

POPULAR COMMUNICATIONS

AUGUST 1997

Riders on the Storm

Hear SKYWARN, NOAA, FEMA and 150+ *HOT* Weather Frequencies!

- **Firing Up Drake's New SW-2 Receiver**
- **Scanning: Keeping Tabs on Newspapers and Railroads**
- **Cherokee's New CBS-1000 Base CB Is Here!**
- **Pete Bertini's Tour of the Radio XXVIII Antique Radio Show**

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"Webs in the Computer Corner"
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Alice Brannigan, The Ham Column, Not Started, The Loose Connection, MUCH MORE!

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Look To AOR For The Best Receivers



The introduction of the all new AR7030 shortwave receiver is geared to the discerning and dedicated listener. The AR7030 is the result of a combined project between AOR and a UK designer. The AR7030 represents the very latest and best design, featuring exceptionally strong signal handling and bristling with enhanced features, with coverage from 0 - 32MHz. The AR7030 has been targeted to handle strong signals that are of prime concern of European listeners. It offers greater than +35dBm IP3 (Intercept Point) and greater than 100dBm dynamic range. The DMOS FET QUAD first mixer with NCO drive DDS offers the ultimate performance. All this and great sensitivity better than 0.5µV for 10dB S/N in AM mode and better than 0.3µV for 10dB S/N in SSB. Selectivity too is razor sharp offering greater than 90dB @ 10kHz SSB and greater than 100dB @ 20kHz. No other receiver "in this class" nor indeed at considerably higher price can match the sheer performance excellence of the AR7030, RS232.

AR5000 Cyberscan

Test Results of the AR5000 vs. the competition show the AR5000 Superior in...

- Widest Coverage 10kHz to 2600MHz*
- 77 Functions front panel or RS232 controlled
- Sensitivity -Noise Figure -Dynamic Range
- Minimum detectable signal (MDS) -Superior IF Filtering
- 10.7MHz IF output levels and more

Government Agencies and Serious Scanner Users also gave the AR5000 two thumbs up.

- Fastest Scan Speed with or without a computer -Easier computer control (ASCII not CI-V) -Up to 4 antenna inputs (with opt. AS5000) all RS232 controlled -Cascade filters in 10.7 & 455 IF w/6 filters (opt. CW)
- AGC Fast, Slow, Off -Tuning steps 1Hz-1MHz -External 10MHz freq. std. input -Front facing speaker -Smaller, lighter and less power

AR8000 - Worlds Most Popular Scanner 500kHz - 1900MHz*

AOR incorporated newest technology to produce this amazing scanner, packed with features not found in other scanners.

Features Like...

- High visibility dot matrix LCD readout, providing great detail including a signal strength bar meter, band-scope, 2 VFO's displayed simultaneously, Alpha numeric comments stored along with freq., mode, attn, and more -Computer control & cloning. Up/Down load freq., mode, step size and more with your computer or share your memories with a friend, (opt. cables req.) -1000 memories with 20 banks of 50 channels -Step sizes 50Hz to 1MHz -Scan/Search speed up to 50 channels per second -Internal ferrite antenna below 2MHz

***AR8000B non restoreable cellular blocked, unblocked available for export-government & qualified users.**



AR7030 Superior by Design

Here is what the Pros say...

- *Larry Magne Passport To World Band Radio ★★★★★ Five Stars
- *World Radio TV Handbook. Table top Receiver of 1997
- *John Wilson noted U.K. Receiver guru —Shortwave Magazine 5/97 "AR7030 is at the leading edge of RF performance and will not be bettered for a long time."
- *Radio Netherlands ★★★★★ Five Stars

AR7030 'PLUS'

For those who want the "edge" this model has been designed for you. All aspects of performance have been carefully studied and specific performance enhancements makes this the ultimate receiver.

- Increased balance of the mixer for greatest IP2 & IP3
 - High tolerance 0.1% components in DDS ladder for low noise
 - Enhanced RF attenuator operation for minimal intermod
 - Higher spec wire antenna input transformer for minimal mixing products
 - Ceramic metal cased 4kHz, AM filter fitted as standard (typical bandwidths: 2.2kHz, 4.0kHz, 5.3kHz, 9.5kHz) -Features CPU fitted, 400 memories, multi timers & alpha tag
- The new AR7030 'PLUS' will be available form July '97 and is the best of the best**

PLUS
PERFORMANCE

Price TBA



PLUS
PERFORMANCE

AR5000+3

All the same features PLUS...

- Noise Blanker -Auto freq. control -AM synchronous detector and a new 2x memory 2000Ch, 40 banks plus 40 search.

Price TBA

AR3000A 100kHz-2036MHz*

The Most Respected Scanner on the Market!!

Over 70,000 Sold!

Compact, low cost wide band multi-mode reception. Small size has allowed the AR3000A to be used in many applications from battery powered brief case to multi-receiver rack-mounted installation to air born EWA systems.

The AR3000A has proved itself as an easy to operate, rugged, low-cost and reliable contender for many requirements.

- Coverage: 100kHz-2036MHz*
- Memory: 400 CH 4 banks
- Selectivity: 2.4, 12, 180 KHz
- Size: 5.4 x 3.15 x 7.9", 2.4 lbs
- Sensitivity: NFM 2.5-1.800MHz .35NV
- Power: 13.8VDC<.5A AC Adapter included
- Modes: FM, FMW, AM, LSB, USB, CW
- Scan Speed: up to 50 CH/Sec.
- Antenna: BNC 50 Ω
- RS232 Control



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* Cellular blocked; Unblocked OK to FCC approved users



U.S. #1 RADIO OUTLET

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August '97

AR8000 \$588.00

World's Popular Scanner

1-1900 MHz*, All mode AM, FMN, FMW, LSB, USB, CW, 4 line back lite LCD readout, twin freq. display VFO 1 & 2, Alpha numeric text comments, Ferrite antenna below 2 MHz, RS232 control using low cost software **Truly the Scanner of Choice. Ask anyone that owns' one. AR8000B Cellular blocked not restorable, unblocked available.**



AOR AR5000

NOTHING LIKE IT IN IT'S CLASS

- 10kHz - 2600MHz*
- Superior Sensitivity
- Cascade I.F. filtering
- 6 Filter B.W. +1 Opt.
- Memory 1000 + 2100 pass ch.
- Built-in decoder DTMF
- Option CTCSS and Voice Inversion
- 2 Ant. ports, Opt. to 8 ports
- Scan/Search 25 & 45 ch/sec.
- RS232C of all functions

Best Tested

* Cell BLOCKED. UNBLOCKED models OK for FCC approved users

\$1995



AR7030 Nothing Like It



5 Star Rated
IBS '97 &
Radio
Netherlands:
Table Radio
of The Year.
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For the Serious Listener that wants to know he is hearing all there is to hear.

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- RS232
- Synchro AM, hi intercept point
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AR7030 \$1149
NEW AR7030 plus \$TBA

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Your Window to the World

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- Wind speed (Hi/Lo)
- Wind chill (Lo)
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- Wind speed
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SALE ENDS 30 AUGUST 1997

Motorola FRS

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Keep in touch up to 2 miles, no FCC License or monthly fees. Safety & Security are priceless. **ACT NOW!**

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SALE ENDS 30 AUGUST 1997



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*Specify black, green, yellow, camo

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SALE ENDS 30 AUGUST 1997



Antennas designed for best reception. Extend your range. All cover 25MHz-1900MHz w/lt BNC connectors.

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W889 \$19.95



Low Noise, better than scanner front end, hear those weak stations loud and clear, plugs between ant. & scanner.

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Take Anywhere Radio!

The Baygen free play radio...battery FREE for life! The world's first clockwork radio. 60 turns of the crank provides approximately 40 minutes of playing time. AM/FM/SW (5.8 - 18MHz), large 3.5" speaker, power handcrank or AC adaptor (incl.). 13.5" x 8" x 5", weighs 6.75lbs.



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ICOM's Latest WideBand Receiver

- 100kHz - 2000MHz*
- Improved Audio
- 4 I.F. Filters
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- CI-V Computer control

EEB Modification
• 30kHz - I.F. Filter
• MUX - Wideband Output
• AGC On/Off

* Cell BLOCKED. UNBLOCKED models OK for FCC approved users



\$1995

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Puts the fun back in the AM/FM DX'ing. Larger ferrite rod antenna. 6.5" woofer, 2" tweeter, 4 I.F. stages and wide/narrow filters for superior reception. Separate controls for bass and Treble. Uses 120VAC or 6 "D" cells (not included.) Everyone needs this great sounding radio.

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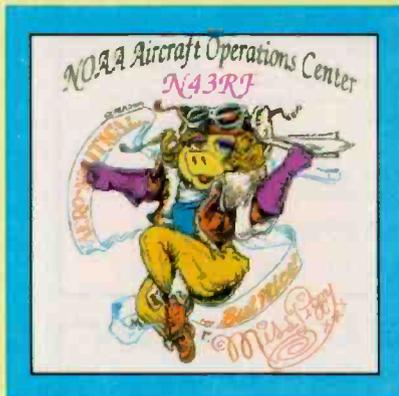
- Prices subject to change
- Prices do not include freight
- Returns subject up to 20% restock fee
- Cell blocked



POPULAR COMMUNICATIONS

AUGUST 1997

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ON THE COVER: An aero radio tech checks the antennas on a NOAA aircraft at the McDill Air Force Base hangar in Tampa, Florida. Check out "RD" Baker's feature "Riders on the Storm" on page 20 for the latest frequencies and newest internet sites for storm tracking. (Photo by Larry Mulvehill).



FEATURES

NOAA Aviation Operations

Flying into the heart of a storm to gather data is an experience filled with danger and excitement. Learn first-hand what it's like to be a part of the NOAA research team.

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By J.T. Ward

Midwest Severe Weather Spotting

It's important to be prepared in the event of a storm—that includes knowing the frequencies to tune to in your area. If you live in the Plains States, you'll need the information and frequencies listed here.

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By Keith Brewster, NØIAW

Radio Active Storm Chaser Warren Faidley

Follow along with a "one-of-a-kind" storm chaser and see how he relies on radio to both track storms and stay safe.

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By Jock Elliott

Riders on the Storm

When disaster strikes and Mother Nature lashes out, knowing where to hear the action is key to any radio enthusiast. Catch these FEMA and USCG frequencies and catch a wild ride on a storm.

20
By Richard "RD" Baker

Texas: When Outlaw Broadcasters Rode The Range

Alice redefines the Lone Star State as a wild frontier of outlaw broadcast stations.

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By Alice Brannigan

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QUALITY COMMUNICATIONS EQUIPMENT SINCE 1942



Shortwave Receivers Past & Present is your guide to over 500 communications receivers made from 1945-1996. This huge 351 page Second Edition includes 80 chapters representing: Collins, Cubic, Dansk, Drake, Eddystone, Galaxy, Gonset, Hallicrafters, Hammarlund, Heathkit, Icom, JRC, Kenwood, Knight, Lowe, Mackay, McKay Dymek, Morrow, National, Plessey, Racal, RME, Rohde & Schwarz, Sony, Squires-Sanders, Ten-Tec, Vigilant, W-J, Yaesu and many more. Entry information includes: receiver type, date sold, photograph, size & weight, features, reviews, specifications, new & used values, variants, value rating and availability. Become an instant receiver expert! #0002 \$19.95 (+\$2)

RTTY AND FAX DECODERS

◆ Universal M-8000v7 Decoder

Designed primarily for the military or commercial user, the M-8000 can be used



by the hobbyist who requires professional capability. The color VGA output includes a spectral display & simulated tuning scope. Modes include: CW, Baudot, FAX, SITOR, ARQ-M2/4, ARQ-E/E3, ARQ6-90, ARQ-S, SWED-ARQ, FEC-A, FEC-S, POL-ARQ, GMDSS, ASCII, Packet, Pactor, Piccolo, VFT, ACARS, POCSAG & GOLAY. Monitor & printer optional. #0087 \$1399.00 (+\$11)

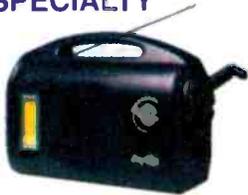


The self-contained Universal M-450 reader decodes: Baudot, SITOR A & B, FEC-A, ASCII, SWED-ARQ, Weather FAX (to the printer port), ACARS aviation teletype, plus GOLAY and POCSAG (512/1200/2400) digital pager modes. Even off-the-air decoding of DTMF, CTCSS and DCS. Big two-line, 20 character LCD and bi-dir. parallel printer port. The M-450 runs from 12 VDC or with the supplied AC adapter. No computer or monitor is required. Now with serial port. #0450 \$399.95 (+\$8)

◆ Universal Upgrades

Upgrades are now available for the M-400v2, M-8000v5 and the M-1200. Contact us for details.

SPECIALTY



The BayGen Freeplay radio combines the ingenious Baylis generator with the latest in radio technology. Winding the handle for 20 seconds provides 30 minutes of listening. Here is assured radio performance, day or night without the worry (and expense!) of batteries. The analog dial covers AM, FM and SW from 3 to 12 MHz. Made in South Africa. #3123 \$99.95 (+\$5)

HUGE FREE CATALOG

The new 1997 Universal Communications Catalog covers everything for the shortwave, amateur and scanner enthusiasts. This informative 100 page catalog is FREE by bookrate or \$2 by First Class mail. Rising postage costs prevent us from sending this catalog out automatically so please request your free copy today!



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COMMUNICATIONS RECEIVERS

YAESU KENWOOD JRC

DRAKE



ICOM



Universal Radio carries an excellent selection of new and used communications receivers. The new Japan Radio NRD-345 is shown above. Only \$799.95 (+\$10)

The new American made Drake SW-2 features SSB, Sync. Det., 100 mems., keypad and optional remote (shown).



In stock now!

COMMERCIAL RECEIVERS



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

SANGEAN

SONY
ICOM

GRUNDIG



Universal offers over 40 portable receivers from \$50 to over \$500. Our free catalog fully describes & prices all models. The new deluxe Sangean ATS-909 shown above is on sale for \$249.95 (+\$8). This includes the AC adapter and ANT-60.

COMMUNICATIONS BOOKS

- **Passport To Worldband Radio 1997** By L. Magne
Graphic presentation of all shortwave broadcast stations. Equipment reviews, too. #1000 \$19.95 (+\$2)
- **Passport To Web Radio** By L. Magne **Brand new!**
Here is everything you need to know to hear hundreds of AM, FM and SW stations on your PC! #3000 \$19.95 (+\$2)
- **Worldwide Aeronautical Frequency Dir.** By R. Evans
The definitive guide to commercial and military, HF and VHF-UHF aeronautical communications including ACARS. Huge Second Edition 260 p. #0042 \$19.95 (+\$2)
- **Guide to Utility Stations** By J. Klingenfuss
Clearly the best guide to non-broadcast HF stations. With 13,800 current frequencies. 585 p. #2019 \$39.95 (+\$2)
- **Discover DXing!** By J. Zondlo
An introduction to DXing AM, FM & TV. #0009 \$4.95 (+\$2)
- **Understanding ACARS** By E. Flynn
Learn the ACARS aviation format. #0012 \$9.95 (+\$2)

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

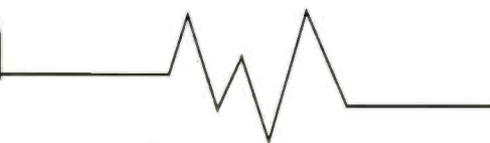
VISIT UNIVERSAL RADIO ON THE INTERNET
<http://www.universal-radio.com>

- Visa
- MasterCard
- Discover
- Prices and specs. are subject to change.
- Returns subject to a 15% restocking fee.
- Used equipment list available on request.

Tuning In

AN EDITORIAL

BY HAROLD ORT, N2RLL, SSB-596



We'd Tell Newcomers That Ham Radio Is Fun?

A General-class ham friend of mine recently took a young fellow who is very interested in amateur radio, to a club's quarterly meeting. There were all the usual goings-on; current ham news, repeater info, preparations for the upcoming August hamfest, and refreshments—all with about *one-third* the usual attendance. You see, about 50 percent of the club is comprised of new no-code Technician hams. Much of the rest of the group decided to boycott the meeting. That's right, boycott the meeting! Why would grown men and women do this, you ask? Unquestionably for the same reasons that breed all manner of mindless prejudice and bitterness toward others. Too bad that night our ham community forever lost that young would-be ham to the bitterness.

I can't help wondering how many times this unfortunate incident is repeated all across the U.S., but what's more disturbing to me is, why it happens. In this hobby—and let's not lose our heads over it—this IS merely a hobby pursuit for us all. Sure, there's the invaluable help hams provide during disasters and local community events. But let's not kid ourselves, it's all about chatting with friends, experimenting with new rigs, antennas, contesting, talking further—fun in general. Of course CBers in their clubs and organizations proudly—and rightfully so—proclaim similar accomplishments. Interestingly though, CBers for the most part, seem to have accomplished something that many ham organizations haven't yet grasped; we're all in this hobby to have fun and communicate.

What's the REAL Problem?

Listen to your mom. Mine belongs to a long-standing organization that gets together for regular meetings and dinners. But, as with any group, there are times when these ladies, well, let's say, disagree on something. Maybe it's who's making what covered dish, or who's picking up whom for next Saturday's meet-

ing. But like she says, "There's always going to be something somebody disagrees on, but they'll get over it—by next month's meeting, it'll be forgotten." But whatever brings otherwise rational, well-meaning human beings to behave like pre-adolescents on some sort of wild hormonal roller coaster ride is beyond me. And the trouble with our ham community is that the otherwise rational, well-meaning human beings aren't changing by the time the next quarterly meeting comes around.

"Too bad that night our ham community forever lost that young would-be ham to the bitterness."

So what *is* the problem? Is the maltreatment and alienation because the new Tech hams demonstrate poor on-air procedures? I don't think so. Just listen to some of the HF bands. Those aren't Techs, folks! Maybe it's because the new Techs are too much like CBers—having non-stuffy, non-highbrow communications—they're having fun. Could be. Or is it because the new Techs aren't paying their dues to keep the repeater up and running? Not quite, but now we're getting warm. It's all about dues, but not the kind you pay with money. It's the kind you pay with code. You know, the old "I got mine, you get yours" syndrome. Every organization and profession has this mindset. I suppose. You certainly wouldn't expect a cop who has been on the job for a month to be promoted to Chief of Police, nor would you expect a Tech ham to be the club president after attending two meetings. It just doesn't happen. But you would expect others on the force to train the new cop, give helpful advice, mentor and certainly be a friend. You wouldn't expect the shift supervisor to require the new guy on the beat to carry an old muzzle-load weapon, would you? And the public that is ultimately responsible for

POPULAR COMMUNICATIONS

EDITORIAL STAFF

Harold Ort, N2RLL, SSB-596, Editor
(Internet e-mail: PopularCom@aol.com)
Tom Kneitel, K2AES/SSB-13, Senior Editor
(Internet e-mail: K2AES@juno.com)
Nancy Barry, SSB-931, Associate Editor
(Internet e-mail: NancyPCmag@aol.com)
Richard S. Moseson, W2VU, Online Coordinator

CONTRIBUTING EDITORS

Richard "RD" Baker, Utility Communications
Ed Barnat, TCA-44, CB SSB
Peter J. Bertini, K1ZJH, Restoration/Electronics
Joe Carr, K4IPV, Antennas
Gerry L. Dexter, Shortwave Broadcast
Jock Elliott, SSB-734, Citizens Band
Bob Evans, ACARS
Ed Griffin, Computer-Aided Radio
Chuck Gysi, N2DUP, Scanning
Don Johnson, International Shortwave
Kirk Kleinschmidt, NT0Z, Amateur Radio
Tim Kridel, AM/FM Broadcasts
Chuck Mankin, Scanning
Pat Murphy, Pirate Radio
Don Patrick, CB Restoration
Bill Price, N3AVY, Humor/Communications
Edward Teach, Pirate and Alternative Radio
J.T. Ward, Spotlights and Scanning
Gordon West, WB6NOA, Radio Resources
Bonnie Zygmunt, Computer-Aided Radio

BUSINESS STAFF

Richard A. Ross, K2MGA, Publisher
Donald R. Allen, W9CW, Advertising Mgr.
Emily Kreutz, Sales Assistant
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Melissa Nitschke, Operations Manager
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Denise Pyne, Customer Service

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Elizabeth Ryan, Art Director
Barbara McGowan, Associate 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

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Reaction Tune Another Receiver!

