canada), from CRB Research, PO Box 56, Com-mack, NY 11725 (NYS residents please add \$1.78 tax).

A couple of people—Harold Abbott of Brooklyn, NY, and Donald Aspinall of Toano, VA—wrote to ask for advice about antennas. Unfortunately, this is a tough

**Motron** 310 Garfield St Suite 4  
**ELECTRONICS** PO Box 2748  
 Eugene, Oregon 97402

**New!** **DTMF & ROTARY**  
**TEST DECODERS**

**TONE-MASTER™ TM-16A & TM-16A Plus**



Decode and display DTMF from nearly any audio source; scanner, tape recorder, etc. And now decode and display either DTMF or Rotary digits from a telephone. TM-16a PLUS with RS-232 serial output includes Logger Software for optional automatic date/time/number logging using your IBM Compatible computer. Prices and specifications subject to change without notice.

**TM-16A** DTMF & Rotary Decoder \$179.00

**TM-16a Plus** with RS-232 output \$249.00

Shipping/Handling \$5 USA/Canada, \$15 Foreign. Premium shipping available for an additional charge.

Visa, MasterCard, Discover & American Express Accepted. COD on Cash or Money Order basis only: \$5.

Orders: (800) 338-9058    Info: (503) 687-2118    Fax: (503) 687-2492

**COPYCAT**

The ONLY Commercially Available Computer Control Program for the Universal M-7000 & M-8000  
 Also, supports AEA's PK-232 and the MFJ-1278




**Features**

- 32K Incoming Text Buffer
- Mouse Support (but not required)
- Runs on any 640K PC Compatible
- Pull Down Menus
- 20+ Programmable Macros
- On Line Help Screen

**FINALLY**, an IBM-compatible COMPUTER CONTROL PROGRAM for the M-7000 and M-8000. Let COPYCAT free you FOREVER from remembering all those buttons and keys. COPYCAT does it all! Simple "PULL-DOWN" menus control all functions. No more looking through complicated manuals or searching for buttons. ALL commands are in plain English. \*PLUS\* COPYCAT has a fully editable text buffer, with cut & paste. Save/load/edit/print files. PROGRAMMABLE macros and much more. COPYCAT supports ALL the above units within ONE program. Simply select your unit from COPYCAT's EASY-TO-USE menu and GO!

**COPYCAT \$69.95 (DEMO DISK \$5.00 Refundable with purchase)**  
 (Be sure and order our serial adapter if you do not have the specially wired cable for the M-7000/8000)

**SERIAL CABLE ADAPTERS FOR M-7000 AND M-8000 \$24.95.**

**SHIPPING/HANDLING \$5.00 (\$7.50 Foreign)**

**COMPUTER AIDED TECHNOLOGIES**

P.O. Box 18285 Shreveport, LA 71138  
 Orders Only (318) 636-1234 - FAX (318) 686-0449 (24 hrs)  
 Live Tech Support - (318) 687-2555 (9 a.m. - 1 p.m. Central M-F) Nitetime BBS (SCANCAT File Area) (318) 631-3082 (7 p.m. - 6 a.m. Central)  
 Online support available in GENie's Radio & Electronics RoundTable. Call 800-638-9636 to subscribe to GENie!  
 (See ad on page 21, 53 & 85)

Order direct or contact your favorite dealer

# WASHINGTON PULSE

## FCC ACTIONS AFFECTING COMMUNICATIONS

### **Filing for New Club and Military Recreation Station Licenses**

The Commission adopted a Report and Order allowing the resumption of the issuance of new club and military recreation station licenses.

The Commission will now accept application Form 610B; enter "NEW" in item #1 under "expiration date" until the new version of the Form 610B is released. Mail completed forms to the Federal Communications Commission, 1270 Fairfield Road, Gettysburg, PA 17325-7245.

For more information, contact the Consumer Assistance Branch, (800) 322-1117.

### **Six 800-Number Providers Were Overcharged**

The Commission upheld its staff's ruling that certain local exchange carriers (LECs) improperly assessed the higher carrier common line (CCL) charge on the originating end of calls using the complainants' 800 services at the same time that the terminating LECs were also assessing the higher CCL charge.

FCC rules state that a CCL charge is to be assessed on an "open" end of a call, or the end using exchange carrier common line plant to originate or terminate the call. A "Closed" end does not use common line plant. FCC rules and orders further state that the higher CCL charge should not only be assessed once on a single call.

Complaints were filed by Long Distance/USA, Inc., American Sharecom, Inc., MidAmerican Long Distance Co., Telemarketing Investments, Ltd., National Telecom of Austin, and Total-Tel, USA against The Bell Telephone Company of Pennsylvania; The Chesapeake and Potomac Telephone Company; The Chesapeake and Potomac Telephone Company of Maryland; The Chesapeake and Potomac Telephone Company of Virginia; The Chesapeake and Potomac Telephone Company of West Virginia; New Jersey Bell Telephone Company; Diamond State Telephone Company; Illinois Bell Telephone Company; Indiana Bell Telephone Company; Michigan Bell Telephone Company; Ohio Bell Telephone Company; Wisconsin Bell, Inc., The Mountain States Telephone and Telegraph Co.; Northwestern Bell Telephone Company of Nevada; The Pacific Telephone and Telegraph Co.; South Central Bell Telephone Company; Southern Bell Telephone and Telegraph Company; Southwestern Bell Telephone Company; Centel Corporation; Cincinnati Bell Inc., Contel

Corp.; GTE Corp.; Hawaiian Telephone Co.; the National Exchange Carrier Association (NECA); Southern New England Telephone Co.; and United Telecommunications, Inc.

The Commission concluded that the defendants who acted as originating LECs unlawfully assessed the higher CCL charge on the originating end of the complainants' 800 services. To the extent that any of the defendants or their subsidiaries did not act as originating carriers, they are not liable to the complainants. The Commission noted that the complainants have stated an intention to pursue the issue of damages in court and, therefore, the Commission did not reach that issue.

### **Office of Engineering and Technology Reinvention**

The Office of Engineering and Technology (OET) is restructuring its office allowing it to operate more efficiently and effectively. This reinvention established that OET's mission is to manage spectrum and provide technical leadership to create new opportunities for competitive technologies for the American public. The new OET consists of the Policy and Rules Division, Allocations and Standards Division, Equipment Authorization Division and New Technology Development Division.

The Policy and Rules Division will perform all of the Office's rule making and policy development activities and will prepare all associated documents.

The Allocations and Standards Division will conduct engineering, economic, legal, social and statistical studies relating to spectrum management; maintain data bases and other resources necessary for spectrum management; coordinate uses of frequencies with other government agencies; and provide FCC representation in national/international committees to develop communications technology.

The Equipment Authorization Division will act on applications for equipment authorization; address routine requests for interpretations with regard to how rules and standards for equipment will be applied; provide customer service in the equipment authorization program; and administer and maintain the FCC Laboratory.

The New Technology Development Division will administer and formulate policies for the experimental radio service, conduct studies on radiowave propagation and communications systems characteristics; conduct laboratory technical analyses to evaluate the potential of new services and technologies, and maintain liaison with other government agencies, international committees and other organizations con-

cerned with development of new communications technologies.

The Office recently relocated its offices to 2000 M Street, Washington, DC; staff located in Suites 480 and 230. The main telephone number is (202) 739-0700.

### **Fixed Point-to-Point Channels in the 932.5-935.0/941.5-944.0 MHz Bands**

In a Public Notice released August 23, 1990, mimeo number 4527, the Office of Engineering and Technology announced a filing window for Government and Non-Government fixed point-to-point channels in the 932.5-935.0/941.5-944.0 MHz bands. The window occurred between October 1, and October 5, 1990. That public notice also announced that upon listing final disposition of all applications filed in the window we would establish the date on which new Non-Government applications would be accepted for filing this spectrum. See also Rules 21.27(d) and 94.25(k). In a public notice released March 16, 1994, mimeo number DA 94-228, the Private Radio Bureau listed all Government and Non-Government applications accepted for filing during the operating authority conveyed by the relevant Government agency and that those Government facilities must be considered by all future applications in the preparation of frequency coordination studies. That public notice also announced that the disposition of Non-Government applications would be listed on the regular weekly public notices for the Common Carrier Point-to-point and Private Operational-Fixed Microwave Radio Services. Final dispositions of all Non-Government applications filed in the window have now been so listed.

Beginning on the release date of this public notice, new applications for Non-Government fixed point-to-point facilities in the 932.5-935.0/941.5-944.0 MHz bands in the Common Carrier Point-to-Point Microwave Radio Service and the Private Operational-Fixed Microwave Radio Service will be routinely accepted at the same filing addresses and under the same fee procedures that are in effect for all other applications in those services.

Applicants are reminded that the Government facilities listed in the public notice of March 16, 1994, as well as existing facilities in the Broadcast Auxiliary Radio Service, and facilities in the Common Carrier Point-to-Point and Private Operational-Fixed Microwave Radio Services recently granted, must be considered in the preparation of frequency coordination studies.



Applicants for one-way systems in this spectrum must demonstrate that spectrum efficiency will not be impaired and that unpaired spectrum is not available in other bands. Finally, applicants for fixed point-to-point systems in the Private Operational-Fixed Microwave Radio Service requiring bandwidths of 25 kHz or less must apply for 25 kHz or less must apply for 25 kHz channels in the 932.5-935.0/941.5-944.0 MHz bands in lieu of 50 kHz channels in the point-to-point portions if the 952-960 MHz band.

Questions concerning this public notice may be directed to the Microwave Branch at (717) 337-1421.

## Propose Rules to Establish New Terrestrial Microwave Fixed Radio Services

The FCC proposed to consolidate and simplify the regulations for common carrier and private fixed microwave services, currently contained, respectively, in Parts 21 and 94 of the rules, to create a new Part 101.

The Commission said the proposed changes would reduce redundancy now contained in the rules and remove obsolete rules and language. The changes would also simplify and clarify the requirements for filing license and other authorization applications, the processing of applications and other requests, and the operation of

common carrier and private operational fixed microwave stations.

First, the Commission proposed to make minor editorial changes in definitions. In instances where a definition now appears in more than one rule section and is phrased inconsistently, the Commission has proposed using the phrasing that it believes is the most precise. In cases where a definition appears in Part 2 of the rules as well as in another part, the proposed Part 101 definition will adopt the Part 2 definition in order to conform with the International Telecommunication Convention or the International Radio Regulations. The Commission also proposed the change the name and all relevant terms related to the Private Digital Termination System service to match the name and terms of the identical Common Carrier Digital Electronic Message Service.