Reaction Tune the
NEW
ICOM IC-R10

Use the OptoLinx
for computer controlling
the ICOM IC-R10
\$129.00



Computer Not Included

Another radio to tune, another reason to purchase the *Scout*.

Until now the AOR AR8000/2700 were the only hand held scanners to take advantage of the *Scout's* Patented Reaction Tune function. The *Scout* can now tune the new ICOM IC-R10 hand held scanner (shown below). Connection is easy: No modifications required - No custom cables to buy - Just plug and play.

Scanner hobbyists and communication professionals benefit from the *Scout's* unique functions. Whether you're searching for new frequencies in your neighborhood, or testing for interference, the *Scout* is the ultimate communications tool.

Armed with a 400 frequency memory register, the *Scout* does not record duplicate frequencies, instead it coordinates repeated frequencies into a hit register storing up to 255 hits per frequency. Attach it to your belt and begin your day, the *Scout* will alert you when a signal is received by its beeper or vibrator function.

You won't miss a thing with Reaction Tune. The *Scout's* CI-V compatible output allows it to interface to the AOR AR2700/AR8000, ICOM R7000, R7100, R8500, R9000 and now the new IC-R10 (shown opposite). The *Scout* captures the frequency, then sends the serial data to the receiver and tunes the scanner to the frequency for instant monitoring in less than one second. Recorded frequencies can be downloaded to a PC using the optional OptoLinx universal interface •

SPECIFICATIONS

- ▶ 10MHz - 1.4GHz frequency coverage
- ▶ Stores and records 400 frequencies in memory with 255 hits for each
- ▶ Interface to a PC for frequency download using optional OptoLinx PC interface
- ▶ Distinctive beeps indicate frequency hits, pager style vibrator for discreet recording
- ▶ Automatic EL backlight for night operation
- ▶ 16 segment RF signal strength bargraph
- ▶ Frequencies are automatically saved when unit is turned off
- ▶ Reaction Tune the ICOM R7000, R7100, R8500, R9000, IC-R10, and AOR AR2700, AR8000, and the Radio Shack Pro 2005/6 using the Optoelectronics OS456, Radio Shack Pro 2035/42 using the Optoelectronics OS535



U.S. Patent No. 5,471,408

Radio Not Included

Scout with ICOM IC-R10
Mono Cable required (shown)

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“But whatever brings otherwise rational, well-meaning human beings to behave like pre-adolescents on some sort of wild hormonal roller coaster ride is beyond me.”

the cop—the same public that through the FCC grants us ham privileges—would never ask him or her to call for backup from a pay phone. Makes sense, right? I fully believe people should work their way up through an organization unless, of course, they’re so gifted and insightful as to be generally recognized as a Supreme Being. It also makes sense that you wouldn’t care what they did on their time off. I don’t know about you, but I don’t care if the cop who lives down the street gets his jollies from gardening, boating, archery, target shooting, biking or shuffle boarding. It gets weird if he tells me, a non-shuffle boarding person, that the head shuffle boarder guru has decid-

ed new shuffle board folks must be tested by a 10-person panel of “experts” to determine if newcomers can “cut the mustard.” Hmmm, I think for a moment. And just when I was getting really interested in shuffle boarding. Better move on to another hobby!

So let’s step back from inside the ham circle and see what non-hams see. Do they see old, cranky, bureaucratic codgers trying with all their might to strong-arm newcomers into a mode so ancient that even the U.S. Coast Guard abandoned CW? Clean off your bifocals Pop, and see the handwriting on the wall! I’ll admit that there’s been far too much press given to the pros and cons of whether or not and

how much Morse code should be a part of the amateur licensing program, but frankly I can’t resist putting my two cents in the pile. Who knows, maybe the ARRL will give me a call and ask my opinion on something really important! Suffice it to say that in this day and age of digital comms, satellite uplinks, downlinks, cellular, and high-definition TV, it’s really puzzling to me why the hierarchy in the amateur community hangs onto CW like some sort of umbilical cord as part of the testing program. Better to be graded on the on-air performance; passing traffic, conducting nets, getting along with others. I’d rather see classes on soldering techniques or solving RFI problems followed up with 25 multiple-choice questions next Friday evening. If you want to use CW at your station, have at it, but don’t require me to learn how to bake a cake from scratch when I can microwave a Duncan Hines in five minutes! I hear plenty of hams who think they’re Dan Rather, but can hardly spit out five sentences in succession without repeating themselves four times. On second thought, forget the solving RFI or build-your-own-radio classes. Perhaps some form of Public Speaking or Transmitting Clearly-101 is needed for all upgrades.

I wonder what the would-be hams and our non-hams; friends, neighbors and co-workers would say if we told them the ham story—the true story of why and how some hams are treated differently than others. Explain to these non-hams just why the ARRL is recommending a complete overhaul of “low-end” amateur licensing; a proposal that would require Techs desiring to upgrade to take a Morse code sending exam and also copy a minimum of one minute out of five *perfectly* to pass. I’ll bet that after telling them the ham story—that’s supposed to be about a hobby and having fun, welcoming others into the fold, educating and lending a helping hand, that they go out and buy a CB or even a shuffle board book.

Can you seriously despise folks for operating on radio’s fringes; freebanders, renegades, outlaws—when those hams making the rules, it could be argued, are no better: The lawmaker, trooper, judge and jury?

If you were a newcomer, what would you think? My mom would probably say, “Sonny, some of the old geezers are just angry that they weren’t born today and can’t start out on the radio like the new folks can.” Come to think of it, she might be right. ■

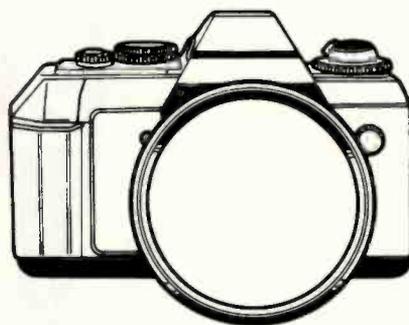
Photos Wanted!

We’re planning the travel itinerary for 1997 for CQ Staff Photographer Larry Mulvehill, WB2ZPI, and could use some input from our readers. As you know, Larry shoots all the covers for our publications *CQ*, *CQ VHF*, and *Popular Communications*, as well as the 15 photos for the annual CQ Amateur Radio Calendar. That’s 51 shots used each year. Since a major part of the expense of generating these photos is travel, we like Larry to put together

a few large “swings” each year to various parts of North America to visit specific locations we’ve been tipped off about by readers. That’s where you come in.

If you know of a particularly photogenic setting that you feel might lend itself to a good cover or a calendar shot, why not let us know about it? It might be a great antenna installation or a neat mobile setup, an interesting shack, or even a busy electronic workbench with work in progress. How about an interesting Police, Fire Department, Public Service, Scanning, Shortwave Listening, Military Communication, or Broadcasting setting? Don’t be shy about recommending your own setup, either! If you think you’ve got a suggestion that can lend itself to a great Amateur Radio photo, let us know. If you can provide a snapshot or two for reference, great. If a snapshot isn’t available, a short verbal description will help.

Send your photo ideas and snapshots to Larry Mulvehill, WB2ZPI, at 32 Comanche Drive, Oceanport, NJ 07757. Larry will decide if your suggestion fits in with our needs and his schedule. If you’d like your snapshots returned, please include an SASE. The sole reward for your help will be the gratitude of your fellow readers, and of Larry, who will have the opportunity to make about a hundred new radio friends again this year. Be sure to include information about how Larry can get in touch with you.



Pop'Comm P.O.

LETTERS TO THE EDITOR

Each month we select representative reader letters for our Pop'Comm P.O. column. We reserve the right to condense lengthy letters for space reasons and to edit to conform to style. All letters submitted must be signed and show a return mailing address or valid e-mail address. Upon request, we will withhold a sender's name if the letter is used in Pop'Comm P.O. Address letters to: Harold Ort, N2RLL, SSB-596, Editor, *Popular Communications*, 76 N. Broadway, Hicksville, NY 11801-2909, or send e-mail via the Internet to <popularcom@aol.com>.

Welcoming Former USSN Subscribers

Dear Editor:

Thank you for taking over the subscriptions of USSN magazine. You should be commended for your efforts. Not only was I happy to receive your magazine, I was glad to see an old friend in my mailbox. Even though I never subscribed to your magazine, *Popular Communications* was the first radio magazine I ever read. I still buy them on the newsstands and have kept back issues.

I'm sure that other subscribers of USSN will agree that you have restored our confidence in the communication industry and publication media.

Ken Reheman
Indiana

Oh, Boyd!

Dear Editor:

Most radio amateurs are not aware of the fact that the written test for their license is more difficult than the written test for a private pilot's license. The pilot's test consists of 60 questions. Each one has three answers to choose from. You must get 40 correct to pass. You may guess one third of them, so if you know one third, then you can pass.

The test for the basic entry level amateur radio license consists of 55 ques-

tions, but each has four answers to choose from so you can guess only one-fourth and you must get three-fourths of them to pass. Most amateurs want the General class license. That means 80 questions of which you must get 60 correct and do 13 words per minute of code. That 60 is 50 percent more than the 40 required for a pilot's license, not to mention the Morse code which many intelligent people can not master. There are doctors, lawyers, engineers and people from all walks of life who can not get a handle on the code. It is something you must have a knack for.

Meanwhile, the FCC, in trying to please a minority group known as the ARRL which is composed of only 23 percent of the radio amateurs in this country, requires code proficiency for you to get a decent license.

I guess the reason the amateur test is more difficult than the pilot's test is because the FCC doesn't want hams to be crashing their radios into schoolhouses. I'm not trying to show how silly the FCC looks, but I am trying to show how they have bent over backwards all through the years in trying to please the ARRL. More people are killed by private planes than are killed by radios so there is no rational way to justify the fact that a test for amateur radio is more difficult than a pilot's test. And then for the FCC to require proficiency in Morse code on top of this is on the borderline of asininity, if not insanity.

I am a 60 year-old Technician who refuses to learn how to communicate with smoke signals, Morse code, drum beats or any other antiquated form of communication in this day and age, just so I may be permitted to speak into a microphone. I also refuse to learn how to operate a unicycle in order to get a driver's license.

It has occurred to me that since the ARRL is made up of only 23 percent of the hams in the U.S., the other 77 percent of us could join the ARRL and show the FCC what the majority of us ARRL members want. Let's do it. It can't fail if enough of us join!

Boyd Cantrell, KC7JUZ
Oregon

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CIRCLE 69 ON READER SERVICE CARD

NOAA Aviation Operations

Flying Into the Heart of the Storm

By J. T. Ward

When a hurricane packing the power of a nuclear explosion approaches the southeastern coast of the United States a handful of scientists and technicians based at MacDill Air Force Base in Tampa, Florida, turn their WP-3 "Orion" aircraft not to flee, but to fly into the very heart of the storm.

One of those crewmembers who flies on nearly every hurricane is Damon Sans Souci, avionics technician and radio operator for the National Oceanic and Atmospheric Administration's Aircraft Operations Center. It's part of Sans Souci's job to make sure that the communications equipment carried aboard the Orions and NOAA's other aircraft is in good working order so that vital storm information can be relayed to weather forecasters on the ground.

"It's definitely a kick," Sans Souci said, referring to taking flight into storms towering 60,000 feet or more. "Every one is different. There's always that anxiety," he said.

While he enjoys the adrenaline rush of flying into the storms, lightning striking the aircraft is something he could do without.

Sans Souci, 29, joined NOAA five years ago after serving as an aviation electronics technician in the U.S. Navy. The WP-3s that NOAA flies share the same electrical and communications systems as the P-3 "Orion" submarine hunters that he worked on in the Navy. His first hurricane flight, in 1992, was into Hurricane Andrew, the storm that devastated much of south Florida. It was a memorable experience. "At the same time we were flying into the storm NASA was launching a satellite from Cape Kennedy, and where we were was where the rocket debris was supposed to be falling, so I was talking to the cape on the radio, and they're telling

us to get out of there—we're bouncing around in this storm and I'm worried about these rocket parts falling on us from above," Sans Souci said.

Living With Lightning!

While he enjoys the adrenaline rush of flying into the storms, lightning striking the aircraft is something he could do without. "Hurricanes are very electrical, so we get hit by lightning on almost every flight," he said. "It's like a bomb going off somewhere on the plane. Once, I was talking on the radio when we were hit, and my ears were ringing for three days afterward and there are often holes burned into the aircraft."

"It's like someone took a welding torch to it," he said. Sometimes the planes create their own lightning. There's a long probe on the front of the aircraft, and sometimes it develops a corona effect. You know those glass balls that when you touch them the lightning moves toward your hand? It's like those, but with lightning discharges about 40 feet long. It's just beautiful," Sans Souci said.

Storm flying, going eye to eye with a hurricane, is not for everyone, acknowledges Capt. Gerry McKim, deputy director of NOAA's aviation operations. Severe turbulence inside a hurricane can toss the big, four-engine airplanes around like toys, dropping them hundreds of feet in seconds, then lifting the planes again as though they were weightless. "I would say that the majority of our first-time passengers make liberal use of our abundant supply of airsick bags," McKim said.

He experienced the worst turbulence of his career during a flight into Hurricane Hugo in 1991. "There were about 10 seconds, maybe 15 seconds at the most, when we didn't have control of the airplane. Mother Nature, the hurricane, God or whatever, took control of that airplane (and we were) descending about 15 or 20-degrees right wing and nose down, and the

airplane went that way, even though we had full reverse commands into the controls pulling the airplane up," he said. "I remember looking over at Captain Lowell Gendlinger (now retired), who was over in the co-pilot seat, and the plane was going this way, and I was going that way, and he looked at me, and his eyes said 'we're not supposed to be doing this,'" McKim said. The two pilots regained control just 700 feet above the surface of the ocean, having dropped about 800 feet in just a few seconds. "Once we got the airplane stabilized and did one loop around in there (within the eye of the storm) we were fine," Capt. McKim said.

Gathering the Data

The research flights are worth the risk and discomfort since the information gathered helps weather forecasters "answer the questions where (a hurricane) is



This NOAA weather announcer prepares a broadcast on one of the 162 MHz weather frequencies.

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going to hit, when is it going to hit and how bad is it going to be," said Lt. Dave Rathbun, a navigator on the NOAA hurricane flights.

But more than just helping forecasters predict which way a current storm is heading, the data gathered during the flights lets scientists refine the computer models they use to predict the path of future storms, Rathbun said. Hurricane Erin, which crossed Florida in 1995, is a good example of why more research is needed, Rathbun said. "The forecast was that it was going to hit Miami, but it jogged north. It was only 24 hours away from landfall—they evacuated over 900,000 people from down there, and the thing went north. The (computer) models still aren't good enough, and that's why there's still a need for hurricane research," he said.

Dr. Peter Black of the Hurricane Research Laboratory near Miami, said the recent abundance of tropical storms is giving researchers plenty of opportunity to gather data. He called the information collected by the NOAA flights invaluable. The accuracy of the computer models can be increased by up to 20 percent by providing the computers with information on the so-called "steering currents," or high-altitude winds that can cause a hurricane to drift one way or another," Black said.

NOAA has the only aircraft capable of measuring the steering currents, McKim said. Improved accuracy in forecasting the path of a hurricane has a dollars and cents payoff. "According to the last estimate I heard, it costs \$1 million a mile to evacuate an area," he said. "If they blow

that forecast, where it's coming ashore, and they evacuate that whole shoreline, they board it up, and close the businesses down and put people out of work and run away for three or four days when they didn't need to do that, then you've cost that community a great deal of money."

The NOAA flights aren't usually the "hurricane hunters" frequently mentioned on television newscasts. Most hurricane tracking is done by the 53rd Weather Reconnaissance Squadron of the U.S. Air Force Reserve, although the NOAA aircraft do fly reconnaissance missions anytime a hurricane passes over Cuba. Cuban authorities won't allow U.S. military aircraft to overfly the island, but will allow the NOAA research flights, Rathbun said. NOAA's crews also make reconnaissance flights when the demands of a particularly busy storm season exceed the Air Force's capabilities. The C-

130 "Hercules" aircraft used by the Air Force aren't equipped with the sophisticated scientific instruments that the NOAA aircraft carry.

In addition to the steering currents, the NOAA aircraft also measure rainfall amounts, wind speed within the hurricane and barometric pressure. They even carry Doppler radar which can transmit pictures back to forecasters long before the storm is within range of land-based radar.

A new Grumman Gulfstream IV, which entered service in 1996, gathers data between 25,000 and 45,000 feet. "We can do (the Air Force's) job, but they can't do ours," McKim said. While the hurricane research flights get most of the publicity, NOAA aircrews also measure midwestern snowfall, track tornadoes on the Great Plains and ferry scientists into the Arctic to count polar bears and over the Gulf of Mexico to count marine mammals including manatee, dolphin and whales, among many other tasks. In addition to the two WP-3D "Orions" and the Gulfstream IV, NOAA operates 12 other aircraft, including three helicopters and two Lake "Seawolf" amphibian aircraft capable of landing on land or water.

NOAA's presence at MacDill helped keep the base's runway open in 1994 when some Air Force officials wanted to shut it down. "NOAA's presence was a very strong argument for the legislation we were able to get passed to provide \$6 million to keep the runway open," said Congressman Bill Young, R-Indian Rocks Beach. Keeping the runway open ultimately led to an Air Force decision to transfer a squadron of aerial refueling tankers to MacDill in 1996, he said.

Most communications between NOAA aircraft and the National Hurricane Center in Miami are via satellite data link, said Sans Souci. The data is transmitted on 401



NOAA's WP-3 Orion weather research aircraft skirts the edge of a storm.

MHz using a directional antenna mounted on top of the aircraft, said Jim Roles, a NOAA systems engineer. Received by the NOAA GEOS East satellite, the data is then downlinked to the Wallops (VA) Command and Data Acquisition Station, said Gary Davis, director of NOAA satellite operations.

Direct reception of the Data Collection System transmissions by radio hobbyists is possible, Davis said, but it can also be accessed through NOAA's website at <<http://www.noaa.gov/noaa-image-home.html>>.

In addition to the satellite data, "vortex messages" including the wind speed, rainfall and other information from inside the storm is relayed to the National Hurricane Center via HF voice communications each time the aircraft penetrates the wall of the storm, Sans Souci said. Those voice communications are carried on the Air Force's Global High Frequency System channels.

NOAA's own 13.267 (Golf), 10.015 (Foxtrot) and 8.876 (Echo) frequencies are sometimes used between the aircraft. The old NOAA HF transceiver heard as KJY74 is now boxed up and unused, sitting in a hangar at MacDill, he said.

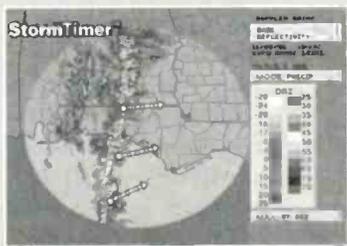
The WP-3s are each equipped with two Collins 6208T-2A HF transceivers rated at 400 watts output. Two HF longwire antennas run from the nose to the tail of the aircraft. The aircraft also carry Yaesu VHF-FM transceivers for communications with NOAA ships and occasionally with land-based mobile units such as storm chasers in the midwestern states tornado belt.

The old NOAA UHF frequency of 304.800 MHz is rarely used anymore, unless the two WP-3s are flying near each other, Sans Souci said. When coordinating their arrival or departure with ground crews the NOAA pilots use 122.925 MHz and 123.050 MHz in the civilian VHF airband, he said. Ground crews use ICOM ICA3 handheld transceivers.

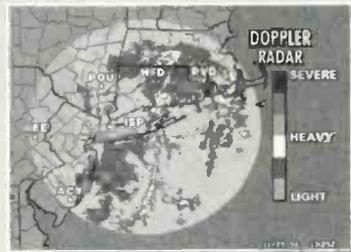
Occasionally, the NOAA crews even become celebrities, being interviewed on network television news programs as they fly through the hurricanes. Like the voice transmissions to the National Hurricane Center, these broadcasts are phone patches carried by the Air Force Global HF System, usually through stations on Ascension Island in the middle of the Atlantic Ocean, in Panama in Central America and at MacDill AFB. Frequencies to monitor include 11.175 MHz during the daylight hours and 6.639 MHz at night.

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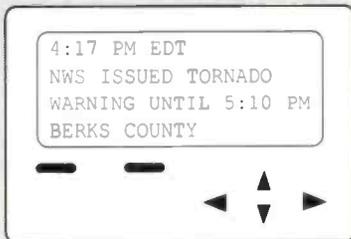


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CIRCLE 7 ON READER SERVICE CARD

Midwest Severe Weather Spotting

Understanding Mother Nature With the Help of Radio . . .

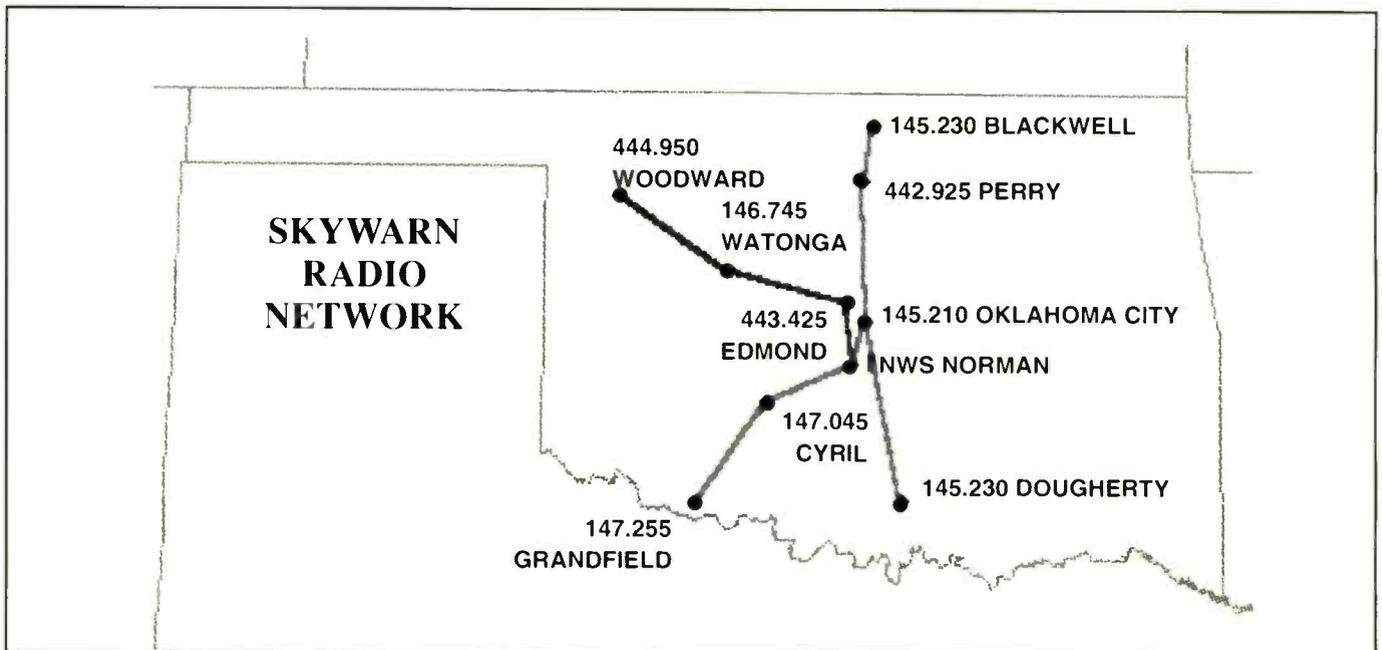
By Keith Brewster, NØIAW
<kbrews@galstar.com>

“Our unit at the stadium is reporting the wind is rocking his vehicle. He now estimates winds at over 70 miles-per-hour.” That was David Gaines, KC4WVK, relaying a report from the Wichita Falls, Texas, SKYWARN severe weather net to the National Weather Service (NWS) forecast office in Norman, Oklahoma, one evening this May. The transmission was traveling the 120-mile distance between the two cities using two linked repeaters on the amateur radio 2-meter band. The repeaters, one near Grandfield, Oklahoma, and one in Cyril, Oklahoma, are part of a system of linked repeaters that help the NWS keep in contact with spotter groups throughout its area of responsibility. The Norman office has one of the largest areas of warning responsibility, which includes a significant part of the region commonly known as “tornado alley.” The people of Wichita

Falls were particularly concerned recently when their local NWS office was closed and they learned their county would be handled by the Norman office. Twice in the past few decades the city has been the victim of large, devastating tornadoes. However, the meteorologists in Norman, through the cooperation of amateur radio groups, such as the Southwest Independent Repeater Association, have been able to keep up with the spotting activities across Central and Western Oklahoma, plus a part of north Texas that includes Wichita Falls.

Besides serving the needs of the NWS and emergency management officials, the networks of linked repeaters with NWS liaisons are crown jewels among a large number of repeaters used across the country for storm spotting and warning efforts. Monitoring these frequencies can give the radio listener advanced notice of severe thunderstorm and tornado warn-

ings and details on the types of weather to expect in a given area. In addition to the flow of observed weather from spotters, listeners can hear information coming from NWS forecasters. The NWS informs the spotter groups of radar echoes, storm circulations, and signatures of severe weather observed by their Doppler radars, and sends forecasts of movement and intensification. This is usually more detailed than the information conveyed through official warning statements sent through public broadcast stations. That information is often simplified to ensure the delivery of the essential warning message in a short time. Sometimes the information heard on the spotter frequencies can be reassuring that severe weather is *not* about to strike a specific location. The listener may hear that only a certain portion of the county is exposed to the greatest risk. Practical constraints on communicating locations to the general public



This map of the linked repeater system in Oklahoma shows three linked segments, all of which can be monitored from the National Weather Service forecast office in Norman. Net control stations for spotter networks in cities and towns covered by the repeaters relay the most significant reports to Norman via the linked network.

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"The Norman office has one of the largest areas of warning responsibility . . ."

often dictate that warnings be issued for whole counties, but the portion of the thunderstorm that produces severe weather or the threat of a tornado, can be small in comparison to the size of counties, particularly in some western states.

The information from both the NWS and the spotters in the field can help you pin-point the "business-end" of the storm, possibly helping you to avoid trouble if you are on the road, or to seek shelter at the right time while at home. As you might expect, SKYWARN activity is most common in areas that are most threatened by severe weather, notably the Midwest and Plains states, from the front range of Colorado in the west to the Appalachians in the east. Spotting networks exist in all 50 states, however.

West Texas and North Dakota are among the areas that have linked repeater systems similar to the ones in Oklahoma. I began compiling a list of SKYWARN frequencies to help myself and others to observe severe weather as part of scientific research experiments, for the enjoyment of observing some of nature's most awesome spectacles, and for assisting SKYWARN efforts in other areas. In the time since I made the list available over the Internet, other enthusiasts have sent me information on SKYWARN groups in most states east of the Rockies. The list is available at <<http://www.galstar.com/~kbrews/radio/spotfreq.html>>; some frequency highlights from the Plains States are included in this article!

Storm Chasers

As made popular by the movie *Twister*, there are groups of scientists and photographers who pursue thunderstorms for the purpose of documenting tornadoes. A large portion of their communication is over cellular phones and cellular modems. That is how they receive information from the fixed laboratories, and they use 2-meter FM radios in the government band to communicate between vehicles. During VORTEX, a recent two-year research project to study tornadoes and how they are formed, an airborne repeater was used to help in the communications between the project's field coordinator and the two dozen instrumented vehicles



Researchers from the National Severe Storms Lab release a balloon-borne atmospheric electricity probe into a severe thunderstorm.

gather data on the storm. The repeater was flown on the NOAA P-3 aircraft, which was collecting radar data at the same time. This airborne repeater allowed the field coordinator to spread out the land vehicles over a broad part of storm. Collecting data from many parts of the storm allowed them to observe the flow pattern across the storm as part of the effort to determine precisely what processes lead to the formation of a tornado funnel. The data are currently being analyzed, and as is often the case when observing a phenomenon carefully for the first time, many more questions were raised than answered!

"Monitoring these frequencies can give the radio listener advanced notice of severe thunderstorm and tornado warnings . . ."

The Role of the Spotter

While movies and documentaries often focus on the storm chasers, a more direct service to the public is provided by the storm spotters. The storm spotter serves a community by participating in an organized effort to watch for storms approaching the community and warn of the formation of tornadoes or other threatening severe weather. Even with the use of Doppler radar there is a need for spotters in the field. The radar can only detect the parent circulation that spawns tornadoes

—information is needed about whether tornadoes are actually being produced and their precise location. Also, certain types of tornadoes can form *before* a Doppler radar signature is detected.

Organization of Spotters

The organization of spotters varies across the country, but is typically done at the county level. The county Emergency Management Agency (EMA, often formerly known as Civil Defense), is typically the focal point for organizing the spotting activities. Spotting may be done by paid public emergency personnel, such as sheriff's deputies, police and/or fire fighters. Often coverage is provided by amateur radio operators who are organized in spotter networks. Volunteers may also come from CB radio or GMRS clubs. Such spotter networks are often known as SKYWARN networks. These networks use repeaters that can provide communication over a radius of 30 miles or more from the repeater site.

A typical spotter network has a Net Control Station (NCS) who controls the exchange of information by polling the operators, providing weather information to all stations and dispatching operators to key lookout sites on the periphery of a town. Depending on the area to be covered and the range of the repeater, some spotters may roam, driving out to developing storms and following them toward the area being protected.

Spotters also commonly equip their

Selected Severe Weather Spotting Frequencies in the Plains States

Colorado

Fr. Collins	145.115 – (146.85, – Backup)
Denver	146.94 – (147.12 + Backup)
Colorado Springs	146.97 – (147.345 + Backup – Wide range)

Kansas

Goodland	147.03 +
Colby	146.82 –
Scott City	146.70 –
Hays	147.18 + (146.79 – Backup)
Garden City	146.91 –
Dodge City	147.03 + (146.61, – Backup)
Offerle	146.85 –
Salina	147.030 +
Wichita	146.940 –
Lawrence	461.775
Topeka	146.670 –
Kansas City, KS (S)	153.995

Missouri

Kansas City (MO)	146.82 –
Kansas City MERS	158.82
Joplin	146.94 – (147.24, + Backup)
Springfield	146.64 – (146.91 – Backup)
Columbia	146.76 – (147.09 + Backup)
Columbia	444.975 Link to St. Louis
St. Louis	146.67 –
St. Louis	145.33 – Linked to Columbia and
Rolla	
St. Louis	145.13 – Illinois Counties net access

Oklahoma/Texas Panhandle

Boise City, OK	147.35 +
Guymon, OK	147.15 +
Miami, TX	145.11 –
Amarillo (CRI link)	444.20 +
Amarillo (& Co's S)	146.92 – (146.94 – and 146.67 – Backups)

Oklahoma

Sharon/Woodward	147.36
Sharon/Woodward	444.95 Link to NWS

Blackwell	145.23 – Link to NWS
Ponca City	146.97 –
Perry	442.925 Link to NWS
Stillwater	145.35 –
Watonga	146.745 Link to NWS
Edmond	147.135 + (147.03 + Backup)
Edmond	443.425 Link to NWS
Oklahoma City	145.21 NWS Coordination
Okla County EMA	151.445
Norman	147.06 + (146.88 – Backup)
Cyril	147.045 Link to NWS
Altus EMA	155.055 80 mile range
Grandfield	147.255 Link to NWS
Dougherty	145.23 Link to NWS
Ardmore	146.97 – 70 mile range, Arbuckle
Mtns	
Tulsa	146.88 –
Prairie Grove, AR	146.865 NWS Link

West and North Texas

Odessa	145.41 – System Hub for West Texas
Connection	
Lubbock	147.20 + (146.94 – Backup)
Abilene (& Co's N)	146.76 –
Abilene	444.25 NWS Link
San Angelo	146.94 – (147.34 + Backup)
San Angelo	444.25 NWS Link
Wichita Falls	146.94 –
Henrietta	146.68 – (146.86 – Backup)
Denton	146.92 –
Sherman	147.00 +
Fort Worth	146.94 – (146.76 – Backup)
Fort Worth	443.05
Dallas	146.88 – (146.96 – Backup)
Waco	145.15 –
College Station	146.68 –

General Frequency Ranges:

Amateur 2-m repeater output	145.20–145.50 MHz, 146.61–147.39 MHz
Local Government	153–160 MHz
NOAA Weather Radio	162.40–162.55 MHz
Amateur 70-cm repeater output	442–450 MHz
GMRS Weather	462.550–462.725 MHz

vehicles (or a special group vehicle) with emergency communications gear and emergency power sources that can be deployed in a disaster area. These spotters will assist emergency crews in communicating the needs of the disaster teams and the welfare of the affected population.

Getting Involved

If you want to go beyond listening, to participating in the nets, your first contact might be with your county's emergency manager. The emergency manager

can describe how storm spotting and disaster assistance are organized in your area. If services are provided by volunteer radio operators he or she can direct you to volunteers in charge of organizing the spotters or to the local ham radio or REACT club. You could also call the NWS office nearest to your town and ask for the Warning Coordination Meteorologist (WCM).

The spotters often communicate with the NWS as well as local officials to directly assist in the severe storm warning process. A volunteer on the network may be stationed at the NWS office to provide

radar and other weather information to spotters in the field.

Spotter Training

The National Weather Service, local Emergency Management officials and the local volunteers organize training sessions for storm spotters. An NWS meteorologist will visit and use nationally-prepared slide and video materials to help the spotters learn what to look for and how to remain safe in their operation. Local officials will use this session to explain specific operating procedures, call-out meth-

"The NWS and the Federal Emergency Management Agency (FEMA) are testing a new weather-information radio service in portions of seven states . . ."

ods, etc. Such half-day sessions are held a month or two before the most active severe weather season for your area (typically in the window January to April).

EMWIN

The NWS and the Federal Emergency Management Agency (FEMA) are testing a new weather-information radio service in portions of seven states, including the weather-active states of Oklahoma and Texas. The Emergency Managers Weather Information Network, EMWIN, provides broadcasts of digital data, including NWS weather watches, severe weather warnings and related bulletins. Selected graphics such as satellite photographs and composite radar images are also in the transmissions. The system operates on the 2-meter government band



A tornado spins up a collar of dust near the town of Clearwater, KS just southwest of Wichita on May 16, 1991.

and requires a demodulator and an IBM-compatible personal computer to decipher the transmissions. Software is available for Windows users, but a stripped-down version can be run on a 286 machine using

DOS software. A company called Maryland Radio Center in Laurel, MD makes the demodulators and a Windows-based data-management program called WeatherNode. An article, including a schematic diagram for an EMWIN demodulator, was published in the March, 1997, edition of *QST* magazine. Complete information on EMWIN is available from the NWS EMWIN site on the internet, <<http://www.nws.noaa.gov/oso/oso1/oso12/document/emwin.htm>>; information on WeatherNode is available at <<http://www.weathernode.com/>>.

Internet Resources

There are places on the internet's World Wide Web (that may be useful in learning about SKYWARN and weather information over the airwaves. The SKYWARN page contains links to many of the local SKYWARN organizations that detail their frequencies and often contain news on their training and organizational meetings. The URL is <<http://www.skywarn.org>>. Don't forget that NOAA Weather Radio provides severe weather warning and forecast information, including a tone-alert feature.

Recently efforts were made to increase the coverage of the radio network. The list of NOAA Weather Radio stations is updated continuously at <<http://www.nws.noaa.gov/noaaradio.html>>. The NWS in Norman makes available some spotter training materials at <<http://www.nssl.noaa.gov/~nws/spotterguide.html>>.

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Radio Active Storm Chaser Warren Faidley

Not Just a Storm Chaser . . . This Guy Gets So Close to Severe Storms, Scientists Are Asking Him for Information.

By Jock Elliott



Warren Faidley is *sui generis*—one of a kind. In a world where even the most bizarre and weird occupations receive media attention, Faidley stands alone. At the time of this writing, Warren Faidley is the only person on the planet to make a living solely by photographing severe weather.

Among the severe weather phenomena that Faidley chases are lightning, hurricanes, and, of course, tornadoes. He's photographed lightning so close and with such detail that scientists are learning new things and asking new questions as a result of his images. In 1987, he was knocked to the ground by a powerful lightning bolt, but he managed to capture one of the closest lightning strikes ever recorded on film.

In August of 1992, he literally strapped himself into a concrete parking garage so that he could photograph the full fury of hurricane Andrew. His dramatic images of the storm making landfall are the only known still images of the event in progress. And he knows so much about chasing tornadoes that Faidley served as a technical consultant to the makers of the film *Twister*.

From Curiosity to Career

Faidley's fascination with the power of nature started early—when he was 12 years old, he rode his bicycle into an Arizona dust devil “to see what it was like.” He actually succeeded in riding *inside* the perimeter of the swirling winds. Now, Faidley prides himself on staying out of harm's way, yet getting impressive pictures that have found their way into print on the covers of the world's most prestigious publications.



Warren Faidley, KB7TVO at the controls in his sport utility vehicle.

Of the quarry that Faidley chases, tornadoes are the least predictable and the hardest to catch. To make a success of his chosen profession, Faidley relies heavily on radio. The roof of his sport utility truck bristles with antennas: One for an AOR 2500, one for a frequency counter, two for cellular, another for citizens band, another UHF/VHF dual band antenna, and a small satellite dish.

Faidley and his team members use two intercept vehicles, maintaining communications between the two on a VHF side-band ham frequency. A licensed ham, call

sign KB7TVO. Faidley explains, “We use the repeaters occasionally, but once we get out on the road, we don't use them. When SkyWarn frequency is activated, we put the SkyWarn frequency on a scanner so we can monitor it. We also give reports on what we spot, and give them a hand with the network.”

“I got my ham license two years ago,” Faidley says. “Before that we were using CB a fair amount. Now we mainly use CB for talking to the truckers who are very good about relaying what's ahead of them. They are totally paranoid about

"To make a success of his chosen profession, Faidley relies heavily on radio."

weather; they think that every cloud is a tornado. Fortunately, they are terrific about telling us the size of the hail they are seeing or what the winds are like. They will drive into things that I wouldn't drive into."