Second, the Commission proposed eliminating several application showings that are currently required of common carrier microwave applicants under Part 21 of the rules, but are not essential for processing these applications.

These are: 1) financial showing; 2) public interest showing; 3) eliminating the requirement that applicants submit a copy of any franchise or other authorization when such authorizations are required by local law; 4) eliminating showings regarding control over the station and maintenance procedures, 5) eliminating vertical

profile sketch and site availability showing, as they are not necessary for processing. Lack of site availability has not been a problem in the common carrier services being transferred to Part 101; and 6) comments are requested on whether the public interest showing currently required of applicants in the Point-to-Point Microwave Radio Service should be retained or deleted.

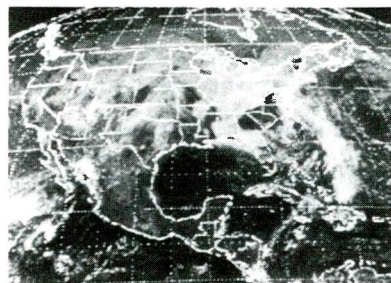
The Commission also proposed to allow electronic filings for all fixed microwave services authorized under Part 101 as is currently allowed for private land mobile applications. The Commission proposed technical changes affecting transmitter power limitations and interference standards. Finally, comments are requested on what requirements should be adopted regarding retention or posting of the station license.

## Billing for Adult Telephone Services Clarified

At the request of the National Telephone Cooperative Association (NTCA), the FCC clarified that carriers using the billing services of local exchange carriers (LECs) must notify the LECs when billing is for an adult message service provider.

The Commission clarified that its rules require carriers that contract with adult message service providers to notify the LECs providing subscriber billing for calls to these services that such calls should be

# Get A New Image

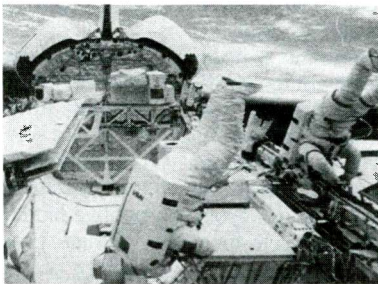


### PC HF Facsimile \$99

PC HF Facsimile is a simple, yet comprehensive short-wave fax system for the IBM PC and compatibles. It includes an FSK demodulator, advanced signal processing software, tutorial audio cassette, and complete reference manual. Just plug the demodulator into a serial port, install the software and getting FAX is a snap.

### PC SSTV \$149.95

PC Slow Scan Television is a complete system for sending and receiving full color amateur SSTV. The package includes an SSTV FSK modem, SSTV software, image capture utilities and reference manual. All popular formats are supported including Robot, Scottie, Martin and AVT. The system requires a 286, 386 or faster PC with VGA or super VGA display.



### Have It All For Only \$199.95

For a limited time we are offering both software packages with a single FSK modem for under \$200. This combination offer will let you send and receive all the popular HF image transmission modes.

Call or write for our free catalog. Visa and Mastercard welcomed.

**Software Systems Consulting**  
615 S. El Camino Real, San Clemente, CA 92672  
Tel. (714) 498-5784 Fax. (714) 498-0568

CIRCLE 78 ON READER SERVICE CARD

THE MONITORING MAGAZINE

Pager Decoder

Pager Decoder

Pager Decoder

## Message Tracker

Now decode digital pager messages using your PC and scanner. Adaptor connects to your RS-232 port and audio output jack on scanner. The Message Tracker software GOLAY program allows you to select various options and features.

### Advanced Features Include:

- Decodes both ASK and FSK Signals
- POCSAG - ASK (512 1200 2400 baud)
- POCSAG - FSK (512 1200 baud)
- GOLAY (600 baud)
- Auto Baud Rate Detection
- Handles GOLAY and multi-speed POCSAG modes on same frequency
- Allows option to monitor all messages on channel
- Ability to monitor messages only from your capcode address list
- Output to File with Time Stamp
- Displays both Alpha and Numeric Messages

**\$99<sup>95</sup>**

Plus \$4 S & H within U.S.  
\$10 S & H outside U.S.  
Tx Residents add 8.25% Sales Tax  
We currently accept checks and money orders only. Call for latest product and ordering information.

Mail Your Order Today !!!

Name:	_____
Addr:	_____
City:	_____
State:	_____ Zip: _____
Phone:	_____
E-mail:	_____
Message Tracker:	\$ 99.95
S & H:	\$ _____
Tx Residents:(8.25%):	\$ _____
<b>Total Purchase:</b>	<b>\$ _____</b>

**K & L Technology**  
P.O. Box 460838  
Garland, Tx 75046-0838  
Phone/Fax: 214-414-7198  
E-mail: KLTsupport@aol.com

Min. System Requirements:  
386 with math co-processor.

Pager Decoder

Pager Decoder

Pager Decoder

separately labeled as calls to adult message services on the bill. It said failure to do so would relieve the LECs of accountability for complying with adult message service billing regulations. These regulations include denying access to these services if technically feasible, unless subscribers request access in writing and where access is requested, identifying calls to adult message service as such on subscribers' bills.

## Regulations for Automatic Vehicle Monitoring Systems

The FCC took steps toward improving the quality, efficiency, and safety of the nation's highways by implementing rules for future licensing and continued development of many services and equipment for location and monitoring systems using the 902-928 MHz band. These new rules will enhance the use of the band for location and monitoring, and replace the existing interim rules governing automatic vehicle

monitoring (AVM) systems. The Commission, in taking this action, modified and eliminated outdated regulations that have not kept pace with the technological evolution of AVM and established the Location and Monitoring Service (LMS).

It is expected that in the coming years LMS systems will play an integral role in the development and implementation of a variety of radio-based, transportation-related services, known as "Intelligent Vehicle Highway Systems" (IVHS) or "Intelligent Transportation Systems" (ITS). The ITS is a collection of advanced radio technologies promising to improve the efficiency and safety of our highways, reduce harmful automobile emissions, and promote more efficient energy use and increase national productivity. In recognition of the expected growth of ITS, the Commission has created a new Subpart in Part 90 of its Rules for LMS—the Transportation Infrastructure Radio Services (TIRS). As additional spectrum is allocated or new radio services are created to further the efficiency of the

nation's transportation infrastructure, they will likely be regulated under the TIRS. The Commission stated that the TIRS furthers Congress' goal of encouraging ITS by providing an organized and unified approach to regulating spectrum for these services.

In sum, the Commission:

- Changed the name of the service from Automatic Vehicle Monitoring to the Location and Monitoring Service.

- Changed the terminology used to refer to the two general categories of LMS technologies from "wideband" and "narrowband" to "multilateration" and "non-multilateration," respectively;

- Permitted multilateration LMS systems to locate any object—animate or inanimate—ancillary to their primary vehicular location and monitoring services;

- Permitted LMS systems to transmit and receive status and instructional information, both non-voice and voice, related to the location and monitoring of a mobile unit, and permit, under certain conditions, LMS systems to interconnect with the Public Switched Network (PSN);

- Expanded LMS license eligibility to all entities eligible to be licensed under Part 90 of its Rules and allowed service in the 902-928 MHz band to be provided by LMS licensees to both individuals and the Federal Government on a commercial basis to paying subscribers;

- Clarified what constitutes harmful interference to multilateration licensees by unlicensed Part 15 devices and amateur operations;

- Allocated an additional eight megahertz of spectrum in the 905-928 MHz band for LMS use and adopted a spectrum allocation scheme for the 902-928 MHz band that designates sub-bands for multilateration and non-multilateration and non-multilateration operations, as follows:

Band (MHz)	System License
902.000-904.000	Non-multilateration
904.000-909.750	Multilateration
909.750-921.750	Non-multilateration
919.750-921.750	Multilateration and Non-multilateration
921.750-927.250	Multilateration
927.250-928.000	Multilateration

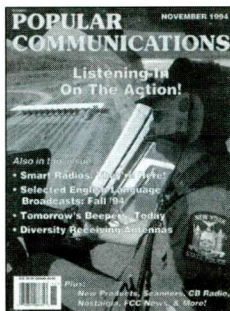
- Established exclusivity provision for multilateration systems within each Major Trading Area (MTA) and four additional MTA-like service areas in the above-designated sub-bands, and the resolution of mutually exclusive applications through competitive bidding;

- Made provided for grandfathering base stations of multilateration system licensees authorized as of February 1, 1995;

- Provided for licensing of non-multilateration systems on a shared basis in the designated sub-bands; and,

- Made provisions for further testing of multilateration systems to ensure that interference to ensure that interference to Part 15 operations is minimized. ■

## To Order Back Issues



Send \$3.50 Per Issue  
Check, Money Order,  
Mastercard, VISA, Discover  
and AMEX accepted

Send All  
Correspondence To:  
**CQ Communications**  
76 North Broadway  
Hicksville, NY 11801  
**516-681-2922**  
**FAX 516-681-2926**

Complete your collection today.

**ORDER YOUR  
BACK ISSUES  
TODAY!**

## You Should Know

(from page 42)

cial events or emergencies that are taking place. Several group paging notification systems are up and running in many major cities. The competition between groups in the Washington, southern Maryland, northern Virginia area has increased coverage, dropped membership prices, and improved expanding services. Beepers with alphanumeric displays are used by most of these notification services, however, in areas such as Philadelphia, GMRS repeaters are used.

The alphanumeric pager is perhaps the most wildly used notification method. When an event takes place, the information message is composed and sent as a group page message, alerting all members of the group at once. The brief message is printed on the pager screen. When a GMRS or other repeater is used, the information is just presented as a notification bulletin. One disadvantage to the GMRS bulletin method is that the subscriber or member must monitor his GMRS receiver. However, one advantage to the GMRS system is that a GMRS user can also input information to the group or sending station. Subscriptions to these services are normally quite inexpensive, however, the user must also either buy or rent his pager or handheld GMRS radio.

We have covered just two small subjects that allow increased knowledge and enjoyment of the hobby of communications monitoring. Next month, another exciting topic to allow even greater pleasures in the hobby of communications! ■



## Beaming In

(from page 5)

three radio talk shows invited me to appear to discuss these communications, and what I thought they might represent. I couldn't get over the response and attention this story drew!