Faidley has a number of other nifty communications tricks up his sleeve as well. "We use a long-range cellular box. The handheld sits in a cradle and goes through a high-power unit. We've experimented with special antennas, and with the laptop and cellular, we can get on the Internet to grab information such as Doppler radar data, surface data, and so forth. About 90 percent of the time you can get a good phone line. And with direct digital satellite, we're able to get the Weather Channel."

"When we're on the road, the other truck does navigation and communication. They gather information and feed it to us; they are like the data gathering arm of the operation. I'm the image maker, the guy who makes the decisions. Once they

feed the information to me; I'm responsible for deciding how we act on that information," Faidley adds.

Even with all of the information that Faidley has to help guide his decisions, it's not easy to get it right. "Most of the storms in 1996 were not forecast. You're on an emotional roller coaster. Some CBS news reporters who came out to cover the chase scene thought it was like reporting on a war."

Safety Concerns

Because of the inherent unpredictability of tornadoes, Faidley is deeply concerned about amateur chasers, particularly after the release of the movie *Twister*. "Storm chasing is not about thrill seeking; it's about the art and science of trying to be in the right place at the right time so that you can take incredible pictures, or, in the case of the storm chasing scientists, collect incredible data."

"My main advice," he says, "is that if you think you need to chase storms, you must have a legitimate purpose for what you are doing. Whether you are a spotter or researcher, you must have reasons for being out there. Don't add to the problem—you have to be responsible; you

can't just go out thrill-seeking."

"The only reason that chasers have not been killed is that in recent years, storms have been really benign . . . we haven't had the giant storms that we have had previously." "If you're a hobbyist and you absolutely must chase, the best place to learn is with a chase tour. Even better, get involved with SkyWarn. Being a SkyWarn spotter is a terrific way to make a contribution—you're doing something to increase the safety of others, and you get valuable training."

Severe weather is fascinating, and Warren Faidley has turned that fascination into a paying profession. To make it work, he relies on skill, instinct, education, perseverance and luck. In talking with him, he seems impressively level-headed. Still one wonders, especially after glimpsing the custom license plate on his chase vehicle. It says simply, "CU IN OZ."

If you'd like to know more about Warren Faidley and his storm chasing career, including some interesting radio anecdotes, check out his book *Storm Chaser*. Filled with beautiful pictures he shot and a wealth of information, it's available from many bookstores or from the Weather Channel at 1-800-544-6206.



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Riders on the Storm

When Storms and Disasters Strike, You Can Hear the Action . . .

By Richard "RD" Baker

E-mail <utelistener.msn.com>

"... The world on you depends. Our life will never end . . . Riders on the Storm . . ."
—Jim Morrison

My apologies to Jim Morrison and The Doors, I never could carry a tune. However, the song came to mind as I began thinking about those who spring into action when a disaster is dealt out by Mother Nature. She gives us hurricanes, floods, high sea's winter storms, cyclones in the Pacific, tornado's and other disasters. You can

often "ride along" and follow the action on your radio. Read on, and I hope to give you some tips. All HF frequencies are in Upper Side Band (USB) mode.

There are many agencies that respond to disasters or to those in distress. The one U.S. agency that is in the forefront of almost every disaster is the Federal Emergency Management Agency, or FEMA.

FEMA's mission is to "provide leadership and support to reduce the loss of life and property and protect our nation's institutions from all types of hazards through a comprehensive, risk-based, all-hazards emergency management program of mitigation, preparedness, response and recovery." Some of the assets FEMA can bring into a devastated area are Mobile Emergency Response Support (MERS) teams with; the Emergency Operations Vehicle (EOV), Multi-Radio Van (MRV), Secondary Antenna System

FEMA VHF/UHF FM Frequencies (in MHz)

138.100
138.225 Nationwide Primary Repeater (141.875 MHz input)
138.400
138.575
139.100
139.225
139.450
139.825 (often as input with 148.575 MHz output repeater)
139.925
139.950
140.025
140.900
140.925
141.100
141.300
141.725 Nationwide Primary Simplex
141.875 Repeater Input to 138.225
141.950
142.025
142.200
142.230 Repeater Input
142.300
142.350 Simplex/Repeater Input to 143.00 MHz
142.375 Simplex/Repeater Input to 143.00 MHz
142.400 Simplex (Region 4 use reported)
142.425 Simplex/Repeater Input to 143.00 MHz
142.925 Simplex (Regions)
142.935
142.950
142.975 Simplex/Input to 142.230 MHz/Input to 143.00 MHz
143.000 Simplex/Repeater output
143.050
143.225 Mobiles/Portables
143.250 Repeater Input to 139.250 MHz
143.600
143.625 Simplex (Region 6 use reported)
152.425

153.225 Output with 158.13 MHz Input
158.130 Repeater Input to 153.225 MHz
168.075 Repeater Output with 170.425 MHz Input
168.100 Repeater Output with 170.450 MHz Input
168.400 Repeater Output with 166.6125 MHz Input
168.700 Repeater Output with 170.975 MHz Input
170.200 Federal Disaster Net
409.125
412.350
418.050
453.525

FEMA HF Frequencies (in kHz)

2320.0 Foxtrof 1	10194.0 Foxtrof 25	15532.0 Foxtrof 49
2360.0 Foxtrof 2	10493.0 Foxtrof 26	15708.0 Foxtrof 50
2377.0 Foxtrof 3	10588.0 Foxtrof 27	16201.0 Foxtrof 51
2445.0 Foxtrof 4	11721.0 Foxtrof 28	16238.0 Foxtrof 52
2658.0 Foxtrof 5	11801.0 Foxtrof 29	17519.0 Foxtrof 53
3341.0 Foxtrof 6	11957.0 Foxtrof 30	18483.0 Foxtrof 54
3379.0 Foxtrof 7	10899.0 Foxtrof 31	18744.0 Foxtrof 55
3388.0 Foxtrof 8	11108.0 Foxtrof 32	19757.0 Foxtrof 56
4603.0 Foxtrof 9	12129.0 Foxtrof 33	19969.0 Foxtrof 57
4780.0 Foxtrof 10	12112.0 Foxtrof 34	20027.0 Foxtrof 58
5211.0 Foxtrof 11	12119.0 Foxtrof 35	20063.0 Foxtrof 59
5378.0 Foxtrof 12	13446.0 Foxtrof 36	21866.0 Foxtrof 60
5402.0 Foxtrof 13	13935.0 Foxtrof 37	21919.0 Foxtrof 61
5821.0 Foxtrof 14	13894.0 Foxtrof 38	22983.0 Foxtrof 62
5961.0 Foxtrof 15	14567.0 Foxtrof 39	23028.0 Foxtrof 63
6049.0 Foxtrof 16	13783.0 Foxtrof 40	23390.0 Foxtrof 64
6106.0 Foxtrof 17	14450.0 Foxtrof 41	23451.0 Foxtrof 65
6108.0 Foxtrof 18	14776.0 Foxtrof 42	23550.0 Foxtrof 66
6151.0 Foxtrof 19	14836.0 Foxtrof 43	23814.0 Foxtrof 67
6176.0 Foxtrof 20	14885.0 Foxtrof 44	24008.0 Foxtrof 68
6809.0 Foxtrof 21	14899.0 Foxtrof 45	24282.0 Foxtrof 69
7348.0 Foxtrof 22	14908.0 Foxtrof 46	24526.0 Foxtrof 70
7428.0 Foxtrof 23	14871.0 Foxtrof 47	24819.0 Foxtrof 71
9462.0 Foxtrof 24	15509.0 Foxtrof 48	

Table 1.



Chart showing FEMA regions.



USCGC HH-60J begins a "hoist" of a person in the water. (Photo courtesy of the U.S. Coast Guard)

(SAS) and other support vehicles. The Multi-Radio Vehicle contains: three Harris RF350K 500W auto-tune 1.6 to 29.999 MHz transceivers; a Motorola MCX-1000 VHF repeater, DES (Data Encryption Standard), and DVP (Digital Voice Protection); a Motorola Spectra UHF repeater; a Motorola Spectra 800 MHz/900 MHz repeater capable of both conventional and trunked operation; four Magnavox VRC-83 HF/VHF/UHF multi-mode military aircraft radios; a Magnavox URC-110 FLTSATCOM UHF terminal; and a Ku-band video uplink. It also carries three antennas, some of which are field-erectable, and "a lot" of Motorola Saber VHF hand-held radios for on-scene use. The Multi-Radio Vehicle can operate up to six repeaters simultaneously to allow government agencies with otherwise incompatible radios and frequencies to communicate in a disaster scenario. There are five MRV tractor-trailer rigs dispersed across the U.S. that can be transported by a USAF C-5 Galaxy to wherever it's needed. As you can see, FEMA communications cover a pretty sizable part of the spectrum. Table 1 is a listing of some confirmed FEMA frequencies including their HF "Foxtrot" designator's. The HF frequencies listed can carry SSB or digital traffic.

From flooding in the Midwest to rescue on the high seas, the U.S. Coast Guard is "Always Ready." Having humble beginnings in 1790 as the (then) Revenue Marine consisting of 10 single masted "cutters," today if it was a navy, it would be the 12th largest navy in the world. The

U.S. Coast Guard is the primary federal agency with maritime authority for the United States. The Coast Guard's four main missions are Maritime Law Enforcement, Maritime Safety, Marine Environmental Protection and National Security. These missions mandate the Coast Guard to remain constantly ready to defend the United States, ensure national security and protect national interests, minimize loss of life and property, personal injury and property damage at sea and in U.S. waters; enforce U.S. laws and international agreements, assure the safety and security of marine transportation, ports, waterways and shore facilities; promote marine transportation and other waterborne activity in support of national economic, scientific, defense and social needs, protect the marine environment and its creatures; assure effective U.S. presence in the polar regions, project the interests of the United States in relationships with other maritime nations around the world; assist other agencies in the performance of their duties and cooperate in joint maritime ventures; provide an effective maritime communications system; and when directed by the President, operate as a Service in the U.S. Navy. In an average day, the Coast Guard saves 32 lives; assists 308 people; saves \$8 million in property value; conducts 142 SAR (Search and Rescue) cases; responds to 34 oil or hazardous chemical spills; investigates 17 marine accidents; and performs countless other actions stemming from their required duties, according to Coast Guard statistics. As

one might expect, the Coast Guard is extra busy during active hurricanes, cyclones, and during winter storm season. The Coast Guard not only coordinates, but usually conducts maritime SAR missions. Coast Guard Rescue Coordination Centers (RCC's) are set up to cover specific geographic areas and act as command and coordination centers. The geographic areas of responsibility are divided among nine Coast Guard District commands and two Rescue Sub-Centers (RSC) as follows: District 1 (D-1), Boston, MA; District 5 (D-5), Portsmouth, VA; District 7 (D-7), Miami, FL; District 8 (D-8), New Orleans, LA; District 9 (D-9), Cleveland, OH (Great Lakes); District 11 (D-11), Alameda, CA; District 13 (D-13), Seattle, WA; District 14 (D-14), Honolulu, HI; District 17 (D-17), Juneau, AK; Puerto Rico RSC, San Juan, PR; and Marianas RSC, Guam. USCG aircraft flying a SAR mission use the word "RESCUE" before their aircraft tail number. Table 2 is a list of frequencies to check for these types of USCG communications and a list of USCG aircraft tail numbers.

The United States Air Forces rescue squadrons also fly some civilian SAR cases using the callsign "Air Force Rescue ###." Often appearing on Coast Guard air-to-ground frequencies, you can also check these USAF frequencies: 4421.0, 5694.0, 6712.0, 6713.5, 6714.0, 9018.0, and 11538.0 kHz. Also, 138.45 (air-to-air SAR) and 252.8 and 272.2 MHz. When not on a SAR mission, helicopters use the static callsign "JOLLY ##" and fixed-wing aircraft (usually HC-130's) use the static callsign "KING ##." The Air Force Rescue Coordination Center (AFRCC) at Langley AFB, VA, coord-



NOAA's famed WP-3D's, "NOAA 42" and "NOAA 43."



"Miss Piggy" nose art on NOAA 43. (Courtesy NOAA)

dinates all inland SAR activities in the continental U.S. (CONUS), but does not directly prosecute SAR cases. In most situations, the actual search and rescue mission is carried out by the Civil Air Patrol or local rescue services. For Alaskan inland areas, the Air Force operates an Alaskan Rescue Coordination Center

(AKRCC) in Anchorage. Alaskan SAR duties are carried out by Air National Guard units and local Alaskan authorities. The Civil Air Patrol (USAF Auxiliary) uses 4582.0 kHz as National Emergency and Calling. Also check 121.6 VHF/AM, along with 143.75, 143.90, 148.15 and 149.925 MHz.

The National Oceanic and Atmospheric Administration (NOAA) fly a fairly good size fleet of aircraft that perform a wide range of storm study and support. The most widely "known" NOAA aircraft are their WP-3D Orion's that fly hurricane research missions. These two aircraft use the callsigns NOAA 42 (N42RF, "Kermit the Frog") and NOAA 43 (N53RF, "Miss Piggy") and are based at the Aircraft Operations Center (AOC) at MacDill AFB, FL. "Flagships" of the NOAA aircraft fleet, these specially modified P-3's are among the most advanced airborne environmental research platforms flying today. Besides hurricanes, these aircraft operate around the world, participating in NOAA, interagency, and international investigations for the study of hurricanes and other severe storms, global climate change, air pollution, oceanography, arctic ice formation, and other environmental issues. Also based at AOC is NOAA's newest aircraft, NOAA 49 (N49RF, "Gonzo"), which is a specially modified Gulfstream 4-IVSP. This aircraft is a state-of-the-art, high altitude research platform. The aircraft enhances

Common USCG Frequencies in kHz (USB)

- 2182.0 Int'l maritime distress
- 2670.0 CG w/cutters, non-CG ships
- 3023.0 Air/ground safety of flight
- 4134.0 SCN (ship)
- 4426.0 SCN (shore)
- 5320.0 Group comms
- 5696.0 Air/ground safety of flight
- 6200.0 SCN (ship)
- 6501.0 SCN (shore)
- 8240.0 SCN (ship)
- 8764.0 SCN (shore)
- 8983.0 Air/ground safety of flight
- 11202.0 Air/ground safety of flight
- 12242.0 SCN (ship)
- 13089.0 SCN (shore)
- 16432.0 SCN (ship)

17314.0 SCN (shore)

*SCN = Systems Coordination Net

VHF/UHF in MHz

- 121.5 Int'l aero distress
- 156.80 Marine calling/distress
- 157.05 CG to CG working
- 237.9 Air/Air
- 282.8 On-scene SAR
- 358.3 Air/Air
- 381.7 Air/Ground
- 383.9 Air/Ground

USCG Aircraft ID's

Coast Guard 01	C-20 Commandant of Coast Guards aircraft
1500 to 1722	HC-130 "Hercules"
2101 to 2149	HU-25 "Falcon"
6001 to 6049	HH-60J "Jayhawk"
6501 to 6599	HH-65A "Dolphin" (being phased out)
8101 to 8103	RU-38/RG-8 "Schweizer"

Table 2.

Operation SECURE frequencies In Use

2326.0	2474.0	5135.0
2411.0	2487.0	5140.0
2414.0	2511.0	5192.0
2419.0	2535.0	5195.0
2422.0	2569.0	7477.0
2439.0	2587.0	7480.0
2463.0	2801.0	7802.0
2466.0	2804.0	7805.0
2471.0	2812.0	7932.0
		7935.0

Table 3.

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FEMA responds to a high number of disasters each year, such as recent flooding in the Midwest. (Photo courtesy NOAA web site)]

NOAA's tropical cyclone forecast capability in three basic areas: improved track forecasts; providing a platform to develop the next generation reconnaissance capability; and providing research into intensity, change and storm motion. The Gulfstream can also fly higher than the WP-3D's presently used to penetrate hurricanes. The G4 will fly atmospheric profiling missions around and over hurricanes, according to NOAA. Other NOAA aircraft include: N47RF, AC-500S Aero Commander (Shrike); N485RF/N48RF, DeHavilland DHC-6 Twin Otter; N51RF, AC-500S Aero Commander (Shrike); N52RF, Cessna Citation II; N53RF, AC690A Turbo Commander; N59RF, McDonnell-Douglas MD-500D Helicopter; and N60RF/ N61RF, Bell 212 helicopters. Hurricane season runs June 1 to November 30 every year. Since we are into hurricane season right now, you may want to review the complete hurricane frequency information I presented my June 1997 Communications Confidential column. NOAA aircraft make frequent use of the USAF/ GHFS system on the frequencies listed in my column elsewhere in this magazine this month. Listen for "NOAA ##" callsigns. Also heard are WC-130E/H "Hurricane Hunter" aircraft from the 53rd Weather Reconnaissance Squadron (AFRES), from Keesler AFB, MS. They use the call-sign "TEAL ##."

Another system that comes to life during disasters and severe storms is Operation SECURE. SECURE is State Emergency Capability Using Radio Effectively. SECURE uses a block of HF frequencies (Table 3) to provide emergency communications to individual states. These nets seem to be more widely used in earthquake-prone states such as California, and hurricane-prone states along the east coast. However, almost every state has frequencies licensed to SECURE.

List of Common Acronyms, Abbreviations and Terms

AE	Aeromedical Evacuation
AEC	Agency Emergency Coordinators
AECC	Aeromedical Evacuation Control Center
AELT	Aeromedical Evacuation Liaison Team
AIRSTA	Air Station
AOC	Army Operations Center, Pentagon
AP	Assembly Point
ARC	American Red Cross
ARES	Amateur Radio Emergency Services
ARRL	American Radio Relay League
AUTOVON	Automatic Voice Network
C	Base Camp
CAT	Crisis Action Team
CCP	Casualty Collection Point
CDRG	Catastrophic Disaster Response Group
CMT	Crisis Management Team
CONUS	Continental United States
CRM	Crisis Resource Manager
DCO	Defense Coordinating Officer
DFO	Disaster Field Office
DMAT	Disaster Medical Assistance Team
DMB	Data Marker Buoy
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of the Interior
DOJ	Department of Justice
DOL	Department of Labor
DOMS	Directorate of Military Support, DoD
DOS	Department of State
DOT	Department of Transportation
DPAO	Deputy Public Affairs Officer
DWI	Disaster Welfare Inquiry
EC	Emergency Coordinator
ECS	Emergency Communications Staff
EICC	Emergency Information and Coordination Center
ELT	Emergency Locating Transmitter
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
EPIRB	Emergency Position Indicating Radio Beacon
ERC	Emergency Response Coordinator
ERT	Emergency Response Team
ERT-A	Advance Element of the Emergency Response Team
ESF	Emergency Support Function
EST	Emergency Support Team
FAA	Federal Aviation Administration
FBI	Federal Bureau of Investigation
FCC	Federal Communications Commission
FCO	Federal Coordinating Officer
FECC	Federal Emergency Communications Coordinator
FERC	FEMA Emergency Response Capability
FESC	Federal Emergency Support Coordinator
FHWA	Federal Highway Administration
FNS	Food and Nutrition Services
FRCM	FEMA Regional Communications Manager
FTS	Federal Telecommunications Systems
GSA	General Services Administration
HF	High Frequency
HHS	Department of Health and Human Services
HUD	Department of Housing and Urban Development
ICC	Interstate Commerce Commission
ICS	Incident Command System
J-4/JCS	Office of the Joint Chiefs of Staff
JIC	Joint Information Center
JIS	Joint Information System
JTF	Joint Task Force
JMMO	Joint Medical Mobilization Office
JTRB	Joint Telecommunications Resources Board
M	Marshalling Area
MARS	U.S. Army Military Affiliate Radio System
MASF	Mobile Aeromedical Staging Facility
MC	Mobilization Center
MCR	Military Communications Representative

MRE	Meals Ready to Eat
NCC	National Coordinating Center
NCS	National Communications System
NECC	National Emergency Coordination Center (FEMA)
NEIS	National Earthquake Information Service
NGB	National Guard Bureau
NICC	National Interagency Coordination Center
NRC	Nuclear Regulatory Commission
NRT	National Response Team
NSF	National Strike Force
NVOAD	Nat'l Voluntary Organizations Active in Disaster
NWS	National Weather Service
OSC	On-Scene Coordinator/Commander
OSHA	Occupational Safety and Health Administration
PAO	Public Affairs Officer
PBS	Public Building Service (GSA)
PIO	Public Information Officer
PIW	Persons In Water
POA	Point of Arrival
POB	Persons On Board
POD	Point of Departure
PRA	Patient Reporting Activity
PSR	Personal Service Radio
RACES	Radio Amateur Civil Emergency Services
RCC	Rescue Coordination Center
RCP	Regional Oil and Hazardous Substances Pollution Contingency Plan
RD	Regional Director
REACT	Radio Emergency Associated Communication Team
REC	Regional Emergency Coordinator
RECC	Regional Emergency Communications Coordinator
RECP	Regional Emergency Communications Plan
REP	Regional Evacuation Point
RET	Regional Emergency Transportation
RETCO	Regional Emergency Transportation Coordinator
ROC	Regional Operations Center
ROST	Regional Operations Support Team
RRT	Regional Response Team
S	Staging Area
SAR	Search and Rescue
SCO	State Coordinating Officer
SITREP	Situation Report
SOP	Standard Operating Procedure
TAES	Tactical Aeromedical Evacuation System
TCC	Transportable Communications Central (USCG)
TOA	Transportation Operating Agencies
TREAS	Department of the Treasury
TSP	Telecommunications Service Priority
USACE	United States Army Corps of Engineers
US&R	Urban Search and Rescue
ZCEP	Zone Emergency Communications Planner

Interesting Related WWW Internet Sites

http://www.nhc.noaa.gov/	NOAA Nat'l Hurricane Center
http://www.fema.gov/	FEMA tropical storm watch
http://www.af.mil	USAF
http://www.achq.dnd.ca/	Canadian Forces
http://twister.sbs.ohio-state.edu/text/severe/tropical/NOUS42.KHNC	
http://www.earthwatch.com/STORMWATCH/stormwatch.html	
http://www.met.fsu.edu/explores/tropical.html	
http://cirrus.sprl.umich.edu/wxnet/tropical.html	
http://www.ec.gc.ca/weather_e.html	Environment Canada
http://www.cnn.com/WEATHER/storm.center/index.html	
http://cimss.ssec.wisc.edu/tropic/tropic.html	
http://www.wmo.ch/	World Meteorological Organization

Real-time Tropical Cyclone Advisories

http://banzai.neosoft.com/citylink/blake/tropical.html
http://cirrus.sprl.umich.edu/wxnet/tropical.html
http://iwin.nws.noaa.gov/iwin/us/hurricane.html
http://lumahai.soest.hawaii.edu/Tropical_Weather/tropical.shtml
http://nhc-hp6.nhc.noaa.gov/graphics.html
http://nhc-hp6.nhc.noaa.gov/products.html



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<http://www.atms.unca.edu/%7Efarr/hurricane96.html>
<http://www.ih2000.net/ira/bmt-wth.htm>
<http://www.typhoon.org.hk/>
<http://www.weather.brockport.edu/cgi-bin/hurricane>

Real-time Satellite Pictures

<http://oldthunder.ssec.wisc.edu/>
<http://banzai.neosoft.com/citylink/blake/tropical.html>
http://www.nrlmry.navy.mil/sat_products.shtml
<http://cirrus.sprl.umich.edu/wxnet/tropical.html>
<http://clunix.cl.msu.edu:80/weather/>
<http://grads.iges.org/listing/wx.html>
http://lumahai.soest.hawaii.edu/Tropical_Weather/tropical.shtml
<http://www.dibbs.net/%7Ejadkins/storm.html>
<http://www.finet.com/%7ereiter>
<http://www.met.fsu.edu/explores/tropical.html>

Saffir-Simpson Scale

Category 1	65- 82 kts; 74- 95 mph; >980 mb; >28.94 "Hg
Category 2	83- 95 kts; 96-110 mph; 965-979 mb; 28.50-28.91 "Hg
Category 3	96-113 kts; 111-130 mph; 945-964 mb; 27.91-28.47 "Hg
Category 4	114-135 kts; 131-155 mph; 920-944 mb; 27.17-27.88 "Hg
Category 5	>135 kts; >155 mph; 919 mb; 27.16 "Hg

Tropical Classification

Tropical Depression	(20-34kts and a "closed" circulation)
Tropical Storm (named)	(35-64kts)
Hurricane	(65+kts or 74+mph)

Table 4.



Boeing CH113 Labrador Helicopter used in Canada for SAR work. (Photo courtesy Canadian Dept. National Defense)

ON; and Victoria, BC. SAR comms can be heard on 3047.0, 4739.0, 5717.0, 6694.0, 6715.0, 9007.0, 11186.0, 11232.0 15031.0 kHz via Halifax Military, Trenton Military, St. Johns Military and Vancouver Military. The Canadian Coast Guard can most often be found on the International Distress frequency of 2182.0 kHz, and makes use of 2103.5 kHz for ship-to-ship communications. Rescue facilities in Canada were introduced in 1793 when the Nova Scotia government provided a lifeboat and station on Sable Island. In 1936, the Government of Canada passed the Department of Transportation Act, bringing various transportation modes under a single federal authority. This included the Marine Services section of the former department. Its fleet of vessels was renamed the Canadian Coast Guard in 1962. Recently an organizational merger created the new Dept. of Fisheries and Oceans of which the Canadian Coast Guard is a department. All vessels in the merged fleet will be painted in a common paint scheme, but the CCG will retain it's own name.

Table 4 is a listing of terms you might hear while monitoring the communications I have covered. At the bottom of this table is a list of related web sites for you web surfers. There are many other agencies that arguably could have been included in the lists above. I hope to present a "Part 2" to this article covering other agencies and other parts of the world soon that deal in storm and disaster response. I am looking for frequencies, agency and other information to supplement my research. Any information or details are welcome. Write me here at *Pop Comm* or by e-mail at utelistener@msn.com. Until then, a tip of the hat to all who must ride into harms way in times of crisis. Fair winds and following seas.



The SAR involving the S/V *Mirage* in 1995 was widely followed by SWLs around the world on HF. During the rescue, the helicopter's rescue swimmer, Aviation Survivalman First Class Michael Odom, was left in a raft after the helo's hoist failed. He was later rescued. (Photo courtesy U.S. Coast Guard)

Last, we move our way to Canada. Many of the airborne assets in Canada's SAR efforts come from the Canadian Forces Air Transport Command Search & Rescue squadrons. The 103 (SAR) squadron at 5 Wing Gander became the newest such squadron on Feb. 20, 1997. The "SAR yellow" Boeing CH113 Labrador tandem rotor helicopter and the CC-130 Hercules are the SAR work horses. There are just thirteen "Labs" located across Canada. There are three RCC's located in Canada at Halifax, NS; Trenton,

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•HA-45

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Texas: When Outlaw Broadcasters Rode The Range

The Lone Star State Wasn't Just a Wild Frontier for Cowboys . . . It Was Also The Wild Frontier of Outlaw Broadcast Stations . . .

By Alice Brannigan

Less than 70 years ago, our great Lone Star State of Texas was a wild frontier famous for brimming over with outlaws—outlaw broadcast stations, that is. We are reminded of this by Ryan “Brownie” Seals, W5NYE, of Plano, TX.

Brownie remembers that from 1930 to 1934, a number of folks in central Texas decided it would be absolutely legal and proper for them to establish unlicensed low-power broadcasting stations, despite Federal Radio Commission regulations requiring all stations to be licensed. They weren't underground pirates by any means, but were freely publicized, and often operated by large hotels. Brownie remembers visiting one of these unlicensed stations located in Coleman, and knew of similar stations in Big Springs, Dublin, Brady, and Brownwood. He had heard rumors of numerous others.

Brownie asks if we can provide some definitive information about those Texas' outlaw broadcasters of the early 1930's. It's hard to believe, but they really existed and comprised one of the most bizarre chapters in American broadcast history.

One typical Texas outlaw broadcast station was YOKM, The Voice of Yoakum, on 660 kHz. Operating daily, YOKM announced its phone number, ran contests, and gave away free tickets to the Grand Theatre in Yoakum, Texas.

Another was “Capital X,” located at the Alamo Hotel in Austin, and operating on 980 kHz. A station located in the Southern Hotel, Denton, Texas, was on 970 kHz and calling itself DNTX. The Texas outlaws primarily operated with between 50 and 100 watts, usually using homebrewed equipment.

During the early 1930's, Texas was dotted with fully-licensed stations running as little as 100 watts. These broadcasters led the chorus of those enraged by the unlicensed stations. Licensed broad-

casters claimed that they had gone to the trouble and expense of establishing and maintaining stations that met the exacting FCC technical standards, had endured the process of obtaining licenses, then operated within federal regulations at specified hours on assigned frequencies.

Now they were facing competition from a batch of new stations operating at random hours on unassigned frequencies, usually utilizing sub-standard equipment, unqualified technical staffs, and not recognizing any broadcasting regulations. They complained to the FCC about interference and about the outlaw stations stealing away their audiences.

The Free Ride Was Over

By early 1934, the free ride was over for the unlicensed Texas stations as the FCC finally decided to flex its relatively new broadcasting authority relating to such activities. In February, Curry Jackson, of Abilene, was convicted on two counts and sentenced to 10 days for operating a radio station without a license, also operating a station without a properly licensed operator.

In Waco, Fred Bitterman and Albert Cox were convicted of similar charges. A jury found them guilty of operating an unlicensed broadcasting station at Temple identifying itself as TEM-TEX. Charges and convictions followed for three operators in Austin, more in Houston, Fort Worth, and other locations.

These convictions upset the rationale by which the unlicensed stations were created and nullified the defense their operators used in court. They all claimed their central locations and low power levels kept their signals within the borders of the large state, hence the stations were not subject to interstate control, that is, regulation by the FCC.

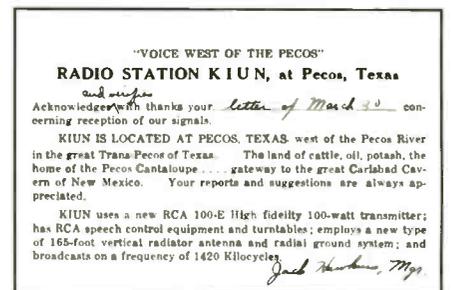
Judge E.O. Sykes, Chairman of the



KOCA, a 100 watt station in Kilgore, was one of the many licensed low power stations operating in Texas during the early 1930's. (Courtesy Tom Buckley, D.C.)

FCC, stated: “Under the Radio Act, paramount consideration must be given to listeners. It is manifestly impossible to provide first-class reception from authorized stations, however modern or rigid the rules, if the signals of licensed stations are to be disturbed or distorted by signals from illegal stations.

“At the present state of the art it is not possible to erect a station for broadcasting purposes, operating at night, whose signals will not either extend beyond the borders of any state or be capable of causing interference with the reception of stations located outside that state, despite the use of low power. If the sig-



Low-power licensed stations, like 100 watt KIUN in Pecos, were particularly vocal in condemning the rash of unlicensed Texas broadcasters. (Courtesy Tom Buckley, D.C.)



Dublin station KFPL, licensed to run 100 watts, found itself competing for listeners with an unlicensed station right in its own town! (Courtesy Tom Buckley, D.C.)

nals are not clear enough in an adjoining state to be heard by the general public, they will undoubtedly cause interference and play havoc with signals of authorized stations operating on the same or adjoining frequency."

The FRC didn't bother to address its rebuttal argument on whether the low power signals crossed state lines. The agency clamped down on the stations based upon its need to uphold the listeners' rights to good reception. They claimed the unlicensed stations had the potential to cause local interference at

night. This would make it difficult for Texas listeners to hear licensed Texas stations, as well as signals from licensed stations in distant areas.

This aggressive enforcement approach effectively ended the strange outbreak of rampant unlicensed broadcasting in Texas. Interestingly, the defense that a station didn't need a license if its signal didn't cross state lines was tried again only a few years ago by a low-power unlicensed FM station in Venice, Calif. The FCC didn't buy the concept.

Brownie Seals tells us that he would

like to correspond with others who can provide information on early Texas unlicensed broadcasters. You can write to him at: Ryan B. Seals, 6320 Lockheed St., Plano, TX 75093. Or e-mail him at <rseals@flash.net>.

Brownie built his first radio in 1930, then worked as a home radio repairman in 1934. In 1940, as an electrical engineering student at Texas A&M, he became involved in installing WTAW's new 1 kW transmitter at the school. Beginning in 1941, Brownie worked as an Engineer at Texas stations KNET in Palestine, KEBE in Jacksonville, KBWO in Brownwood, and KRLD-TV in Dallas. In 1947 he became Chief Engineer at KSTA in Coleman. From 1953-88, Brownie worked as an R&D engineer designing communications radios.

That's all we have for this time, but please be here next month and there will be more! Meanwhile, send us your old time radio and wireless photos, picture postcards, QSLs (originals or good copies), station listings, and newspaper clippings. If you have questions, comments, anecdotes, memories, and ideas, e-mail addressed to <Radioville@juno.com> will reach me directly. We'll definitely meet you on the road to Radioville.

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The Radio Connection

BY PETER J. BERTINI
<RadioConnection@june.com>

A LOOK BEHIND THE DIALS

Radio Connection on the Road!

Several readers have requested more information on radio shows and books on radio restoration and collecting. First, I suggest you contact *Antique Radio Classified* and request a sample copy of their fine publication! Besides the extensive classified section, they also run articles on restoration and collecting, and offer a large selection of vintage radio-related materials from their bookstore.

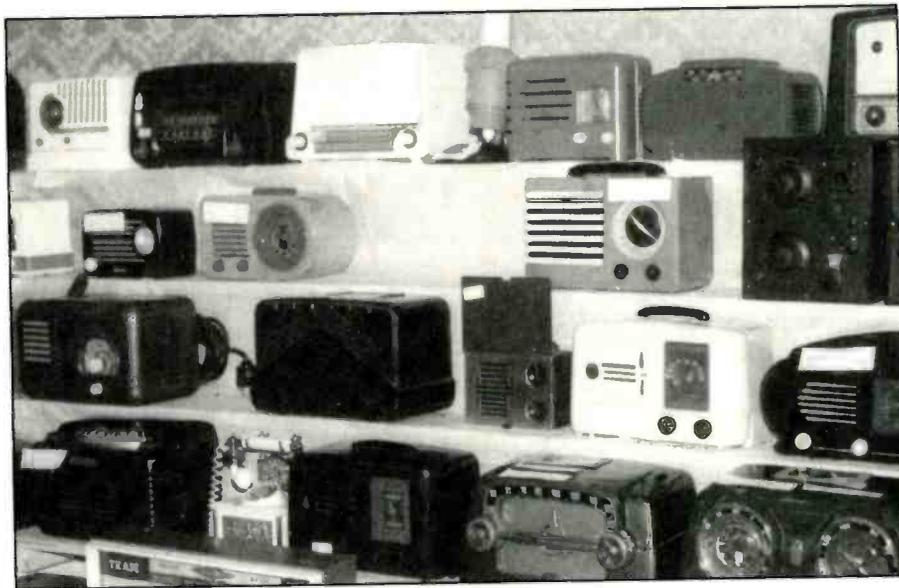
Many clubs list information on their radio meets in ARC. And Antique Electronic Supply is another source for finding books on collecting and restoring vintage sets.

Radio XXVIII!

Radio shows! Where else can you meet with fellow collectors, sell and swap vintage radios, and find those tubes and doodads to finish your latest restoration project? Last February I attended the Radio XXVIII antique radio show. Radio XXVIII is sponsored by the Greater Boston Antique Radio Collectors—an informal group of collectors who put on this annual event. This show was held at the Westford Regency Inn, in Westford, MA on February 23.

A special thanks to John Terry of ARC who allowed us to roam the isles for this photo session before the doors were opened to the general buying public! The first thing that caught our eye was this gorgeous display of colorful Catalin and plastic radios! Although my collecting interests are more aligned with early wood sets, I had to stop and admire these radios. A yellow butterscotch Fada with red trim and knobs was offered for \$425. Note the stress marks surrounding the red dial insert; such defects detract from the maximum value of these sets. Is there one of these fellows lurking in yours or a relative's cellar?

Another Catalin radio that quickly grabbed my attention featured a swirled yellow marbled case, with yellow trim and knobs! It's deep blue dial scale with red and white highlights really made this little set stand out.



This dealer's display features several colorful plastic, catalin and bakelite radios.



Catalins, bakelite, and painted plastics add color to the show.



This yellow butterscotch Fada catalin has red trim and knobs.

The next aisle held a few more surprises! The pristine example of an early Federal battery set, surrounded by horn speakers, was offered for \$1200. Several dealers had displays of tombstone and cathedral radios. Those gorgeous Philcos—lined up and looking for new homes—held my attention!

A few tables down I found a pair of rare Atwater Kent breadboards. One of them is a little "rough," note the coil windings unraveling from one of the coil forms. These sets command top dollar; plan on spending \$1000 for one in presentable condition.

At one time I was into collecting early Crosley battery sets. Any Crosley collection would have to include the one-tube Crosley "Pup." They are rare and highly collectable—plan on parting with \$300 to \$500 to bring one of these very early 1920's battery sets home.

"Where else can you meet with fellow collectors, sell and swap vintage radios, and find those tubes and doodads to finish your latest restoration project?"

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The VHF "How-To" Book

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This book is the perfect operating guide for the new and experienced VHF enthusiast.

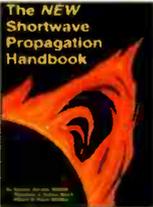
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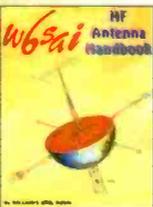


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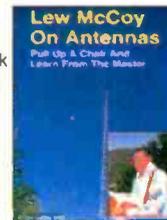


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McCoy on Antennas

by Lew McCoy, W1ICP

This is truly a unique antenna book that's a must for every amateur. Unlike many technical publications, Lew presents his invaluable information in a casual, non-intimidating way for anyone!



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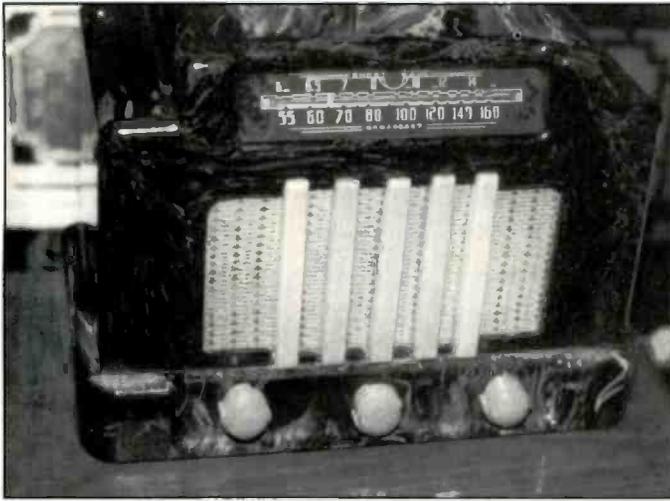
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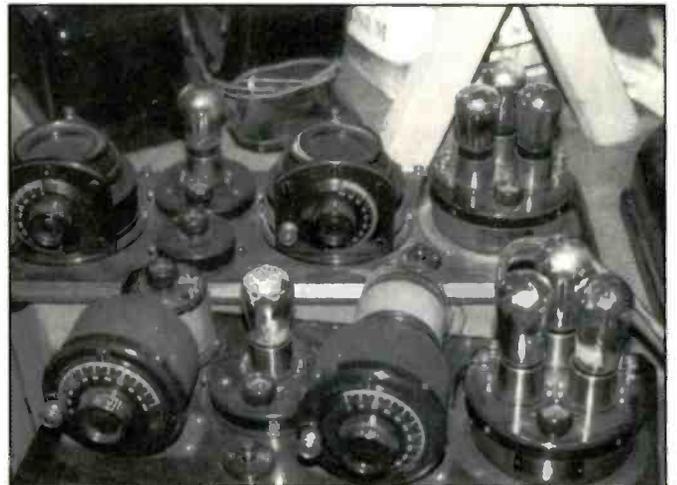
This marbled catalin has yellow swirls, a yellow grill insert and knobs, and a blue dial scale with white markings.