To be sure, there were also letters from worried readers genuinely concerned for my "spiritual and psychic safety." Some feared I had contacted "demonic forces." I began receiving mail from people and organizations hoping to save me from the clutches of evil forces that had taken control of my life.

Parker Brothers, which makes Ouija Boards, dropped me a pleasant letter thanking me for the product mention. My story probably sold another 20,000 units.

In the end, I was thankful not to have heard from the FCC asking why I was on that band without the proper license. And I didn't get a bill from the phone company for a Long Distance Call, or maybe I should say a *Wrong* Distance Call. Other than that, just about everyone else had been heard from.

This made me realize that the topic of apparent communications with "the other side," or whatever you want to call it, is far more popular and volatile than I'd ever imagined. I found that this communication attracts the casually curious, fanatics, psychics, and serious scientific researchers. Mostly, though, Ouija Board fans are probably average folks seeking an evening's off-beat entertainment. Of course, these apparent contacts might not actually be unworldly. They could be arriving by telepathic means from other persons, or might be emanations from the operator's own unconscious mind.

In any event, I make no claim to being the Marconi of the Ouija Board. The name Ouija Board is now a trademark of Parker Brothers, however, under one name or another, automatic writing devices using planchettes have been popular in America for 150 years. Parker Brothers, which has sold millions of these now famous Ouija Boards, makes no supernatural claims for them. "Ouija" is a combination of the French and German words for "yes."

Twelve years after my Ouija Board story ran in EI, the November, 1982, issue of the science magazine *OMNI* carried a lengthy feature about the techniques then being seriously tried for communications with the surviving personalities of the departed. *OMNI* explained the work of George W. Meek, of Franklin, N.C., and his machine, the *SPIRICOM Mark IV*. According to Meek, his device produced results convincing him two-way communications had definitely been established with the personalities of persons who had died.

This was, of course, an age-old dream. Way back in 1901, when telephones were becoming fashionable, the big hit song was a tear-jerker called, "Hello Central, Give

Me Heaven." In his later years, Thomas Edison (1847-1931) expended considerable effort attempting to design and build a machine that would do this, although he never claimed he got one to work. There were later attempts by others, too.

In 1956, von Szalay and Bayless worked out a technique eventually known as Electronic Voice Phenomenon (EVP), and which seems to have become something presently known as Instrumental Transcommunication (ITC). A Swedish experimenter, Friedrich Jurgenson, claimed that he accidentally had success with essentially this same technique, which he tape recorded. His claimed success inspired others to attempt to perfect EVP, including Germany's Dr. Konstantine Raudive and his associates, Alex Schneider, and Theodore Rudolph. Raudive (died, 1974) was a noted psychologist. Schneider was a physicist, and Rudolph was a high frequency engineer who worked for Telefunken. Another associate was Dr. Franz Seidl, was an Austrian electronics engineer.

Basically, EVP was simple. A reel-to-reel tape machine is used with high-quality, low-noise tape. One mic is replaced with a germanium diode and a coil feeding off a three-inch antenna.

The second recording track of the machine is fed with a standard mic, located at a distance from the machine so it won't pick up any of its motor noise, and placed where it can't detect any noises from passing traffic or other unwanted sounds.

Then, with the volume at maximum, the experimenter asks for voices to come through. This is repeated every minute or so, and recordings are made for two or three minute periods, after which headphones are used to see if any disembodied voices appear on either of the recording tracks. Supposedly, when EVP worked, voices were heard at very low volume.

Years ago I tried this EVP cosmic telephone experiment. After carefully setting up all of the hardware, I called out repeatedly and pleaded for someone to respond. Nobody ever replied. That was still better than getting a busy signal.

Could it have been that the spirits didn't like my voice? When I'm speaking, I fancy that my voice sounds like a blend of the rich timbre of Perry Mason with the dulcet and resonant tones of Barry White. Yet, when I hear myself on tape, the reality is my voice actually sounds mostly like Richard Simmons mixed with Gilbert Gottfried.

My XYL was positive I couldn't get through because the Heavenly Realms had long since disconnected my service, having transferred all my accounts and records to a hotter venue. Well, let's hope the cosmic telephone didn't work simply because I'm as psychic as a potato pancake.

Meek's *SPIRICOM*, as described in *OMNI*, experiments were more sophisticated than basic EVP, and called for communications hardware. He used a modified R-390 communications receiver tuned to 29.600 MHz, reporting that FM mode was required. Meek said that the *SPIRICOM*'s

technique also uses a "special combination of 13 audio frequencies, and the input of energy from an operator who has certain psychic abilities." The communications were produced (or reproduced), he said, "by means of the artificially generated audio tones and have a distinctly mechanical quality, not at all unlike the voice that comes from a computer."

One of the odd things about in Meek's early experiments was that he claimed *SPIRICOM* didn't work unless the operator had "certain psychic abilities." Today, Meek is communicating by ITC, and is considered by some to be one of the fathers of this type of communications.

ITC is being used to bring in apparent spirit communications via radio and television, as well as on computers. Raudive has apparently contacted Meek via ITC, too. In Germany, there are 1,500 people using ITC, according to a report on CBS-TV in New York.

Steve Coker's e-mail caused me to think back on all of this. Arguably, the potentials for proving the validity of such communications, and the uses they could possibly have might lie in areas such as criminology, historical research, science, genealogy, the arts, religion, philosophy, and legal matters such as probates.

Others see it as spooky and scary. Or they warn against blundering into realms they feel are best left alone, lest the foolish intruder be deceived, or violate religious beliefs, or become "possessed."

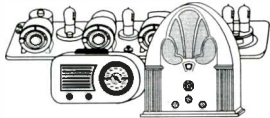
Is this stuff scary? A person could consider it so if they wanted. It didn't scare me. I'm unnerved by what I see in the news every day, like Washington politicians, and violent felons. Look at the headlines—Bosnia, Chechnya, Somalia, Rwanda, and other hot spots. I'm more spooked about the future of our planet's atmosphere and ecosystem. The Twentieth Century has proven we on the Earth plane have more to worry about at the hands of one another than from anybody or anything that's yet shown up from supernatural realms by Ouija Board or other psychic means.

A Gallup poll indicates that 28 percent of the American public believes this type of communications is possible. Of course, that means more than 70 percent of the public feels that serious consideration of the possibility by Ouija Board (or any other method) is bogus, and unworthy of either serious study or fear.

I keep an open mind on the topic. It's never been scientifically proven that such communications have been accomplished, or are possible. Nobody has adequately proven beyond any doubt that anybody's there capable of communicating with us, or anxious to do so. Still, though the contacts may never happen, it has never yet been proven these things are impossible to achieve and prove. And we don't know that some future experimenter won't satisfactorily work them out using an as-yet undeveloped or undiscovered technology.

Readers with opinions are invited to offer comments. ■

FREE  
SAMPLE  
COPY!



## ANTIQUE RADIO CLASSIFIED

Antique Radio's Largest-Circulation  
Monthly Magazine

Articles - Classifieds - Ads for Parts & Services

Also: Early TV, Ham Equip., Books,  
Telegraph, 40's & 50's Radios & more...

Free 20-word ad each month. Don't miss out!

1-Year: \$29.95 (\$47.95 by 1st Class)

6-Month Trial - \$16.95. Foreign - Write.

A.R.C., P.O. Box 802-T9, Carlisle, MA 01741



Or Call: (508) 371-0512



## C. CRANE COMPANY

### COMMUNICATION

Shortwave • Scanners • Antennas

SANGEAN, GRUNDIG, DRAKE, UNIDEN, AOR

The most powerful loop antennas for  
Shortwave/MW and much more!

International shipping

558 - 10TH ST. FORTUNA CA 95540

Free Catalog FAX 707-725-9060

**800 - 522 - (TUNE) 8863**

CIRCLE 53 ON READER SERVICE CARD



### Quality Microwave TV Antennas

WIRELESS CABLE - IFTS - MMDS - Amateur TV  
Ultra High Gain 50db (+) • Tuneable 1.9 to 2.7 Ghz.

- 55-Channel Dish System \$199.95
- 36-Channel Dish System \$149.95
- 20-Channel Dish System \$124.95
- Optional Commercial Grid Antenna (not shown) Add \$50.00
- Yagi Antennas, Components, Custom Tuning Available
- Call or write (SASE) for "FREE" Catalog

### PHILLIPS-TECH ELECTRONICS

P.O. Box 8533 • Scottsdale, AZ 85252

(602) 947-7700 (\$3.00 Credit all phone orders)

MasterCard • Visa • American Express • COD's • Quantity Pricing

Dish System  
LIFETIME  
WARRANTY

CIRCLE 71 ON READER SERVICE CARD

## 800MHz coverage!

We have scanners with 800MHz coverage!

Brands available include:

ICOM, Kenwood,  
Yupiter, and AOR

### ATLANTIC HAM RADIO LTD.

(416) 636-3636

(416) 631-0747 (fax)

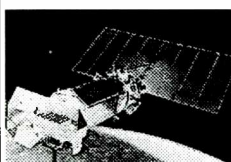
All U.S. orders shipped UPS Air

368 Wilson Ave

Downsview, ON

Canada M3H 1S9

## SPY ON THE EARTH



See live on  
your PC  
what  
satellites in  
orbit see

Capture live breathtaking images of the Earth for fun or profit. Zoom in up to 20X. Send \$39 check or M.O. (\$45 air, \$50 overseas) for our fantastic 12 diskette set of professional quality copyrighted programs (IBM type) that does satellite tracking, image acquisition, image processing, 3-D projections and more. Direct reception from the satellites guaranteed worldwide without a satellite dish. Schematics included for interface. For FREE information log-on to our bulletin board anytime at: (718) 740-3911.

### VANGUARD Electronic Labs

Dept. PC, 196-23 Jamaica Ave.  
Hollis, NY 11423 Tel. 718-468-2720

# COMMUNICATIONS SHOP

**Advertising Rates:** Non-commercial ads are 30 cents per word, including abbreviations and addresses; minimum charge \$6.00 per issue. Ads from firms offering commercial products or services are \$1.00 per word; minimum charge \$20.00 per issue. Boldface words are \$1.20 each (specify which words). Leading key words set in all caps at no additional charge. All ads must be prepaid in full at time of insertion; a 5% discount is offered for prepaid 6 time insertions. All ads must be typewritten double spaced.

**Approval:** All ad copy is subject to Publisher's approval and may be modified to eliminate references to equipment and practices which are either illegal or otherwise not within the spirit or coverage scope of the magazine.

**Closing Date:** The 10th day in the third month preceding date of publication. Because the advertisers and equipment contained in Communications Shop have not been investigated, the Publisher of Popular Communications cannot vouch for the merchandise listed therein. Direct all correspondence and ad copy to: PC Communications Shop, 76 N. Broadway, Hicksville, NY 11801.

**Please take note: As of May 1, 1995, we are no longer accepting free subscriber ads.**

**CB RADIO OWNERS AND DEALERS.** A new line of accessory circuits is now available. Breaker Beeper, Receiver Pre-Amplifier, Roger Beeper, many more—some never before available! Send an S.A.S.E. for a free catalogue to 6810 7th Street, N.E., Tacoma, WA 98422.

**TRADE OR SELL** Realistic HTX-202 with optional speaker mike, \$200. Realistic PRO-37 200 channel scanner, \$200. Have manuals. Will trade both for ICOM R-1. Call Steve, (914) 774-8891.

**TOMCAT'S BIG CB HANDBOOK**, by Tom Kneitel. 221 large pages, fully illustrated. Complete guide to world-wide AM, SSB, Freeband, 27 MHz operations. Everything they never told you (legal & otherwise) from world's leading CB authority. Only \$15.95 plus \$5.00 s/h (Canada \$6.00) from CRB Research Books, Inc., PO Box 56, Commack, NY 11725. (NYS residents add \$1.78 sales tax).

**WANTED: RADIO NEWS MAGAZINE**, February 1944 (Special Signal Corps Issue). Pay \$25.00-\$50.00 depending on condition, & Military Radio Manuals (all years). **GENE, KD4YIZ**, 1-800-619-0900, MMI, Box 720024, Atlanta, GA 30358-2024.

**FORMER INTELLIGENCE AGENT!!!** Catalog of affordable security, surveillance, countermeasures, cellular intercept, night vision, special and unconventional weapons. Monitoring is our specialty. Send \$5 to Lowry, 3111 Arendell Street, Morehead City, NC 28557.

**WORLD'S MOST UNUSUAL** Communications Books! A large selection of outstanding titles covering scanners, "confidential" frequency registries, bugging, wire tapping, electronic surveillance, covert communications, computers, espionage, monitoring, and more! New titles being added constantly! Ask for our big FREE catalog. CRB Research, BOX 56-PC, Commack, NY 11725.

**LOOKING FOR crystals for Drake 2B receiver.** Also need information on restoring cellular capacity to Realistic Pro-46 scanner. Sue Wilden, 2204 6th Street, Columbus, IN 47201.

**WANTED: USED OPTOELECTRONICS APS104 PRE-SELECTOR. FOR SALE: OPTOELECTRONICS** CF800 8355 MHz Filter/Amp. Brent Gabrielsen, 1177 East Tonto, Apache Junction, AZ 85219. (612) 969-8663.

**MORSE CODE Got You Down?** Why let a mental block stand between you and upgrading? Use PASS Publishing's **CW Mental-Block Buster to blast through those barriers.** Just follow the instructions for 30 days—Results Guaranteed! Based on 40 years of research, the **CW Mental-Block Buster** uses guided meditation, dynamic visualizations, and powerful affirmations to blast through mental blocks. **You can do code!** That means new bands, more contacts, more fun! (This is not a CW practice tape.) The **CW Mental-Block Buster** audio cassette and practice booklet are only \$25.95 ppd. in the US (GA residents add 6% sales tax). (Quantity discounts available for classes.) PASS Publishing, PO Box 768821, Roswell, GA 30076. 404-640-6295; FAX: 404-640-8780. Office hours after 4:30 PM Eastern. MC/VISA, COD. Mail/fax orders include signature.

**COMMODORE 64 HAM PROGRAMS**—8 disk sides—over 200 Ham programs—\$16.95. 32¢ stamp gets unusual software catalog of Utilities, Games and British disks. Home-Spun Software. Box 1064-PC, Estero, FL 33928.

**MINI SONY Surveillance TV System.** Swedish/German light meters, temperature chart recorder, professional sound meter. Shack applications. Pictures/info: \$1/LSASE to: R. Summers, 6804 Rockforest Drive, Louisville, KY 40219.

**TUNE In On Telephone Calls. Revised and Updated Edition!** Tom Kneitel's controversial 160-page book. Everything you need to know to effectively use a scanner and communications receiver to eavesdrop on private telephone calls from homes, offices, cars, ships, aircraft, trains. Explanatory text, photos, extensive listings section covers USA/Canada on HF, VHF, UHF, and above; thousands of locations, frequency assignments. Explains equipment, best techniques, laws regarding monitoring cellular, cordless, ship/shore, high seas, Air Force 1, airliners, 1-way paging, more. Only \$14.95 plus \$5.00 s/h (Canada \$6.00) from CRB Research, PO Box 56, Commack, NY 11725. NY residents add \$1.70 sales tax. Dealer inquiries invited. Visa/MC OK. Tel: 1-800-656-0056.

**RADIO SHACK SCANNERS** - Lowest prices all catalog items. 1000-channel PRO-2035, reg. \$449, our price, \$389. PRO-62 and PRO-51, Call! DX-390, reg. \$220, call! No tax out of Florida. Call 1-800-848-3004. Orders only. **COTRONICS INC.**, 2250 SE Federal Hwy., Stuart, FL 34994.

**WANTED HIGH PERFORMANCE?** The "Great" CBs, necessary accessories, antennas of the "Golden Era." Special Schematics, Classic Tubes, Dynamite Xstrs. L.S.A.S.E. to: AC, PO Box 383, Buckner, NY 40010-0383.

**SELECTED SHAREWARE (MSDOS):** Choice programs. All good. Many unusual. No disappointments. \$1 each. Free catalog on disk. Restricted book listing included. **MEN- TOR PUBLICATIONS, Box 1549-P, Asbury Park, NJ 07712.**

**GUIDE TO THE AR1000.** We publish a complete, 90-page guide for the operation and use of all AOR-AR1000 and Fairmate HP-100/200 scanners. Comes with 10 scan bank templates and a handy, six-panel, folded Quick Reference Card. \$18.45 including S&H in the USA. Design Eq, PO Box 1245-PC, Menlo Park, CA 94025. 415-328-9181.

**LOCATING, TRANSLATING SERVICE:** Books, shop service manuals, journals. Will barter third world translation services, book forwarding. Waterproof pages optional. Specialties: Bio-medical, folk medicine, Celestial Navigation. \$200 package. Bater with bible translators, Peace Corps, others. R.V. Engineering, PO BOX 734, Ottertail, MN 56571. (218) 367-2636.

**ANTENNAS for CB, SCANNER, CELLULAR, 2-WAY** base, portable, mobile. High quality at discount prices. Price list, \$1. **Radio Communications Services**, 1007 Eastfield, Lansing, MI 48917.

**I'M INTERESTED** in exchanging frequencies with scanner listeners in the Buffalo, Western New York area, and Toronto Southern Ontario area. Joe Galante. 34 Hampton Court, Williamsville, NY 14221-4301.

**INTERNATIONAL CLASSIFIED ADS.** Buy sell or trade electronic "stuff." Biweekly publication. Free ads, send today! Trading CIRC-IT, 86 Victoria Street, South Kitchener Ontario Canada N2G 2A9. SASE for information. E-mail b.blyleven@genie.geis.com.



**CW? NO PROBLEM.** You can increase your speed, no matter how many times you've failed before. **Results guaranteed** when you follow the instructions. PASS Publishing's CW Mental-Block Buster program helps you **explode mental blocks** that hold you back. Based on 40 years of research, the **CW Mental-Block Buster** uses guided meditation, dynamic visualizations, and powerful affirmations to blast through mental blocks. You can do code! That means new bands, more contacts, more fun! (This is not a CW practice tape.) The CW Mental-Block Buster audio cassette and practice booklet are only \$29.95 ppd. in the US. GA residents add 6% sales tax. (Quantity discounts available for classes.) PASS Publishing, PO Box 768821, Roswell, GA 30076. 404-640-6295; FAX: 404-640-8780. MC/VISA, COD. Mail/fax orders include signature. Office hours after 4:30 Eastern.

**SCANNER MODIFICATION HANDBOOK VOL. 1** by Bill Cheek. The famous original 160-page books. Performance improvement modifications. Simple step-by-step instructions, many photos. Primarily PRO-2004 & PRO-2005, some for PRO-34, BC-200/205XLT, BC-705XLT, BC-705XLT. Restore blocked-out bands, speed up scanning rate, disable "beep," increase number of channels, improve squelch action, add an S-meter, interface with shortwave receivers, etc. Make the PRO-2004 & 2005 into a 6,400 channel scanner; put 3,200 channels into the PRO-34! Plus, cellular frequency charts, antenna info & mods, inside info on frequency management, operating hints, emergency power supplies, scanners & the law, lots more! Only \$18.95, plus \$5.00 s/h (Canada \$6). Residents of NY State add \$2.36 tax. Big 220 page VOL. 2 with more mods for PRO-2004/ 5/6, PRO-34, PRO-2022, BC-760/950XL, BC200/205XL, also available, \$18.95 plus \$5.00 s/h (Canada \$6). NY State residents include \$2.36 tax. If both books are ordered at the same time, send only \$5 s/h. (NY State res. add \$3.65 tax if ordering both books.) Order from CRB Research Books, Inc., PO Box 56, Commack, NY 11725. Visa/MC welcome. Tel: 1-800-656-0056.

**RADIO MONITORS NEWSLETTER OF MARYLAND FOR THE SERIOUS SHORTWAVE AND SCANNER LISTENERS.** PO BOX 394, Hampstead, MD 21704. For a one year subscription: **\$15.00. Sample copy: one dollar.**

**HOW TO BUY A USED SHORTWAVE RECEIVER—** \$6 ppd. Complete catalog of Patriot/Right Wing books - \$1. Bohica Concepts, POB 546-PC, Randle, Washington 98377.