Early 1920's Federal battery set, surrounded by horn speakers.



Some of my favorites! This display featured tombstones and Philco cathedrals.



Some of the very first battery sets were "breadboards." While various manufacturers made bread boards, the most popular and sought after are these early 1920's Atwater Kents.

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CIRCLE 66 ON READER SERVICE CARD

Next to the Crosley Pup was a table offering early microphones and some early crystal sets. I love little crystal radio sets! Fortunately, I saved a lot of money since I was only allowed to take pictures before the doors were opened to the public. About 400 pairs of eyes watching my every move from the hallways helped keep me honest!

I was just about ready to swing down the final aisle and grab some pictures of early transistor sets—there is a small display case with about \$25,000 worth of these 1950 collectables in sight, plus some parts and book vendor displays I wanted to capture on film. But it was now 8 a.m. and the doors opened! I barely managed to snap the next few shots while risking being trampled to death. Within seconds the place was mobbed! I retreated to the now empty hallways to grab a Danish and coffee. As with any show, the



Crosley one-tube "Pup" with an early '01A style tipped-brass base tube. Many of the Crosley battery sets were housed in plain and spartan enclosures.



This table held some early crystal radio sets and crystal detectors. Crystal sets are fun to collect, and don't require much storage space. However, early crystal sets in premium condition command premium prices.



Wall-to-wall buyers crowd the aisles seconds after 8 a.m.!

best of the best is scooped up within the first half hour. Most experienced collectors know exactly what they are looking for, and what they will pay. Yet, as the day wears on, there are still many bargains. Check the pages of ARC to find an upcoming show in your area. ■

Sources of Antique Radio Information and Shows

Antique Radio Classifieds
P.O. Box 802-T11
Carlisle, MA 01741
508-371-0512

Antique Electronic Supply
6221 S. Maple Ave.
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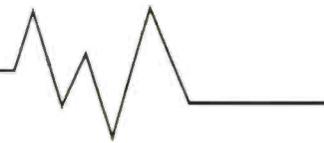
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THE MONITORING MAGAZINE

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Radio Resources



INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

Keep in Touch—Who, Me?

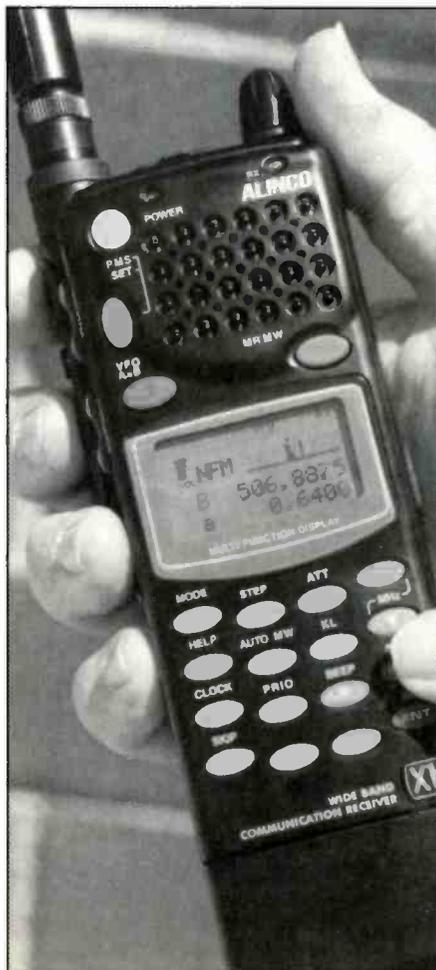
A vacation out in the wilderness, or off on the water to a distant island, is a great way for me to get away from the nagging phone and e-mail. But try as hard as we can to out-distance ourselves from reachable cellular telephone coverage, there are still ways to track our whereabouts and ultimately get a message to us—anywhere in the WORLD.

Shortwave

Commercial e-mail providers like Globe Wireless, Pinoak, and WLO serve the boater's need for on-the-water e-mail messaging via high-frequency stations. An under \$200 investment could put a boater on with their simplex telex-over-radio system, but a \$1,500 modem can message in the Pactor and Clover modes at a small increase in relatively slow, high-frequency, digital messaging, but with increased through-put to bounce e-mail calls off of the ionosphere and get them through to a distant shore-side party at signal levels you can't even hear over the high-frequency airwaves. Small boats with simple marine single-sidebands might add this capability, but from recent reports that I hear over the airwaves, their capability of getting through the noise is not an everyday deal.

Global Positioning Receivers

Position finding is easy with global positioning system receivers. Cheap, too—a full-featured portable global positioning system receiver can be found brand new in marine catalogs near \$159! They will work all day on a set of AA alkaline batteries, and you can read your position in latitude and longitude down to an accuracy the radius of a 300-foot circle. And if you need even greater accuracy than that, an add-on DIFFERENTIAL GPS medium-frequency receiver will let you tune into the free United States Coast Guard correction signals, giving you GPS latitude and longitude accuracy within



Alinco's new wideband all-mode portable D.I.-X10 receiver. Look for a full review in Pop'Comm next month!

the radius of a 12-foot circle! It's plenty good enough for finding that "secret spot" on land or on the water.

It's now commonplace to uplink your GPS datastream to radio carriers which can handle the delivery of current position information as well as text messages to anyone on e-mail, anywhere in the world. Ham operators do it for free as a test of their emergency communication capabilities, plus as a hobby as part of the ham **Automatic Position/Packet Reporting System**. The GPS position goes up to the ionosphere and takes a bounce,



Powerful nickel metal hydride battery packs and chargers by Maha. Pictured here is the Maha MH-101.

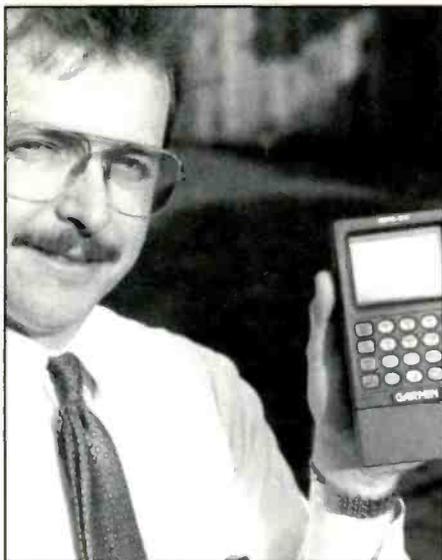
or it may go to a distant repeater or a very distant ham satellite.

Using Satellites

Messaging through satellites with portable radio terminals is now the hot ticket. The ultra-high frequencies and very high frequency allocations allow for faster transmission speeds, and zero problems from the ever-fickle ionosphere. Stabilized antennas from companies like KVH (originally intended for direct broadcast satellite reception) keep microwave e-mail connections aimed directly at the geostationary communication "birds." The new INMARSAT-3 mini-M



This Nav-Com marine VHF set will also transmit your GPS position as a packet on 156.525 MHz.



This portable GPS is accurate within the radius of a 295-foot circle.

satellite communication system provides spot-beam coverage for selected regions throughout the world, further decreasing the need for any satellite antenna much larger than a basketball. American Mobile Satellite Corporation (AMSC) has United States spot-beam coverage so powerful that satellite antennas as small as a football can get the job done nicely, whether aboard trucks, on trains, or aboard small boats.

American Mobile Satellite Company, along with INMARSAT mini-M spot-beam coverage can also support voice calls, too. Your voice is first digitized, then sent up to the geosynchronous satellite, and you can say your thing anywhere in the United States and even out a couple hundred miles at sea. The only problem here is the agonizing delay and echo that you must live with during voice calls from these satellites that are more than 22,000 miles away. Until someone figures out a way to speed up radio signals in a vacuum, the voice delay will always be present.

Low Earth Orbit

No doubt you have heard about low-earth-orbit communication satellites for portable e-mail messaging. The hams hope these little whizzers circling the globe every 90 minutes won't take over their popular VHF and UHF bands. I had an opportunity to be one of the first to send e-mail using the Orbcomm satellite network, running a small Magellan GSC-100 transceiver. No microphone—just the keypad—but I was able to get through

to at least one of the two satellites already up in orbit and ultimately get a message to a demonstration station thousands of miles away. It also gave my position. Now the folks back home knew that I wasn't near the office, but rather deep in a canyon on Lake Mead.

Motorola's Iridium low-earth-orbit satellite system is just getting "off the ground" as you read this, so there should be two portable-unit e-mail satellite providers ready to take your non-voice calls by the end of the year.

I'm glad you asked—until competition

kicks in, you're going to spend a couple of bucks to send a page of text. But good news—the Magellan GSC-100 I was working with sells brand new for under \$995 when they get into full production.

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Common AA alkaline batteries always give you longer playing power than rechargeable batteries. Whether you run a scanner on your belt, or operate portable GPS and satellite communications portable sets, a good quality alkaline AA cell will usually give you more than 2,000 mAH capacity. This is about three times longer playing time capabilities as the common rechargeable nickel cadmium AA cells. Most of my NiCds show a rating of between 500 and 650 mAH.

There is a new type of battery out using nickel metal hydride on the inside, and these cells are now available with up to 1,200 mAH capacity. They weigh almost the same as the NiCd, but will definitely run 1-1/2 times longer and are also environmentally less toxic to dispose of as opposed to NiCds and alkalines that must be disposed of properly. These new nickel metal hydride cells also have a flatter discharge curve, and exhibit almost no memory effect.

I recently tested 10 different battery packs from Maha (15356-A Valley Blvd., City of Industry, California; 800-376-9992) on several different brands of communications equipment. Without question, the identical-looking nickel metal hydride Maha packs would play my gear dramatically longer than conventional NiCds—not quite as long as alkaline cells, but definitely an improvement in playing time over NiCds.

But you must use caution when recharging nickel metal hydride—if you rapid-charge them with your NiCd charger, and repeatedly rapid-charge them, you can accidentally cook them dead. Either trickle-charge them back up overnight, or better yet, go with a rapid-charger that is designed by the same manufacturer as your new nickel metal hydride battery type. Maha has a new rapid-charger specifically for their nickel metal hydride

battery packs, and the company is now coming up with nickel metal hydride battery systems that will fit almost all types of two-way radio transceivers. Some brand new units slip quite nicely into that new portable scanner for at least 1-1/2 times playing power.

Testing, Testing, Testing . . .

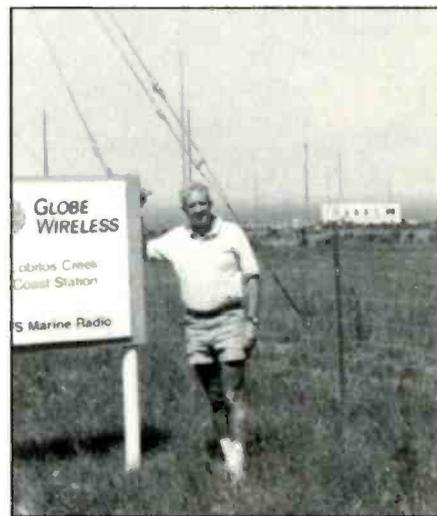
The popular ICOM IC-R10 all-band receiver now has more company in the all-frequency, all-mode receiver market. Now keep in mind that we want to call them handheld all-frequency, all-mode receivers, rather than scanners. Something about stepping on another company's patent. So call them receivers.

New from Alinco is the all-frequency, all-mode, portable DJ-X10T receiver that is reported to have even more features than what we have seen before from this small handheld type of equipment. As you can see by the photo, I am already working up a product report on it and will give you full details next month.

Ham Freqs

We are also closely monitoring what the local ham radio dealers are doing to keep themselves in business while the amateur radio community struggles with "keep the code or reduce the requirements for worldwide General class." Easing up on Morse Code requirements for the General class license would certainly cause more no-code hams to consider learning the code, and then passing the less strenuous General class code test and helping the industry out by buying some of those wonderful \$1,000 base station and mobile station transceivers. Add another grand for antennas and amplifiers, too.

Right now, the only growth in amateur radio is from the no-code licensee, and

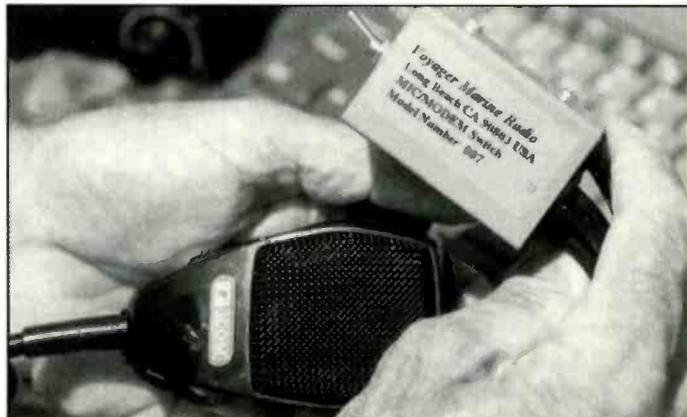


Author Gordon West takes a break after "inspecting" the Globe Wireless Antenna Farm.

most beginners get stuck with a 2-meter FM handie-talkie, and don't realize there is anything more out there than just their local repeaters. Ham dealers are hoping to show them all the things that a no-code Technician class licensee can do besides just yakking on the local repeater pair. If Phase 3D satellite goes up as planned in the next month or two, no-code Technicians will have multiple satellite opportunities to easily work the world.

Kenwood Corporation is banking on super-electronic-chain-store Fry's to give amateur radio big exposure at each one of their stores as part of the Fry's 60-foot radio communications equipment aisle. Fry's plans to have ham radio days at all of their stores, further promoting the hobby and getting licensed hams to realize there's a lot more than just 2-meter handie-talkies.

More next month, but in the meantime, keep those letters coming on what you see out there when it comes to radio equipment and radio resources. ■



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\$129⁹⁵ MFJ-1024 MFJ-1312, \$12.95.
Indoor Active Antenna

\$79⁹⁵ MFJ-1020B

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."

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Pop'Comm's World Band Tuning Tips

August 1997

This listing is designed to help you hear more shortwave broadcasting stations. The list includes a variety of stations including international broadcasters beaming programs to North America, others to other parts of the world, as well as local and regional shortwave stations. Many of the transmissions listed here are not in English. Your ability to receive these stations will depend on time of day, time of year, your geographic location, highly variable propagation conditions and the receiving equipment used.

AA, FF, SS, GG, etc. are abbreviations for languages (Arabic, French, Spanish, German). Times given are in UTC, which is five hours ahead of EST, i.e. 0000 UT equals 7 p.m. EST, 6 p.m. CST, 4 p.m. PST.

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0000	5930	Radio Prague, Czech Republic		0300	4985	Radio Brazil Central	PP
0000	9705	R. Mexico Int'l	SS	0300	5025	Radio Rebelde, Cuba	SS
0000	15240	Radio Australia		0300	5890	Radio MI, Honduras	SS
0028	5900	Radio Vlaanderen Int'l, Belgium	EE/Flem	0300	7190	Investment Channel, South Africa	
0030	4980	Ecos del Torbes, Venezuela	SS	0300	9690	China Radio International, via Spain	
0030	9540	Radio Exterior Espana, Spain		0300	9700	Radio Bulgaria	
0100	3365	Radio Cultura, Brazil	PP	0300	15270	Radio Pilipinas, Philippines	
0100	5012	Radio Cristal, Dominican Republic	SS	0330	3955	Channel Africa, South Africa	local
0100	6055	Radio Exterior de Espana, Spain		0330	5019	Ecos del Atrato, Colombia	SS
0100	6135	Swiss Radio Int'l		0330	9840	Radio Budapest, Hungary	
0100	6190	Radio Budapest, Hungary		0400	3270	Namibian Broadcasting Corp.	
0100	6260	Voice of Greece	GG/EE	0400	3330	Christian Voice, Zambia	
0100	7115	Radio Yugoslavia		0400	4567	Radio Gotas de Oro, Peru	SS
0100	7180	Radio Ukraine		0400	4820	La Voz de Evangelica, Honduras	SS
0100	7345	R. Prague, Czech Republic	EE	0400	4991	Radio Ancash, Peru	SS
0100	9545	Deutsche Welle, Germany		0400	6560	Republic of Iraq Radio	AA
0100	9745	HCJB, Ecuador		0400	7300	Voice of Turkey	
0100	15167	Radio Tahiti	FF	0400	9685	Voice of Turkey	
0130	7290	Radio Sweden		0430	6165	Radio Netherlands via Bonaire	
0200	3250	Radio Luz y Vida, Honduras	SS	0500	4777	RTV Gabonaise, Gabon	FF
0200	4825	Radio Mam, Guatemala	SS/vern	0500	4850	CRTV, Cameroon	FF
0200	4870	La Voz del Upano, Ecuador	SS	0500	4904.5	Radiodiffusion Nat'l Tchadienne, Chad	FF
0200	5077	Caracol Colombia	SS	0500	6105	Radio Universidad, Costa Rica	SS
0200	5970	Radio Exterior Espana via Costa Rica	SS	0500	6185	R. Educacion, Mexico	SS/EE
0200	6000	Radio Havana Cuba	EE	0500	7255	Voice of Nigeria	
0200	6045	Deutsche Welle, Germany		0500	7480	R. Bulgaria	
0200	6090	Radio Bandeirantes, Brazil	PP	0500	9475	Kol Israel	
0200	6150	Adventist World Radio, Costa Rica	SS	0500	9580	Africa No. One, Gabon	FF
0200	7465	Radio Norway Int'l	NN/EE	0500	9650	Deutsche Welle, Germany, via Bonaire	
0200	9735	R. Nacional Paraguay	SS	0500	11905	Radio New Zealand Int'l	
0200	11780	Radio Nacional/Radiobras, Brazil		0600	3290	GBC Radio, Guyana	SS
0230	5035	Radio Aparecida, Brazil	PP	0600	4815	RadioTV Burkina, Burkina Faso	FF
0230	7160	Radio Tirana, Albania		0600	4870	ORTB, Benin	FF
0239	9495	Radio Austria Int'l	EE	0600	4915	GBC, Ghana	
0243	7210	Qatar Broadcasting Service	AA, s/on	0600	5100	Radio Liberia	
0250	4910	Zambia National Broadcasting		0600	6090	Radio Esperanza, Chile	SS
0250	6095	Vatican Radio		0600	7125	RTV Guineene, Guinea	FF
0250	7200	Republic of Sudan Radio	AA	0600	7215	RTV Ivoireenne, Ivory Coast	FF
0300	4845	Radio Fides, Bolivia	SS	0630	6015	R. Austria Int'l, via Canada	
0300	4955	Radio Nacional, Colombia	SS	0700	3316	Sierra Leone Broadcasting Service	