**CW Lite** is the **easiest** Morse Code training method in the world, bar none! And it is the fastest, too. Just closed your eyes and relax. This powerful **hypnosis cassette tape** does the rest. Subliminals speed you along! Only \$15.95 ppd in US (GA residents add 6% tax). Order today! **PASS Publishing**, Box 768821, Roswell, GA 30076. 404-640-6295; FAX: 404-640-8780. Office hours after 4:30 PM Eastern. MC/VISA, COD. Mail/fax orders include signature.

**PRO 23, 34, 37, 39, 43, 46, 51, 2006, 2022, 2026, 2027, 2032, BC-855XLT, BC-2500XLT 800 MHz modifications.** Well explained and illustrated steps, \$12 each, or \$20 if we do modification. Available to sell your products in Quebec and Canada; new brands and products welcome. 405 Grenfell, Labrador City, Newfoundland, A2V 1J3 Canada.

**CB RADIO HACKER'S GUIDE!** Big 151 page book, pictorials, diagrams, text. Complete guide to peaking, tweaking, & modifying 200+ CB radios for enhanced performance & more features. Which screws to turn, which wires to cut, AM & SSB radios: Cobra, Courier, GE, Midland, Radio Shack Realistic, SBE, Sears, Uniden/President. Get the most from your CB radio & operations. Only \$18.95, plus \$4.00 shipping (\$5.00 to Canada). NY State residents add \$1.95 tax. Order from CRB Research Books, Inc., PO Box 56, Commack, NY 11725. Visa/MC OK. Tel: (516) 543-9169.

**PAN-COM INT'L CATALOG.** Over 350 Kits, Plans. Licensed/unlicensed AM/FM broadcasting. Ham/CB/SW/DX, 1750M transmitters, Surveillance devices, Computers/Software, Science Projects, MORE! \$1 refundable. Box 130-P08, Paradise, CA 95967.

**HAM RADIO PROGRAMS** (plus 100s of other applications). Low as \$1.00 per disk. Send \$2.00 for catalog and sample disk to: TRI-MI SOFTWARE, 517 Pine Brook Road, Eatontown, NJ 07724. (908) 389-1049.

**SHORTWAVE LISTENER** looking for RTTY, FAX, etc., enthusiasts in Miami, FL area. I have equipment, but can use more know-how. Maybe start a club? Call Dan, (305) 226-3987.

**COMPLETE LAW ENFORCEMENT CELLULAR** phone monitoring guide. All methods of attack, frequencies, channels, base, spacing, increment search, cell search, **phone number target interception.** FREE equipment catalog with order. \$21, Operative Supply, PO BOX 2343, Atlantic Beach, NC 28512.

**MEN OF ACTION AND ADVENTURE** — Paladin Press has been described as "the most dangerous press in America." Millions of satisfied readers disagree. Outrageous and controversial books and videos on firearms, exotic weaponry, unconventional warfare, new identity, espionage and investigation, privacy, action careers and more! To order our 50-page catalog send \$1.00 to: Paladin Press, Box 1307-3BP, Boulder, CO 80306. (303) 443-7250.

**NATIONAL SCANNING REPORT,** America's #1 all-scanning magazine. Articles, frequencies, new products, more. One year subscription (\$19.90) includes custom frequency print-out for your county. Order toll-free 1-800-423-1331. Sample copies \$3.00 cash from Box 360, Wagontown, PA 19376.

**WOW! UNDERSTANDING & REPAIRING CB RADIOS** by Lou Franklin. **Giant 380-page technical book picks up where THE "SCREWDRIVER EXPERTS" GUIDE leaves off.** Includes circuit descriptions and troubleshooting guide for virtually all CB radios: 23 and 40-channel, crystal and PLL, solid-state and tube, AM, FM, SSB, CW, American, British and export models. Covers test equipment, transistor basics, synthesizers, receivers, transmitters, power supplies, T/R switching, antennas, interference, parts and accessory sources. Over 350 illustrations, plus huge subject index. **Moneyback Guarantee! Only \$29.95, plus \$3.50 U.S. & Canadian Air Mail, VISA/MC accepted.** Free catalog of unique CB books, plans, and modification kits with order. Catalog only \$3. **CBC INTERNATIONAL INC., BOX 31500PC, Phoenix, AZ 85046.** Thousands of satisfied customers since 1976.

**UHF MILITARY BAND** (225 to 400 MHz) monitoring aids. High performance MAX-225 ground plane antenna designed especially for this band, fully assembled, \$29.95 plus shipping. GRE Super Amplifier 20 dB scanner pre-amp (100 to 1000 MHz), \$55.95 plus shipping. "Directory of North American Military Aviation Communications," your state or province, \$24.95 plus shipping. "Top Secret Registry," \$21.95 plus shipping. USA shipping is \$4 for first item, and \$1 for each additional item. Canadian shipping \$5 for first item, and \$2 for each additional. NY State residents add 8.5% sales tax to item price and shipping cost. MC/VISA welcome. CRB Research, P.O. Box 6, Commack, NY 11725. Phone orders: 1-800-656-0056, Canada/AK/HI phone orders: (516) 543-9169.

**NTR-1 DSP NOISE/TONE REMOVER,** new. I paid \$169.95; yours for only \$95. Send money order to Yassin Abdela, Two Riverside Street, Rochester, NY 14613. Call (716) 254-0940 before mailing check.

**MILITARY RADIOS:** Easily made battery adapters for military radios & other electronics. Get **POWER UP!** Big new 96-page manual of instructions, diagrams. Use readily available commercial batteries in PRC-6, -8, -9, -10, -25, -28, -47, -74, -77, TRC-77, AN/PRC-9, AN/PRT-4, RT-77, URC-68, more; also mine detectors, night scopes, radiacs, field telephones, etc. Only \$13.95, plus \$4 s/h (\$5 Canada). NYS residents add \$1.53 tax. CRB Research Books, Box 56-PC, Commack, NY 11725. VISA/MC accepted. Phone (516) 543-9169.

**DECODE DTMF TONES** from WAV recordings. DTMF.EXE runs under Windows™ 3.1+, robust algorithms; works at sample rates 8-44 kHz. Fast! Send \$29.95 to John Holford, 10905 Timbermill Court, Oakton, VA 22124.

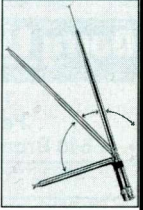
**WANTED:** Service manual for Realistic DX-300 S.W. receiver with schematics. Please write: Dwight Kornelsen, VE5 DXK, Box 1311, Watrous, Saskatchewan, SOK 4T0 Canada.

**RCI-2950/2970 MODIFICATION MANUAL.** Power and modulation increase. Clarifier, receiver, noise blanker modifications, operating hints, and more. Parts included, \$20 ppd U.S. money order, \$25 COD (MO residents add \$1.15 tax). Scott, P.O. Box 510408, St. Louis, MO 63151-0408, (314) 846-0252.

**MILITARY MONITORING GUIDE.** New book covers all phases of Military Monitoring. Military Frequencies all services: U.S. Military Bases, Military Black Projects, Major Air Force Installations, Monitoring Equipment and Systems, Navy/Coast Guard, and more, \$19.95, plus \$4 Priority Mail. UNIVERSAL ELECTRONICS, 4555 Groves Road, #12, Columbus, OH 43232. (614) 866-4605.

**NEW! CAT-WHISKER NEW!**

**TIRED OF YOUR HANDHELD SCANNER ALWAYS FALLING OVER JUST TO KEEP THE ANTENNA "VERTICAL?"**



Try our unique, swivel base, telescopic scanner antenna. Our new CAT-WHISKER lets you lay your handheld scanner on its back and still keep the antenna vertical!

- Swivels to ANY angle
- Easily adjusts to any length AND frequency
- Fits ANY scanner with a BNC antenna connector
- Fits on BACK or TOP mount scanner antenna inputs

What other antenna will let you lay your handheld on a car seat and still receive?

CAT-WHISKER #1 (5 to 23 inches) .....\$19.95  
 CAT-WHISKER #2 (6 to 36 inches) .....\$24.95  
 (plus \$5.00 S & H)

**COMPUTER AIDED TECHNOLOGIES**  
 P.O. Box 18285, Shreveport, LA 71138  
 Orders (318) 636-1234  
 FAX (318) 686-0449 (24 hrs)  
 (See our ad on page 21, 53 & 78)

**Get online with CQ on GENIE®**



Look for us in the Radio & Electronics Roundtable

To join GENIE, use your computer & modem to call 1-800-638-8369.

At the U#= prompt, type JOINGENIE

And for a special introductory offer, At the key/offer code prompt, type BWH528

CIRCLE 62 ON READER SERVICE CARD

**Personal Code Explorer™** Only \$99



★ Novices  
 ★ SWLs  
 ★ Veterans

Receive Digital Signals  
 Copies MORSE, RTTY, FAX, SITOR, PACKET, and more from your receiver to IBM/PC. Easy hookup. No TNC needed! Easy to use. Extensive manual.

Versatile software/hardware package that copies the greatest variety of coded signals on the air. User friendly menus, digital noise filters, global frequency lists, FAX-GIF converter and more!  
**NOW SEE WHAT YOU'VE BEEN MISSING!**

**Personal Code Explorer - \$99 S&H \$4**  
 Free Brochure. Call-Write-Order. MC/VISA.  
**Microcraft Corporation**  
 Box 513PC, Thiensville, WI 53092  
 Phone (414) 241-8144

CIRCLE 67 ON READER SERVICE CARD



212-925-7000

SHORTWAVE RECEIVERS, HAM RADIOS, BOOKS ANTENNAS, SCANNERS, Business Radios. MOTOROLA, ICOM, YAESU, KENWOOD, SONY GRUNDIG, UNIDEN, ANTENNAS, ETC. ... our 45th Year ... Worldwide shipping. Sales ... Service. Large Showroom. Open 7 days.

WE SHIP WORLDWIDE Barry Electronics Corp. WORLD WIDE AMATEUR RADIO SINCE 1950 Your one source for all Radio Equipment!

1-800-990-2929 Fax 212-925-7001

540 Broadway, NYC, NY 10012

CIRCLE 52 ON READER SERVICE CARD

As heard about on WHRI, WINB, WWCR, Radio Copan International

Reviewed by Larry Miller in April '93 "MT" Introducing—The New "TINY TENNA" Indoor Active Antenna The "TINY TENNA" works on LW, MW, SW, VHF & UHF. It runs on a 9 volt battery or AC adapter. (not included) Great for travelers, vacationers, apartment or condo dwellers, etc. No frills, nothing fancy only pure performance and Made in the USA! Complete and easy hook-up for ALL Receivers! Satisfaction Guaranteed! Special for "POP COMM" Readers! Only \$19.95

DWM Enterprises

1709 N. West Avenue, Jackson, MI 49202

\* plus \$4 US shipping, \$5 Canada/Mexico \$6 OX Check or MD only please US Funds

FIRE AUDIO CASSETTE TAPES

Listen to the action as New York City F.D.N.Y. responds to working fires. 60 minute audio tapes.

Other metro area fire departments listed in brochure.

FREE BROCHURE 1-800-575-1075

MOUNTAIN SALES

Unit 257-PC, 163 E. Main St. Little Falls, NJ 07424

MONITOR WITH THE PRO'S

The World Scanner Report - published 10x/yr for casual hobbyists • follows the latest technology of scanning the radio frequency spectrum from DC-to-daylight • consumer & hobby electronics • do-it-yourself scanner/receiver projects. • SASE or 2 IRC for info, or US Funds: \$4/ea; \$25/yr; Canada+15%; foreign+25% surt/50% air; MCVISA ok

COMMtronics Engineering; PO Box 262478; San Diego, CA 92196

CIRCLE 54 ON READER SERVICE CARD

Great Offer! 1995 CATALOG OF THE WORLD'S MOST FAMOUS CB ANTENNAS & ACCESSORIES FIRESTIK COMMUNICATIONS 2614 E. Adams · Phoenix, AZ 85034 Write or Call, 602-273-7151

CIRCLE 61 ON READER SERVICE CARD

DISCOUNT RADIO SANGEAN, PANASONIC, SONY, G.E., AIWA Save big on quality portable AM/FM, and SW radio receivers. Take advantage of our low pricing on the following popular receiver models. Order yours today. Sangean AT5-808 Digital AM/FM/SW \$149.95 Panasonic RF-B45 Digital AM/FM/SW w/SSB \$159.95 G.E. Superadio III AM/FM only \$54.95 Add (\$8 S/H) to order - Write or call: (818)780-2730

SURVEILLANCE & COUNTERSURVEILLANCE Electronic Devices Hidden Video Cameras • Electronic Kits • Voice Changers Bug and Phone Tap Detectors • Shotgun Mics • Micro Recorders • Vehicle Tracking • Locksmithing • AND MORE! Extra Long Play Telephone Recorders - Silently Tapes Incoming/Outgoing Phone calls automatically... \$125.00 and up SDY FOR CATALOG SEND \$5.00 TO...P.O. Box 337, OUTLET Buffalo, NY 14226 (716) 691-3476 - (716) 695-8660

PARTS NEEDED for Bearcat 220: PAL RAM interface, National MM 5785, Phil DeFreest, Box 499, RD #2, Rensselaer, NY 12144.

ANARCHIST COOKBOOK, \$22.95 postpaid, send \$2 for catalog. B-PEC, Dept. PCM 1193, Box 7638, Sunnymead, CA 92552-7638.

MacRadio. Macintosh tutorial program for New Pool Novice & Technician HAM License. \$29.00 + \$3.00 shipping (CA add \$2.40 tax). Lightning Industries, 1806 Milmont Dr., #125, Santa Clara, CA 95035 (408) 942-7998.

WANTED: Non-working, Regency HX-1000 scanner for parts. Preferably in good physical condition. Also, working drop-in charger for same. Les Wilson, 104 Rhoda Ave., North Babylon, NY 11703-3212.

FOR SALE: Amplifier with four 4-1000A's, Dahl transformers, Jennings vacuum variables monoband 10-12 meters—\$5,000. Grady, POB 62, Cookeville, TN 38503. 615-432-5588.

MINIATURE TRANSMITTERS! All types! Send \$2 for information, refundable on first purchase. Parsec Electronics, P.O. Box 34594, Phoenix, AZ 85067-4594.

THE GE SUPERADIO III with up to four modifications is choice for many DX'ers. Low as \$85. MC, VISA, 800-944-0630.

"FORBIDDEN SECRETS OF THE LEGION OF DOOM HACKERS!" Big 224-page handbook. The infamous LOD's condemned programs and amazing techniques, from the LOD's now shut down in BBS. Hacking, phreaking, and more! Hard to locate information, now in this Limited edition. For reference and informational purposes only. \$20.95, plus \$5 s/h (Canada \$6). NYS add \$2.21 tax. VISA/MC okay. CRB Research Books Inc., Commack, NY 11725. Phone orders: 1-800-656-0056.

FREE IMPORT/EXPORT CB CATALOG by FAX-ON-DEMAND 24 hours a day. LOWEST PRICES. Call LORD/WYATT COMMUNICATIONS, (718) 789-7329.

LAST CHANCE: We have a very limited supply of the modifiable cellular Bearcat scanners left. BC-2500XLT, BC-2500XLT, BC-890XLT, etc. Once these are gone, they are gone forever. Call for close-out prices—we ship COD, and free U.P.S. shipping to 48 states. Galaxy, Box 1202, Akron, OH 44309, (216) 376-2402, 8:30-4:30 EST. Our 11th year!

RESTRICTED top secret Hacker information. Cellular/cable/surveillance/satellite/VideoCipher/books/videos and more. Catalog—\$3. TELECODE, P.O. Box 6426-PC, Yuma, AZ 85366-6426.

CB LINEAR Mobile Amplifier. TNT-Eagle 200, three stage. AM/SSB bi-linear, 200 watts AM/key, 285 watts SSB, 20 dB receive pre-amp, auto SSB switching. New in box, \$165, plus shipping. (301) 559-5640.

BUILD THE ULTIMATE 11 meter vertical. For detailed plans send \$15 to Terrapin Sales, P.O. Box 12426, La Crescenta, CA 91224-5426.

HALLICRAFTERS CONTINENTAL MODEL 5R33A manual wanted. Will pay postage and copying. Steve Batson, 4012 Staunton Ave., Charleston, WV 25304.

FOR SALE: Kenwood TH-25AT plus accessories, \$350. Kenwood TK-340HT plus accessories, \$450. Yaesu FT-470 plus accessories, mint \$375. Uniden BC855 XLT, mint \$150. James, KB8LFE, (810) 545-1006, after 1800 EST.

SATELLITE RADIO BOOK AND GUIDE. New book covers all Audio Services, SCPC, Subcarriers, FM Squared, Facsimile, Press Services, Weather Services. Simple how-to-receive instructions, \$16.95, plus \$3 Priority Mail. UNIVERSAL ELECTRONICS, 4555 Groves Road, #12, Columbus, OH 43232, or call (614) 866-4605.

R-390A SALES-SERVICE PARTS. Info, SASE. Miltronix, PO BOX 3541, Toledo, Ohio 43608.

COMPUTER \$\$\$! Start a home computer business or enhance any business with computer business needs. Startup/operation manuals, video tapes, business software, turn-key computer systems. FREE brochure. The Harsin Company, 8681-B West, New Bethel Road, Lexington, IN 47138, (812) 866-4076. (24 hours).

SECRET CB BOOKS 1-29, \$10 each. Sams books \$15 each. Modulation kits RCI 2950, HR 2510, Connex 3300, Cobra 148, Cobra 29, plus many more, \$17. Call 1-800-536-0109 for free catalog.

MILITARY ELECTRONICS. URC-68 AM/FM handhelds w/NiCad s-\$225/pr. URC-773 FM manpack (uses D-cells), \$375. RC-292 field antenna, \$75. TRC-3 seismic intrusion det.sys. (uses 9v. bat.) \$250/set of four. 1-800-316-0701.

SCANNER SOURCEBOOK. Nationwide directory of products available for your scanner. Over 400 listings, 42 pages. SASE for info, or \$12 postpaid. Griffin Research, 16333 Harbor #110-P, Fountain Valley, CA 92708-1311.

HOME AUTOMATION. Become a dealer in this fast-growing field. Free information. Send name, address, phone to ECS, Box 407, Fairbury, NE 68352, or call (800) 838-4051.

WANTED: All possible modifications for Realistic PRO-2026 mobile scanner. Send info Bob Madorin, 7815 Westgate, Lenexa, KS 66216.

FOR SALE: SONY ICF 2010, one year old, used less than three hours. Original packing, \$275. Call (408) 637-2664, or P.O. Box 1507, Hollister, CA 95023.

KENWOOD R-5000 with YK-88A-1, YK-88SN, IF232C, IC-10 and software \$750. PRO-2006, \$300. All like new, in box(es). Bob Randall (402) 483-2429.

CABLE DESCRAMBLER! Build with ONLY seven Radio Shack parts for UNDER \$12. Complete instructions, \$8. FAST. Box 369-U, Pt. Salerno, FL 34992-0369.

SHACK CLEAN OUT! Equipment, books, magazines, club bulletins, tapes, station momentos, miscellany. Full list for an SASW w/two units of postage. G. Dexter, 213 Forest Street, Lake Geneva, WI 53147.

PROBE. Powerful! Easy! Fast! Ultimate software for Opto-electronic's OptoScan 456. Free details. DataFile Inc., Box 20111, St. Louis, MO 63123.

HELP! Spanish CBers buying the ultimate book printed to get funds for CBers in need. Last five CB years printed for \$40. Francisco Garcia, Apartado 859, 46080-VALENCIA SPAIN.

THE RED ONION EXPRESS BBS in Wawayanda, NY Your source for shortwave scanning and Amateur Radio infu-riation since 1988. Call (914) 342-4585, 1200-14400 bps, 24 hours. SysOp-Steve Fleckenstein.

CABLE TV INSTALLERS MANUAL. Single dual cable systems. Telephone poles, houses, apartments, explained! Send \$14.95 to Infotek, P.O. Box 71072, Milwaukee, WI 53211.

WANTED—Contact with those who had midget radios made in Kearney, Nebraska in the 1930s. Al Birch, K7WQS, 5403 North Maple Street Spokane, WA 99205-5531.

CABLE DOCTOR—Stop the bullet and ID signaling cable lines. Send \$21 to RR Enterprises, Department PC, Box 3532, Easton, PA 18043.

CB'ers LOW DEALER PRICES on CBs and accessories. Order radios with accessories installed. For complete list of radios and accessories, send \$1 and SASE to TJ's CB RADIO, Rt. 1, Box 44A, Ingham, IL 62434.