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0700	4783	Radio TV Malienne, Mali	FF	1400	9405	FEBC, Philippines	CC
0700	4915	Radio Cora, Peru	SS	1400	13580	Radio Prague, Czech Republic	
0700	5860	HCJB, Ecuador		1400	13610	R. Vlaanderen Int'l, Belgium	
0700	6205	RFPI, Costa Rica	USB	1400	15160	Radio Algiers Int'l, Algeria	
0700	11730	Trans World Radio, South Africa		1400	15160	Radio Algiers Int'l, Algeria	
0730	9660	Radio Australia		1400	17560	Radio France Int'l, via Gabon	
0800	4885	Radio Clube do Para, Brazil	PP	1400	17780	RAI, Italy	II
0800	5980	Radio Guaruja, Brazil	PP	1400	17830	Qatar Broadcasting Service	AA
0800	6070	Radio Japan-NHK World, via Fr. Guiana		1430	9485	Radio Sweden	
0800	9500	Trans World Radio, Swaziland	EE	1430	9535	Radio Japan NHK World	
0800	13670	Radio Korea		1430	21515	Radio Portugal Int'l	
0900	3945	Radio Vanuatu		1500	9785	China Radio Int's	
0900	6010	Radio Mil, Mexico	SS	1500	9880	Radio Kuwait	AA
0900	6018	Radio Victoria, Peru	SS	1500	9910	All India Radio	
0900	6030	Radio Globo, Brazil	PP	1500	11580	Trans World Radio, Guam	
0900	6160	CKZU, Canada	PP	1500	11890	Radio Oman	AA
0900	7445	Voice of the Mediterranean via Russia	FF	1500	13635	Swiss Radio Int'l	
0900	7670	Radio Horizont, Bulgaria	BB	1500	17545	Reshet Bet, Israel	Hebrew
0900	9505	Radio Record, Brazil	PP	1600	11750	Qatar Broadcasting Service	AA
0900	9700	R. New Zealand Int'l		1600	11840	Radio Norway Int'l	NN/EE
0900	9885	Swiss Radio Int'l	II	1600	11900	Channel Africa, South Africa	Swahili
1000	4780	Radio Oriental, Ecuador	SS	1600	21560	Deutsche Welle, Germany	GG
1000	4790	Radio Atlantida, Peru	SS	1630	15395	UAE Radio, Dubai	EE
1000	4996	Radio Andina, Peru	SS	1630	21700	R. Japan NHK World, via Gabon	JJ
1000	6030	Radio Vlaanderen Int'l, Belgium		1700	11690	Radio Jordan	
1000	6115	La Voz del Llano, Colombia	SS	1700	15715	WINB, Pennsylvania	
1000	6135	Radio Santa Cruz, Bolivia	SS	1800	11850	Voice of the Great Homeland, Libya	AA
1000	21605	UAE Radio, Dubai		1800	13780	All India Radio	
1030	5020	Solomon Islands Broadcasting Corp.	EE	1800	15265	Radiobras/Radio Nacional, Brazil	
1030	6155	Radio One, Singapore		1800	15450	RTT Tunisia	AA
1100	3205	Radio Sandaun, Papua New Guinea	Pidgin	1830	11645	Voice of Greece	
1100	3340	Radio Altura, Peru	SS	1830	11705	Radio France International	FF
1100	4753	RRI Ujung Pandang, Indonesia	II	1830	11990	Radio Kuwait	
1100	4770	Radio Centinela del Sur, Ecuador	SS	1830	12005	RTV Tunisienne, Tunisia	AA
1100	4800	Radio Buenas Nuevas, Guatemala	SS	1900	9870	BSKSA, Saudi Arabia	AA
1100	6175	Faro del Caribe, Costa Rica	SS	1900	15345	RAE, Argentina	
1100	9355	Monitor Radio Int'l, Saipan		1900	15540	HCJB, Ecuador	
1100	9730	Voice of Vietnam		1900	17785	VOA via Morocco	
1130	3260	Radio Madang, Papua New Guinea	Pidgin	1930	15505	Radio Kuwait	AA
1130	6120	R. Japan via Canada		2000	11805	Radio Globo, Brazil	PP
1130	9650	R. Korea, S. Korea, via Canada		2030	9525	Voice of Indonesia	
1200	9370	Adventist World Radio, Guam	CC	2030	11960	HCJB, Ecuador	
1200	9590	Voice of the Islamic Republic of Iran		2030	12085	Radio Damascus, Syria	
1200	9645	VOA relay, Thailand		2100	13725	Radio Havana Cuba	USB mode
1200	9810	Radio Thailand		2100	21455	HCJB, Ecuador	USB mode
1200	11600	Radio France Int'l, via China		2200	9445	Voice of Turkey	TT/EE
1200	13790	R. Bulgaria		2200	9555	BSKSA, Saudi Arabia	AA
1200	13800	Radio Norway		2200	9570	R. Portugal	PP
1200	15115	HCJB, Ecuador		2200	11650	Swiss Radio Int'l, via Fr. Guiana	FF
1200	15400	R. Finland Int'l	Finnish	2200	17795	Radio Australia	
1215	11940	National Voice of Cambodia	EE/Khmer	2230	5945	Radio Austria Int'l	
1230	11735	Radio Finland Int'l		2230	9855	Radio Kuwait	AA
1230	12085	Voice of Mongolia	EE, others	2245	9600	Vatican Radio	
1230	15195	Radio France International		2300	5975	BBC via Canada	
1230	15430	Radio Moldova Int'l, via Romania		2300	7270	Radio Tirana, Albania	
1300	7145	Radio Thailand	various	2300	7475	RTV Tunisienne, Tunisia	AA
1300	7365	KNLS, Alaska		2300	9725	Adventist World Radio, Costa Rica	
1300	9590	R. Norway	NN	2300	9755	Radio Canada Int'l	
1300	9985	KHBN, Palau		2300	9900	Radio Cairo, Egypt	
1300	15605	Radio Norway Int'l	NN/EE	2300	11700	Radio Pyongyang, North Korea	
1300	17745	R. Romania Int'l		2300	11795	UAE Radio, Dubai	AA
1320	21520	RAI, Italy	s/on; Sun.	2330	7105	Radio Romania Int'l	
1330	13730	Radio Austria Int'l					

The Pirate's Den

BY EDWARD TEACH

FOCUS ON FREE RADIO BROADCASTING

Strange Two-Way Comms on 6955 USB!

After several months of steady, high-volume action, pirate radio activity (or at least reports to this column on the subject) has slacked down noticeably this month. I hope we can get back on track with lots of reports next month. Anyway, let's check out this month's pirate loggings.

Radio Azteca was heard by Dave Jeffery in New York on two different occasions. First at 1932 on 6955 USB with brief comedy skits, music and an ID before going off the air at 1838. The second time was at 1914, heard with an ID, a parody on Gene Scott, another parody on a DX program, the top 10 things Americans fear about Canada, funny news items and funny commercials and "Dr. Radio" answering funny radio questions. Sign off was at 1937. They asked

for reception reports to be sent to P.O. Box 1, Belfast, New York, 14711. Jerry Coatsworth in Ontario had this one from 2311 to 2316 with a repeat program with the "10 reasons" including that Americans think the CNN tower is really a missile.

XEROX—Radio Duplicado, was heard on 6955 USB at 2339 to 2350 closing with an ID of "Radio Duplicado." They played a tape of pirate expert George Zeller speaking at the 1997 SWL Winter Fest in Pennsylvania. (Coatsworth, Ontario)

WLIS, 6955 USB was heard with its 7th Anniversary program at 1708 to 1722. (Coatsworth, ON)

WREC, 6955 USB heard from 1843 to 1853 with a parody of the Beach Boys song "Help Me Rhonda" changed to "Sold My Honda."

FBI (Females Broadcasting Interference) on 6955 at 0220 to 0259, mostly with unidentified music selections and short announcements by a woman. (Coatsworth, ON)

WEED, presumed, on 6955 USB at 0403 to 0406. The announcer mentioned "crank it up and rip off the knob" and "This is W-E-E-D." Poor level with QRM. (Coatsworth, ON)

Euro Geek radio, 6955 USB at 0206 to 0243 sign off with weather and news items from Europe. Also music by Abba. (Coatsworth, ON)

WREQ, 6955 USB was heard by Jim Bailey in Wisconsin at 0227 to 0245 sign off, also using the slogan Radio Free East Coast and playing various parodies, including a song about America On Line. They announced the Blue Ridge Summit

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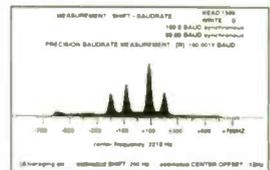
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- TDM242/ARQ-M2/4-242
- TDM342/ARQ-M2/4
- FEC-A FEC100A/FEC101
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address for reception reports. Jim heard this station a day later just ending a broadcast at 0155.

Right after WREQ signed off Bailey had two stations on 6955. One of them was WARR featuring Captain Nobeard with his Long John Silver accent; the other station couldn't be identified. (Jim—was the "Q" in the call letters meant to be a "C"? Most reports for Radio Free East Coast indicate the call as WREC. Ed)

Jeffery heard Radio Free East Coast (with WREC call) on 6955 USB at 1806 with circus music, a pirate song, rock, parodies of TV and movie songs, "The Macarena," funny commercials and IDs. They asked for reception reports either to P.O. Box 1, Belfast, NY 14711 or P.O. Box 109, Blue Ridge Summit, PA 17214. They signed off at 1851.

Radio Eclipse was on 6955 USB at 0000 to 0022 sign off. The DJ was "Steve Mann" and the broadcast featured music and a spoof of Heaven's Gate.

Radio Free Speech was another Dave Jeffery logging, on 6955 USB at 2322 with rock, ID, listeners letters. Reception reports were requested to either the Belfast or Blue Ridge Summit addresses. Lost at 2332.

Stereo Sound Radio was heard by

Jeffery on 6955 SSB at 0001 with rock music, station IDs and a request for reports to be sent to the Free Radio Network via the Internet. The signal was lost before 0013.

Jim Bailey had an unidentified station on 6955 USB at 0137 playing a novelty song about dead puppies and would appreciate having any information as to what station this might have been.

KAOS was logged by Bailey on 6955 USB from 0057 to 0117 fade with novelty songs such as "Cat Scratch Fever" and "The Streak."

Native American Radio (call letters not caught) was another Bailey logging. This was on the usual 6955 USB at 2315 and featured classic rock music with almost no announcements until the signal faded out.

Another unidentified was noted by Jim on 6955 USB at 0143 featuring a "gruff voice" in a short transmission asking the pirates to start broadcasting.

And, Jim caught what he describes as an "unusual" two-way communication on 6955 USB at 0227 between "Jo Mamma" and another man. Jim says he caught only the last couple of "overs" but the talk seemed to be about KAOS's final broadcast to come.

RADIO FREE SPEECH

RADIO FREE SPEECH Election Year Special

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You heard Radio Free Speech

On this date: 11/17/96

During this time: 1700 - 1715 UTC

On this Frequency: 6955

We were transmitting with a 10-watt Grenade in the AM mode using a cut-to-frequency dipole elevated to 75-feet

Radio Free Speech - Bill O. Rights - Pirate Shortwave
P.O. Box 1, Belfast, NY 14711 * P.O. Box 109, Blue Ridge Summit, PA 17214

Pirate hunter Kenny Love got this full size Election Year special QSL from RadioFree Speech, signed by the oft-heard "Bill O. Rights."

That's it for this round. Hopefully things will pick up for next time. See you then and, in the meantime, keep those radios parked on 6955!

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Winding Down from Summer Scanning—What Did You Hear?

The summer's almost over—what did you hear on your scanners this summer? Did you take a handheld unit along to an amusement park? Did you visit a national park and find some new frequencies being used by rangers? Did you lay on the beach or at the pool with a handheld tuned into lifeguards or local activity? Or did you travel to large cities and scan exciting police, fire and medical communications?

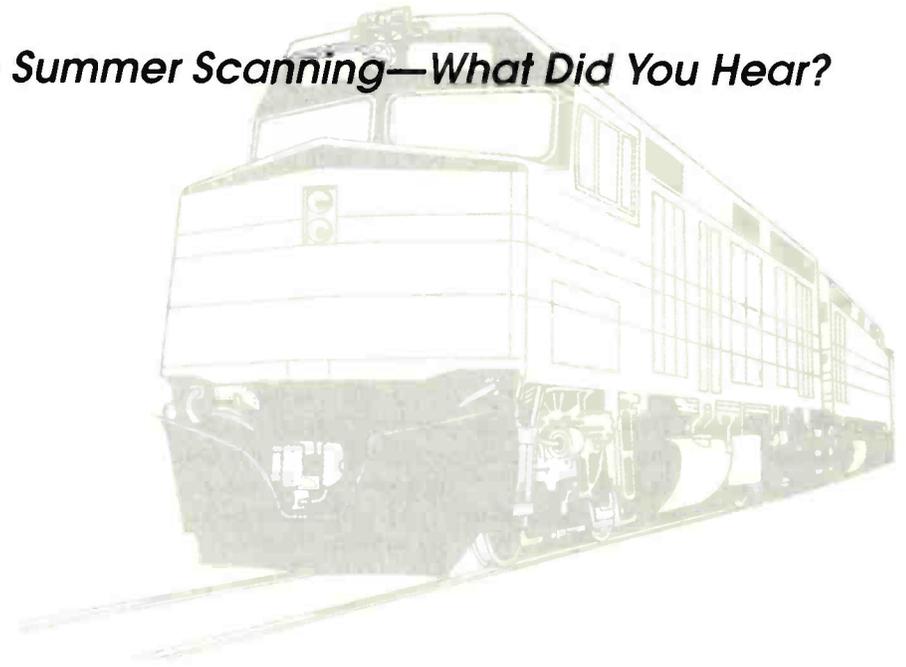
When you get home and recuperate from those vacation trips, how about making a list of those fabulous frequencies and send them in to us here at *Pop'Comm* so others can enjoy your finds, too. We'd love to share your information with our other readers.

In the meantime, it's a very good time to check the connections on your outside antennas, as well as the antennas themselves. Summer storms could have caused damage to the antenna's elements or water could have seeped into the connectors, causing shorts and corrosion. While it's warm out, take advantage of good weather to make the antenna repairs. Make sure your antennas are firmly attached to their hardware so they can withstand the brisk winds of winter, too. After fall comes, it may be too late to do your antenna work, especially if cold weather comes early.

The fall is a great time for any outside antenna work, including replacing coaxial cable. If your cable is starting to look cracked or weathered, there's a good chance the cable's life is deteriorating rapidly. Take advantage of fall's cooler weather before wintry conditions visit most of the nation, and make repairs to your antenna farm now. When the scanning action heats up those long winter months, you'll be glad your listening system is in tip-top shape.

Riding the Rails

Ben Bradford of Shamokin, PA, writes to inquire about railroad communications



systems. He said that he sometimes sees antennas and transmitter boxes mounted on poles alongside railroad tracks out in the middle of nowhere and wonders the purpose of those transmitters.

Railroads usually use remote transmitters along rail lines to keep in touch with trains while they are traveling in certain areas. These remote transmitters usually operate on designated road channels and can be activated by dispatchers either by microwave or telephone lines. This allows rail crews to have constant contact with their dispatchers no matter where they are.

Some railroad communications, such as those in a rail yard, are short distance by their very nature, and don't need to transmit over a wide area. In many areas of the United States, railroads will operate private telephone systems on dedicated frequencies so rail crews can make telephone calls over their radios.

If you want to know where to look for railroad communications, all you have to do is search in 15 kHz steps in the 160.215 to 161.565 range. There also are some 12.5 kHz channels on UHF from 452.3125 to 452.4875 and 452.7625 to 452.9625. Likewise, the accompanying "input" frequencies 5 MHz higher also may be used for inputs or mobile com-

"Railroads usually use remote transmitters along rail lines to keep in touch with trains while they are traveling in certain areas."

munications. In fact, on UHF you'll probably find data tones as trains pass by. These tones are transmitted by radio boxes installed on the last car of a train to send signals to the crew in the locomotive. The rear-end detectors have replaced the caboose of the past.

Media Notes

Roger Johnson of Riverside, CA, says he has a Realistic PRO-2006 scanner as well as an older Radio Shack PRO-2004 at his listening post in the Kansas City area. John said he is looking for frequencies used by newspapers, not just for his area, but also other areas he may be visiting, too.

Newspapers are allocated two basic groups of frequencies. The first one is a block of four VHF frequencies: 173.225, 173.275, 173.325 and 173.375 MHz. The second group is on UHF. Base stations,

"If you're a ham with a newer handheld transceiver, you've got a very versatile tool you can use in conjunction with the radio monitoring hobby."

repeaters and mobiles can use 452.975 and 453.000 MHz, while mobiles can use 457.975 and 458.000. In addition, a handful of frequencies are reserved for low-power handheld use: 452.9625, 452.9875, 457.9625 and 457.9875. Newspapers use these frequencies for a variety of functions, including circulation (newspaper delivery), administrative and dispatch (delivery of advertising materials) and news (both reporters and photographers). Some newspapers might even use the frequencies for advertising sales representatives, vehicle maintenance, paging and more.

While a lot of newspapers use these few channels, many smaller papers can't afford to invest in all the equipment needed to put a major radio system on the air. Instead they may use conventional business band frequencies (after all, a newspaper is a business, and thus qualifies for that radio service as well). Most newspapers using the business band will show up on shared repeaters in the 461-465 MHz band, or on T-band frequencies in the top 20 metropolitan areas. In addition, some newspapers also use 800 MHz repeaters and trunked systems, not to mention 935-940 MHz trunked systems in major cities. In fact, some larger newspapers may use a variety of radio systems in their operations.

For instance, a newspaper might use one or two VHF channels at 173 MHz for news photographers, a UHF frequency at 453 MHz for circulation deliveries, a UHF business band frequency at 461 MHz for outlying circulation units, an 800 MHz trunked system for reporters on assignment and low-power frequencies at 453 and 458 MHz for building security and data transmission for press operations monitoring. Check around and see what you can find, and be sure to share the results with our readers.

Fire or Media?

Susan Olden of Elizabeth, NJ, writes to find out why the frequency of 170.150 is used for fire calls in her area, but seems to be a news media frequency in some other areas.

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10230 30 CHIC PALE	SW	RTTY - 887 0							02/05/95
10230 30	SW	RTTY - 916 0							01/08/95
10230 30 CHIC ZAGREB	HW	RTTY - 1140 0							01/05/95
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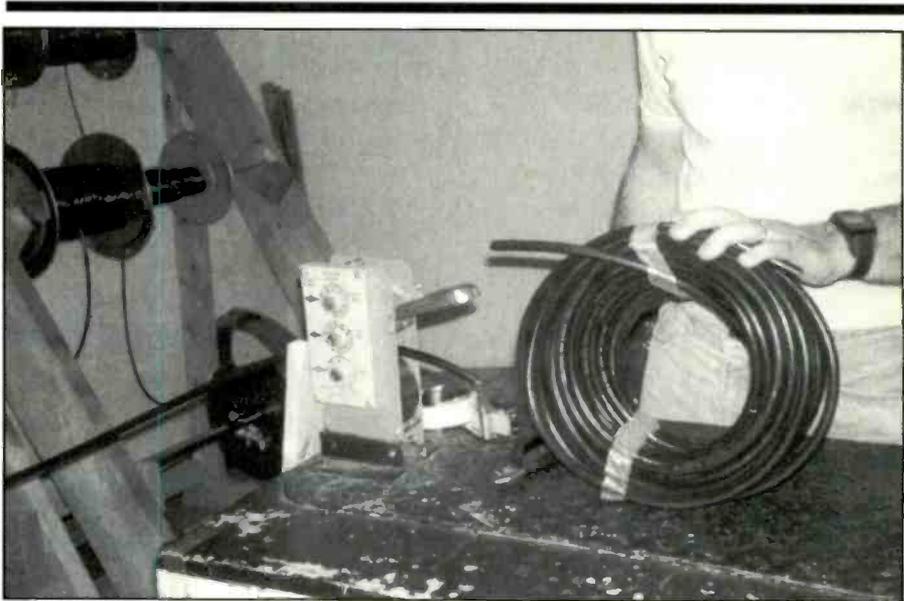
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CIRCLE 72 ON READER SERVICE CARD



Now is the time to have your favorite radio dealer cut and install connectors on old weathered coax. You'll be surprised at the improved signal quality! (Photo by Richard Robinson)

It's an interesting frequency! The frequencies 166.250 and 170.150 may be assigned to fire departments within 150 miles of New York City only. The frequencies are in use primarily in northern New Jersey, Connecticut and Philadelphia. The Philadelphia Fire Department is probably the biggest user of the two frequencies; it uses 166.250 as a repeater input frequency for repeaters on 170.150. The system is used there for rescue and paramedic service.