RADIOTELEPHONE SCRAMBLER. Datotek 2000. Includes two push-to-talk phones, two scramblers, manual. Excellent security over all narrow band channels. Used by military, corporate, small businesses, \$2400, new. Sell for \$500. Excellent condition. (907) 262-1383. FAX: (907) 262-7899.

VHF AERO SCANNER GUIDE: Kneitel's Air-Scan, sixth edition. Great new edition of the new comprehensive and popular USA/Canada VHF aero band directory ever published: Civilian, Military, Private Airports, Heliports & Seaplane Bases, Control Towers, ARTCC, Weather, Approach/Departure, FSS, Ground Control, ATIS, Unicom, National & Air National Guard freqs., etc. Many listings for airport security, fire/rescue, airline ground services & more beyond the aero band. You ONE "must have" guide to tens of thousands of aero related monitor frequencies! Only \$18.95, plus \$5 s/h (\$6 to Canada) from CRB Research, P.O. Box 56, Commack, NY 11725. VISA/MC accepted. Phone orders 1-800-656-0056. Orders from Canada/HI/AK: (516) 543-9169. (NYS res. add \$2.04 tax.)

THE AMERICAN INTERNATIONAL CLUB is the fastest growing 27 MHz LSB DX club in existence. For application send SASE: AIC, Box 701431, Queens, NY 11370.

FREE INTERNET: Manual contains 1-800 numbers and instructions for open Government bulletin boards and Internet. \$10 check or M.O. to T.L. O'Neil, RR1, Box 451, Park Rapids, MN 56470, (218) 732-0149.



# SUPER SANGEAN SALE

A World of Listening



**Tucker**  
SatisfactionPlus  
30 Days - No Questions Asked  
Guarantee

**Purchase any of these great Sangean Radios and receive a Tucker SW-500 Portable SWL Antenna (a \$79 value) for only \$25 more!**

**FedEx**® Federal Express Economy Service available on most orders only \$6.95



**Sangean**  
**ATS-202**  
Ultra Compact  
Shortwave Receiver  
**\$89**

This ultra compact PLL synthesized digital shortwave receiver fits easily in the palm of your hand yet offers more performance and features than many full sized receivers. Unique switch allows user to choose continuous tuning across entire SW band or continuous scanning within the selected SW band. Covers all shortwave bands from 120 to 11M as well as AM/FM/FM stereo. Includes 20 memories, auto and manual tuning, a sleep timer and an alarm clock. Measures only 5/4" x 3" x 1" and weighs only 10 oz. Comes complete with earphones and a carrying case. Specifications: Frequency Ranges: Standard AM, Standard FM, SW1: 2.3-7.3 MHz (continuous), SW2: 9.5-26.1 MHz (continuous); Output Power: 100 mW; External Power: 3 VDC; Batteries: 2 "AA" Batteries; Accessories: Carry pouch, earphones.

**Sangean**  
**ATS-800**  
**\$89**



- Compact, state-of-the-art entertainment center
- 15-band digital shortwave receiver
- AM/FM/stereo, 20 presets, auto/manual scan
- Clock & sleep timers, carrying case, headphones included
- Requires 4 AA batteries

**Sangean ATS 606 (P)... \$169**  
**Sangean ATS 606 (radio only) \$139**



Sangean's smallest radio yet measures only 6" x 3" x 1", yet has more features than any other in the line. These features include

ATS (auto tuning system) which will automatically scan and select presets based on station signal strength. Other features include complete 1 to 30 MHz digital shortwave coverage plus AM, FM stereo and LW, 5 tuning methods, dual time display, dual alarm timer and adjustable sleep timer. The 606P version comes complete with ANT-60 portable shortwave antenna and 100/240 VAC worldwide travel adapter. Uses 3 AA batteries or adapter. Both versions come complete with carrying pouch and stereo headphones. Specifications: Frequency: 153-29995 kHz, FM 87.5-108 MHz (continuous). Output Power: 180 mW; Batteries: 3 x 1.5 VDC "AA" size; Accessories: Shortwave Handbook



**Sangean**  
**ATS-808**  
Digital Receiver  
**\$139**

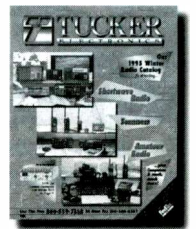
The ATS-808 is a full featured digital receiver. Measuring 7 3/4" wide by 4 1/2" high and 1 1/2" deep, the 808 is an excellent receiver for short wave broadcast stations. It includes such high-tech features as a continuous coverage 150 to 29999 kHz receiver, AM/FM/stereo, 45 presets, color display, dual time readout, FM stereo signal & battery strength indicator, sleep timer and tone control. Suede case and stereo headphones included. Requires 6 AA batteries or AC adapter (ADP-808 AC adapter for ATS-808 \$9.95).

## ★ DEMO SALE ★

Call Today For Great Prices On Demo & Returned Radios. All have original manufacturers warranties. Take a look at these great savings on World Band Receivers:

Sony ICF-2010 ..... Was \$359 ..... Now \$319  
Sony ICF-SW800 ..... Was \$139 ..... Now \$109  
Sony ICF-SW77 ..... Was \$489 ..... Now \$419

**Call, Write or Fax For**  
**Our FREE Catalogs!**



**Call: 800-527-4642**

**TUCKER**  
ELECTRONICS

1801 Reserve Street, Garland, TX 75042 • P.O. Box 551419, Dallas, TX 75355-1419 • In Dallas: 214-348-8800 • Fax 24 hs. in English, Español, Français, und auf Deutsch: 214-348-0367



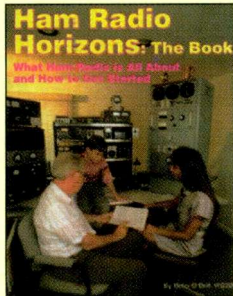
CIRCLE 160 ON READER SERVICE CARD



# Ham Radio Horizons

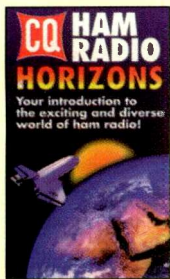
## Book & Video

### Ham Radio Horizons: The Book



Written by Peter O'Dell, WB2D, this is a book about ham radio that every beginner can enjoy! If you want to get in on the fun and excitement of Amateur Radio, Ham Radio Horizons is the perfect way to get started. HRH is full of tips from expert hams in: DXing, Contesting, Serving the Public, Ham Radio in Space, Experimenting, Digital Communications — you name it! This exciting book is an excellent gift to a prospective ham or for use in your club's licensing classes and library.

Order No. BHOR..... \$12.95



### Ham Radio Horizons: The Video

Video Available in PAL format

This introduction to Amateur Radio is an excellent complement to the Ham Radio Horizons book. Enjoy seeing all aspects of ham radio ranging from what it takes (and costs) to get started to how you can get your ham license. De-signed for the general public, HRH is ideal for public events, presentations to community groups and as an opening to your club's licensing courses! There's no better way to introduce someone to ham radio.

Order No. VHOR.....\$19.95

Order Toll-Free  
**1-800-853-9797**

CQ Communications  
76 North Broadway  
Hicksville, NY 11801  
FAX 516-681-2926

**PIRATE RADIO, TIS**, or emergency MW antennas. Ten-inch fiberglass, \$184 plus shipping. HELIXING, 1302 McCameron, Lockport, IL 60441, (815) 836-0426.

**FOR SALE:** Grundig Satellite 700, still under warranty, original box, instructions, \$300. Joe Rampulla, 301 Jefferson Avenue, #6-B, Miami Beach, FL 33139, (305) 673-0394.

**DECILLION YEARS FREE CATALOGS.** Mr. Whiting, 3300 South York Road, Apt. 7, Seattle, WA 98144-7033.

**NEW AWARDS PROGRAM!** For SWL's, DX'ers, Scanner Buffs! Self-addressed stamped envelope brings details! ISWAC, Box 66, Hanover, MI 49241.

**FM BROADCASTING:** Transmit many miles, excellent sound, 80-108 MHz. Not a bug. Kit or assembled, full info call 24 hours. R. Scott Communications, (604) 642-2859.

**TRADE:** POP'COMM 1982 to October 1990 complete, plus November 1990 to present (missing 8 issues) towards 800 MHz handheld or base scanner, or digital SW receiver, in good condition. Can ship from Maine in July. Harold Rosenberg, 5260 Rosedale Avenue, Montreal, Quebec, H4V 2H6, (514) 488-8594.

**BEARCAT SCANNERS, CB's, PROFESSIONAL RADIO** and accessories at incredible prices. Catalog, \$3. Double refund on first order. V. MC. DISC. E.I.S., 917 State Rt. 42, Sparrowbush, NY 12780, (914) 856-8800.

**COMPLETE SOURCE CODE** and all rights to CCC-ScanSys, the best scanner control program for Radio Shack PRO-2205/6/35. Includes documentation, disk files for printed manual, any assistance required. Contact Dan, (518) 456-0678.

**SCANNING RECEIVERS** for monitoring police, fire, aircraft. Base, mobile, handheld. Antennas, CBs, and accessories. HPR Box 621136C, Littleton, CO 80162.

**ANTENNAS! FILTERS! BOOSTERS!** Many unique products and services that provide **10x signal boosting, narrow-bandwidth filtering, lightning and overload protection, SCA decoding and a noise reducing** high-performance indoor amplified loop antenna for \$115.90! For catalog, send a 32-cent stamp. WorldCom, Box 3364-p, Fort Pierce, FL 34948. (407) 466-4640.

**FOR SALE:** TRS-80 model 100 portable computer, portable disk drive, much more. Dave, (515) 454-2270.

**YAESU FRG-7** communications receiver AM/SSB/CW .53-30 MHz, \$150 plus shipping. Send check to M. Saady, 213-05 75 Avenue, Bayside, NY 11364.

**LOOKING** for owner's manual for Panasonic model RF-4900. Scott Douglas, 513 North Franklin Street, Juneau, AL 99801.

**FREE SPEECH** newsletter, real patriots and real media bypass with me MOM hypocrisy: National Vanguard Books, P.O. Box 330, Hillsboro, WV 24946. Info #'s (214) 821-4875, (304) 653-4600, (206) 782-9898.

**REGENCY/WILSON** 16-channel VHF 5-watt handheld transceiver. Programmable, drop in charger, case, \$425. Will take \$150. D. Ballard, 503 West Arch, Jerseyville, IL 62052.

**DRAKE R8 COMMUNICATION RECEIVER**, mint condition with manual. Yaesu headphones. MFJ 959B pre-amp tuner with AC adapter. Complete package. \$700 firm. Murphy, 201 West Glencove Avenue, Northfield, NJ 08225.

**WANTED TO BUY:** SW2F BFO pre-selector switch for DX302 (serial number 20-220) by Realistic. Harry Brown, 2107 East 16th, Russellville, AR 72801.

**BEARCAT 855**, \$225. Bearcat 200, \$275. Both new with full 800 MHz coverage. Call 1-302-655-2880.

**COLLECTOR** seeks TV/radio news dept. mic, flags. Any condition, cash paid! Mark Jeannette, (408) 475-1197.

**NEWS NETWORKS**, sports, music, radio reading services are available on SCA sub-carriers. For catalog of SCA/SAP receivers and other items, send \$1 to A.J.L. Enterprises, Box 5354, High Point, NC 27262.

**TELECOMMUNICATIONS/ELECTRONICS TRADES.** 1995 listing of 100 company addresses. Domestic and overseas employment. Check or M.O. for \$11.95 to: Edward Piele, 11423 Hartford Lane, Pomona, CA 91766.

**LOOKING** for owner's manual for Panasonic RF-4900. Scott Douglas, 513 North Franklin Street, Juneau, Alaska 99801.

**DRAKE R8**, like new in box with manual, plus unused balun antenna and many related books. (Total retail, \$1200+.) Asking \$850. (401) 231-8225.

### Advertisers' Index

AMC Sales, Inc. ....	5
AOR, LTD. ....	Cov II
A.R.R.L. ....	59,73
Ace Communications. ....	Cov III
Antenna Supermarket.....	19
Antique Radio Classified.....	84
Atlantic Ham Radio .....	84
Barry Electronics Corp. ....	86
Bearcat Radio Club.....	14,37
C. Crane Company .....	84
CB City International, Inc. ....	68
CRB Research.....	40,51,70
CQ '96 Beginner's Guide to Amateur Radio. ....	54
CQ Ham Radio Horizons Book & Video .....	88
CQ Magazine .....	50
CQ New Shortwave Propagation Handbook.....	76
Cellular Security Group .....	69
Chaston Scientific, Inc. ....	41
Chilton Pacific Limited .....	86
COMMtronics Engineering .....	86
Communications Electronics, Inc.....	29
Computer Aided Technologies.....	21,53,79,85
Consumertronics .....	68
Copper Electronics, Inc. ....	69
DWM Enterprises, Inc. ....	86
Delta Research .....	14
Drake, R.L. Company.....	13,75
EDCO .....	7,35,37,39
Electronic Equipment Bank.....	1
Firestik Antenna Company .....	86
GMRS Radio Sales .....	9
Genie Radio Electronics RoundTable.....	85
Gilfer Shortwave.....	6
Grove Enterprises, Inc.....	31,33
ICOM America, Inc.....	46,Cov IV
Index Publishing Group, Inc.....	51
Jo Gunn Enterprises .....	5
K & L Technology.....	81
Lentini Communications, Inc. ....	53
MFJ Enterprises, Inc. ....	43
Microcraft Corporation .....	85
MoTron Electronics .....	79
Mountain Sales.....	86
Optoelectronics, Inc.....	4,15
PerCon Corporation .....	39
Philips-Tech Electronics .....	84
R.C. Distributing.....	24
REACT International .....	40
Radio Bookstore.....	65
Radio Control Systems, Inc. ....	55
Radio Shack.....	23
SGC, Inc.....	10
Scanner World USA .....	16
Scrambling News.....	68
Signal Intelligence .....	9
Software Systems Consulting.....	81
Sports Communications Dist. ....	78
Spy Outlet .....	86
Tiare Publications .....	78
Timestep .....	60
Tucker Electronics .....	87
U.S. Scanner Publications .....	25
USRadio .....	65
Universal Radio, Inc.....	3
Vanguard Labs .....	84
Viking International .....	21
Wilson Antenna, Inc. ....	27
Xandi Electronics.....	24

Reach this dynamic audience with your advertising message, contact Don Allen, N9ALK at 217-344-8653, FAX 217-344-8656





**Grundig  
YB400  
\$199**



**Sangean  
ATS818  
\$145**



**Bearcat BC890XL  
29-958MHz  
\$249**



**Bearcat  
BC3000  
25-  
1300MHz  
\$379**

**Bearcat  
BC220  
Twin  
Turbo  
\$229**

**Bearcat  
BC80  
with  
800MHz  
\$169**

**Radioware A Receiver Inside Your Windows Computer**

Radio Analyzers Data Bands Stations Configure Help

Tx Frequency: 4,900,000  
 Frequency: 8,800,000  
 Max Frequency: [dropdown]  
 Min Frequency: [dropdown]

Filter: 400 1800 200 2700 50 16K  
 Mode: LSB USB AM ISB

Calibrate: 14,316,782

Control Station EX Ant Power Mixer Gain Analog Gain Comp Level TX Ant Power Volume

**A .45 to 30MHz Receiver with Digital Signal Processing & TX option, \$549.00**



**GW2 Pre amp \$79**  
1 to 3000 MHz, Variable Gain  
**GW3 Pre amp \$99**  
1 to 3000 MHz, Variable Gain  
Two Notch Filters



**Trident  
TR980  
5-999MHz  
AM/NFM &  
WFM  
\$299**



**Trident  
TR2400  
100kHz-  
2660MHz  
1kHz Steps  
VFO,  
BFO/USB,LSB,  
Signal Strength  
Meter  
\$499**



**Trident  
TR1200  
.5-1300MHz  
AM/NFM/WFM  
1000 Channels  
\$399**



**Trident Spectrum Analyzer  
\$699**

**1 800 445 7717**

Is your toll free information superhighway for more information, more products, more tech support and the best deals. Call about these and a host of other radio receivers and accessories. You'll reach our order line, tech support line, fax line, or fax back information service; all by dialing our toll free number in the US or Canada 24 hours a day, 7 days a week. For export products and information, dial 317 849 2570 or fax us at 317 849 8794 in Espanol, Francais, oder Deutsch. For computer users, our BBS offers free product and frequency information. Dial 317 579 2045, or e-mail: [acescan@aol.com](mailto:acescan@aol.com). So call us now, we'll give you the benefit of our over 20 years experience with radio receivers. MasterCard, Visa, AMEX, Discover, Government & Corporate P.O.'s, plus COD. Price/specs/availability subject to change. Free trial period on all units. All units carry full factory warranty. IN residents add Tax. Flat rate ground shipping, \$6.95. Air Freight for as little as \$10.95 per unit for most locations. All trademarks property of their respective owners. Products are made or licensed under a variety of patents, write for details. Call to confirm price and delivery before ordering.



**ACE Communications**

10707 E. 106th St., Fishers, IN 46038



CIRCLE 15 ON READER SERVICE CARD



# Tune Into a World of Excitement!

## With ICOM's exclusive line of quality receivers!

► Listening is an exciting and interesting activity! ICOM is the leader in the industry offering you the most *complete* line of receivers to choose from. Whether you prefer to listen at home, on the road or even listen out in the field, ICOM's got the right receiver for you. From handhelds to mobiles to base stations, we bring you a world of intrigue, such as:

- Satellites
- Clandestine Stations
- Public Safety
- Air-to-Ground
- Ship-to-Shore
• Military
- CB
- Business
• Hams
- Television
- Worldwide Communications
- Int'l. Aeronautical

Rediscover the world around you with an ICOM quality receiver! Choose the ICOM that meets your listening needs and hear what you've been missing!

Choose the ICOM that matches your listening preferences:

**IC-R9000 Base Station**  
30 kHz - 1999.8 MHz\*

**IC-R71A Base Station**  
(100 kHz - 30 MHz)

**IC-R7100 Base Station**  
25 MHz - 799 MHz, 900 MHz - 2000 MHz\*

**IC-R100 Mobile**  
(50 kHz - 799 MHz, 900 MHz - 1300 MHz)\*

**IC-R1 Handheld**  
(2 MHz - 99 MHz, 900 MHz - 1300 MHz)\*

\*The 800-899 MHz band is available for government use only.

100 kHz

2000 MHz (2 GHz)



IC-R5000



SP-7 Speaker (option)



RC-11 Remote Control (option)



IC-R71A



IC-R7100



IC-R1

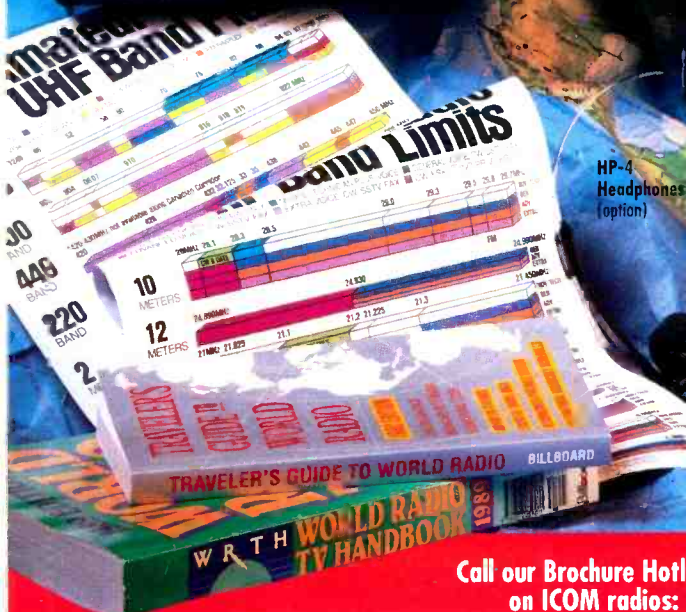
IC-R100



HP-4 Headphones (option)



SP-10 Speaker (option)



ICOM America, Inc. Corporate Headquarters  
2380-116th Ave. N.E. Bellevue, WA 98004  
Technical Support (206) 450-7610

© 1994 ICOM America, Inc. The ICOM logo is a registered trademark of ICOM, Inc. All other specifications are subject to change without notice or obligation. All ICOM radios significantly exceed FCC regulations. Licensing requirements vary.

Call our Brochure Hotline for FREE literature on ICOM radios: (206) 450-6088

# ICOM®

CIRCLE 6 ON READER SERVICE CARD