However, in the rest of the nation, radio and TV stations get to use 166.250 MHz and 170.150 for remote broadcasts. In many areas, a station may use both of the frequencies in one way or another. The usage of those frequencies may be in conjunction with channels in the 161 MHz band —161.640, 161.670, 161.700, 161.730 and 161.760. For instance, in one area where I lived, a radio station uses 166.250 for the actual remote broadcasts, but uses 161 MHz channels for cueing on that system.

encode-decode option. On the ICOM handheld radio, for instance, there is a set menu where parameters may be selected. To make this work, enter the set menu and scroll up until you find the tone squelch option. Then watch the radio's S-meter, and when you see that a station is transmitting, turn through the tones with the VFO knob until you find the correct tone.

"While it's warm out, take advantage of good weather to make the antenna repairs."

It takes a little effort, but it beats spending the money for a tone decoder! If you have one of these types of radios, it's a neat way to find out what tone the locals are using so you can screen out unwanted other stations. Of course, some Uniden Bearcat scanners offer the tone squelch option, too.

Ham Tones

If you're a ham with a newer handheld transceiver, you've got a very versatile tool you can use in conjunction with the radio monitoring hobby. A lot of 2-meter and dual-band ham walkie-talkies have a built-in CTCSS encoder/decoder—and that can lead you to discover the tones used by local police and fire departments.

To try this procedure program in the radio frequency and then select tone

Write In!

What are some of 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 the Globe, Popular Communications, P.O. Box 11, Iowa City, Iowa 52244-0011, fax to 516-681-2926, or e-mail to <SCAN911@aol.com>.

How I Got Started

Ralph Offers to Do the Dishes!

Popular Communications invites you to submit in about 150 words how you got started in the communications hobby. Entries should be typewritten, or otherwise easily readable. If possible, your photo (no Polaroids, please) should be included.

Each month we'll select one entry and publish it here. Submit your entry only once; we'll keep it on file. All submissions become the property of *Popular Communications*, and none will be acknowledged or returned. Entries will be selected taking into consideration the story they relate, and if it is especially interesting, unusual or even humorous. We reserve the right to edit all submitted 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 renewal) to *Popular Communications*. Address all entries to: How I Got Started, *Popular Communications*, 76 North Broadway, Hicksville, NY 11801-

We still share the hobby of hamming, SWLing and scanner listening."

2909 or e-mail your entry to <popular-com@aol.com>, letting us know if you're sending photos.

Our August Winner

Lorraine Craig, WA8JNB of Tipp City, OH found herself immersed in the radio hobby after a unique offer from her husband, Ralph. She tells *Pop'Comm*: "My husband was a ham before our marriage and I sometimes felt that his ham activities intruded on our courtship. After marriage came the urgent business of finishing college, and after graduation, raising three children.

For some 10 years I occasionally felt 'left out' as he pursued his hamming and shortwave listening. However I did begin to find his activities interesting and mentioned my interest to him. He was immensely pleased and suggested an unusual arrangement. He would clean up after supper; wash, dry and put away the dishes (this was before the era of electric dishwashers) if I would study for a license. After six months of effort, I took the exam, passed and received the call WA8JNB, which I have held for more than 30 years. We still share the hobby of hamming, SWLing and scanner listening." ■



Lorraine Craig, WA8JNB at her Tipp City, OH radio shack.

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The Listening Post

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Radio Australia Has Been Saved!

After a great hue and cry arose from listeners, business and government leaders throughout the Pacific-station's primary service area, media editorials and even from within the Australian government itself, the recommendation to reduce Radio Australia to a one-language service to the Pacific fed via satellite didn't "take." Normally, it isn't possible to completely escape damage from these "let's save money by killing the international service" reports put together by some government committee and Radio Australia was not an exception. There will be some hefty cutbacks in funding which will mean dropping several language services. The bottom line, however, is that Radio Australia will still be there providing the world with its superb coverage of events in Asia and the Pacific.

Joe Costello, owner of WRNO Shortwave in New Orleans has passed away. Years ago Costello broke through FCC resistance to allowing privately-owned shortwave broadcasting and obtained permission to start WRNO Shortwave. Except for WINB, all of the non-government U.S. shortwave stations on the air today owe their existence to Costello's pioneering action. It seems almost certain that WRNO will undergo huge changes and may even be sold.

The call letters of the new station in

Macon, Georgia, which we told you about last month, will be WEUR. It's a guess, but the "EUR" is probably for "Europe," which is to be the primary target area.

Hearing Some European History

Catch some history while you still can. Try for the **Radio Netherlands** broadcast on **9860** between 1030 and 1230 (in English). Or **Deutsche Welle** in German between 0600 and 1000 and 1300 to 2000 on **6140**. These broadcasts are aired over a former transmitter of Radio Berlin International. It is the last such transmitter still in use. In the years since the collapse of the DDR and reunification of Germany all the RBI transmitters saw use by Deutsche Welle but, as time went on, have been removed from service. This one, at Nauen, is all there is left.

Those old transmitters once owned by **The Voice of Chile**—silent for several years now, may come to life again this fall. An organization called Christian Vision has purchased the facility, made repairs and improvements to both the transmitters and the antenna farm and expects to begin broadcasts sometime this fall. There are eight—100 kw transmitters involved. Although the Voice of

Chile was most often heard on **15140**, Christian Voice won't be using that or any other frequencies formerly used by the Voice of Chile. New frequencies haven't been set yet.

The Voice of Russia's Russian language shortwave service has had yet another cutback—down from 18 hours per day to just 10!

Radiodiffusion Television Congolaise, Brazzaville, the Congo, is in one of its periodic active modes again. If it is adhering to its "normal" schedule you might catch it at 0400 sign-on (on **4765**), in French. Once we get into fall and winter you may also hear it in the late afternoons, assuming it stays active that long.

Check **15245** or slightly below for periodic activity from the **Voice of Zaire**, more or less just across the river from Brazzaville. Both of these stations are off more often than not. Zaire has made a few appearances during the civil war. Depending on how the dust settles there, we could lose this one completely or perhaps see the station rejuvenated. Let's hope for the latter.

Here's the usual, but always sincere reminder that your log reports and other materials are always sought and always more than welcome. Logs should be double spaced (at a minimum), listed by country and each should include your last name and state abbreviation. We also



High Adventure Ministries sent this QSL for their Voice of Hope transmission relayed via the former Soviet Republic of Georgia. (Thanks Ed Rausch, NJ)



Here's the English-language program staff of Austria Radio International. (Photo: ORF/Andreas Friess)

welcome news and other information about shortwave broadcasters, notes about QSL policies, address changes, spare QSL cards or other items which can be used as illustrations. You might even want to get wild and send in a photo of you and your shack!

E-mailers can send logs via <popular-com@aol.com>. Thanks for your continued interest and support!

Here are this month's shortwave logs. All times are in UTC which is five hours ahead of EST, i.e. 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 4 p.m. PST, etc. Double capital letters such as SS, PP are language abbreviations (Spanish, Portuguese) etc. If no language abbreviation is given, the broadcast is assumed to have been in English.

ALBANIA—Radio Tirana, **6120** at 0237 in presumed Albanian with folk music, ID, news. Also **7160** at 0237 in English with news about unrest there. (Jeffery, NY) 0147 with news. (Miller, WA)

ANGUILLA—Caribbean Beacon, **6090** at 0341 and **11775** at 1311, both carrying Dr. Gene Scott broadcast. (Jeffery, NY) **6090** at 0333. (Miller, WA)

ARMENIA—Voice of Armenia on **9965** at 2139 with Armenian history. (Miller, WA)

ASCENSION ISLAND—BBC World Service with Africa program stream on **9600** at 0520 and **11835** at 2308 to 2314 close. (Jeffery, NY) VOA relay, **17755** at 2014 with "Africa World Tonight." (Jeffery, NY)

AUSTRALIA—Radio Australia, **5995** at 0853 with news. (Foss, AK) 1349. (Miller, WA) **9580** at 1200 with news. (Ericksberg, MA) **9850** to Asia at 1400 in CC. 1430 in EE. (Silvi, OH) ABC/CAAMA Radio, Alice Springs, **2310** at 1222 with pops. (Miller, WA)

BELGIUM Radio Vlaanderen Int'l, **13785** at 1236 with "Radio World." (Jeffery, NY)



Matt Rost in British Columbia, Canada pulls signals into this shack using an elaborate and well designed "homebrew" antenna systems.

BOLIVIA—Radio Illimani, **4945** in SS at 0349 with news. (Miller, WA)

BOTSWANA—VOA relay, **7415** at 0409 with news and business report. (Jeffery, NY)

BRAZIL—Radio Clube Dourados, **3375** at 1005 in PP with pops. (Miller, WA); Radio Nacional Amazonia, **11780** in PP at 2355. (Miller, WA); Radio Maranhao, Sao Luis, **4930** in PP at 0447 with Brazilian pops request show. (Miller, WA); Radio Integracao, Cruzeiro do Sul, **4765** at 0224 in PP. (Miller, WA); Radio Brazil Central, Goiania, **4985** in PP at 0230. (Miller, WA); Radio Anhanguera, Goiania, **11930** in PP at 0028 with world news. (Miller, WA); Radio Gaucha, Porto Alegre, **11915** in PP at 0031 with Brazilian pops. (Miller, WA); Radio Cultura Araraquara, **3365** at 0303 in PP with orchestral music, mention of Brazil, Paul Anka song, IDs. My 70th Brazilian logged. (Paszkievicz, WI) Congrats, Sheryl! Editor); Radio Cultura Sao Paulo, **9615** at 0222 in PP with ballads. **Parallel 17815**. (Paszkievicz, WI)

BULGARIA—Radio Bulgaria, **11720** at 1900 with listener letters. (Wilden, IN)

CANADA—CFRB/CFRX, **6070** at 1736 with an insurance company commercial. (Wilden, IN); BBC relay to America, **6175** at 0000 with "Newsdesk." (Jeffery, NY); Radio Canada Int'l, **9640** at 1347. (Wilden, IN) **9755** at 2301 with "The World at Six." (Jeffery, NY) **11945** at 2153. (Miller, WA); CHU, **7335** at 0317 with time signals in EE and FF. (Miller, WA); Radio Monte Carlo relay, **5960** at 0403 with AA to North America via Sackville. Off at 0420. (Schwartz, WI)

CHILE—Radio Patagonia, Coyhaique, on 6090 tentative, in SS at 1118. (Miller, WA); Radio Esperanza, Temuco, **6090** in SS at 0745. (Miller, WA)

CHINA—China Radio Int'l, **4960** at 1311 in Vietnamese, **6190** at 0339 in EE. (Miller, WA) **6955** at 2140 in presumed AA with music, unreadable ID. Off at 2156. (Jeffery, NY); Xizang PBS, Tibet, **5020** at 1242 in unidentified language. QRM from Solomon Islands Broadcasting Corp. (Miller, WA); Zhejiang People's Broadcasting Station, **4784** at 2342 in CC with Chinese music, female announcer, anthem and off at 0000. (Jeffery, NY)

COLOMBIA—Caracol Bogota, **5075** at 0347 in SS. (Wilden, IN) **5076** at 0430 with news in SS. (Miller, WA); Radio Nacional, Bogota, **4955** at 0350 with world news in SS. (Miller, WA)

COSTA RICA—RFPI, **7385** at 2230. (Wilden, IN) 0734 with UN Radio program. (Schwartz, WI); Radio Universidad San Jose, **6105** at 0400 in SS with man and classical music. (Miller, WA)

CUBA—Radio Havana Cuba, **6000** heard at 0420 with news and features on U.S. and Cuba, commercial for a Cuban hotel chain, followed by ID, "Breakthrough" science program. (Jeffery, NY)

CZECH REPUBLIC—Radio Prague, **5930** at 0230 in GG. (Miller, WA)

DENMARK—Radio Denmark via Norway, **11840** at 1630 with news and temperatures

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

around Denmark, feature on gang problems in Scandinavia. (Schwartz, WI) **13805** at 1632 with IS and announcement. (Wilden, IN)

ECUADOR—Radio Quito, **4919** in SS at 0325. (Miller, WA); La Voz de Upano, Macas, on **5040** at 0401 in SS with Latin music. (Miller, WA); HCJB, **5865** at 0838 with "Ham Radio Today" feature on ELF signals and a recording of a whistling ELF signal. (Foss, AK) **9365** at 0628 in RR, **parallel 5865**. (Schwartz, WI)

ENGLAND—BBC, **3955** with European stream at 0507, **11680** at 2129 to the Falklands with IS and "Calling the Falklands." (Jeffery, NY) **9515** at 1321. (Radio Netherland has been interfering with this lately, editor) **11865** at 1457 via WYFR, **15220** at 1327 and **15547** at 1756. (Wilden, IN) **9605** at 1507 via Singapore. (Miller, WA)

FRANCE—Radio France Int'l, **7135** at 0306 with Balkan, African and Brazilian music. (Miller, WA) **15460** at 1616 with continuous music; off at 1657. (Jeffery, NY)

FRENCH GUIANA—Radio France Int'l relay, **9800** at 0448 in FF. (Wilden, IN)

GABON—Africa Number One, **9580** at 2234. Woman hosting music request show. (Miller, WA)

GEORGIA—Voice of Hope, **9310** at 1939 to 2000 close with religious programming. Also at 1800. (Silvi, OH)

GERMANY—Radio Free Europe/Radio Liberty, **7255** in presumed Lithuanian at 2131, **11915** at 2014 in presumed Bulgarian. (Schwartz, WI); Deutsche Welle, **7130** in GG at 0220 and **9735** in EE at 2105 (Miller, WA) **17860** at 2230 in GG to West African and the Americas with excellent program of modern jazz. (Schwartz, WI); West Coast Radio Ireland relay, **5910** at 0100 with Danny Boy, ID, schedule, Irish music, tourism, sports scores and "Letterbox." (Paszkievicz, WI); Radio Vilnius relay, **5910** at 0030 about privatization of the telecom industry and "Mailbag." (Paszkievicz, WI)

GREECE—Voice of Greece, **9420** at 2023 in Greek. (Miller, WA); Voice of America relay,



One of the QSL cards Radio Norway was sending out ten years ago this month.

We thank you for your report and are pleased to confirm that you have heard Radio Norway

on 15310 kHz date 08 02 87 month year

Sincerely yours,
S. K. Sand
Radio Norway
OVERSEAS SERVICE
Oslo 3, Norway

Photo: Aune

at 0038 in language, with mentions of Macao; oriental music. Off at 0057. (Miller, WA); Magadan Radio, 9530 in RR at 0824. (Foss, AK); Voice of Russia, 7125 via Moldova at 0151. (Miller, WA) 7330 at 0638 to North America. "This is Russia." Parallel 5905. (Schwartz, WI) 15180 at 0402 with IS, news. (Wilden, IN); 15350 via Armavir at 1523 with folk and pops. (Davis, MA); Radio Rossi, tentative, 11575 with somewhat Russian-sounding news (maybe some other language) at 1600 to 1659 sign off. Almost sounded like they switched from French to Spanish to a Russian-type dialect between 1500 and 1630. Many frequencies announced before 1659 sign off. (Silvi, OH)

ROMANIA—Radio Romania Int'l, 9690 at 1845 in GG, //11940. (Paszkiwicz, WI) 1903, rough signal, news by woman. (Wilden, IN) at 1855 in EE in European service 11940 also carried on 9550, 9690, 11810. (Miller, WA)

SAUDI ARABIA—Broadcasting Service of the Kingdom of Saudi Arabia, 9555 in AA at 1835 with discussion and ID at 1906. (Ziegner, MA) 15345 in AA at 1513 with AA music, woman announcer. (Davis, MA)

SEYCHELLES ISLANDS—Far East Broadcasting Association, 9810 at 1414 with subcontinental music. (Miller, WA)

SLOVAKIA—Radio Slovakia Int'l, 5930 in FF at 0212. (Miller, WA)

SOUTH AFRICA—Investment Channel, 7190 at 0315 with investment opportunities, health program, schedule, address, phone number. (Paszkiwicz, WI) Announces this schedule to the Middle East and East Africa: 0200-0430 on 6160, 790, 9525; 0430-0630 on 9525, 11820, 15225; 0600-1500 on 15165, 15170, 17665, 21745; 1500-1800 on 11870, 15170, 17665; 1800-2200 on 7225, 9475, 11870. Heard at 1640 on 15170//17665. (Silvi, OH); BBC relay, 15420 at 1856 with African news. Off at 1859. (Jeffery, NY)

SOUTH KOREA—Radio Korea Int'l, 9570 at 0819 with folk-type song in KK. (Foss, AK)

SPAIN—Radio Exterior de Espana, 9630 at 1901 with IS, announcement. (Wilden, IN); 11815 at 0027 in SS. (Miller, WA) (Both via REE's Costa Rica relay, editor)

SWAZILAND—Trans World Radio, 4760 in possible Swahili at 0320 with inspirational message. (Miller, WA)

SWEDEN—Radio Sweden, 7115 at 0318 in Spanish. (Miller, WA)

SWITZERLAND—Swiss Radio Int'l, 6135 at 0400 with ID, news. "Newsnet." (Jeffery, NY) 9885 at 2244 in GG to Latin America. Also on parallel 9905. (Schwartz, WI) 9885 at 1003 with sports scores, news in GG. (Wachter, FL) 9905 at 0450. (Wilden, IN) 0113. (Miller, WA)

TAIWAN—Voice of Free China via WYFR, 5950 at 0353 with Chinese music. (Wilden, IN) 9985 at 2334 with "Jade Bells and Bamboo Pipes," and CC lesson. (Jeffery, NY)

THAILAND—Radio Thailand, 9810 heard at 1232 with man/woman talk, then "Thai Culture." (Miller, WA); Voice of America relay, 11785 at 1324 in CC/EE to China, tak-

15205 at 1500 with news. (Jeffery, NY)
GUATEMALA—Radio Tezulutlan 15205, Coban. 4835 in Quechua with religious program. (Miller, WA)

HAWAII—KWHR, 7455 at 2323 with religious music. (Wilden, IN) 9930 at 1400 to Asia, in possible Vietnamese with EE IDs. (Silvi, OH)

HONDURAS—La Voz Evangelica. 4820 at 1040 in SS with religion. (Miller, WA); Radio Internacional, San Pedro Sula, 4930 with music and SS at 0348. (Miller, WA); Radio MI, Tegucigalpa, 4890 in SS with religious program at 0247. (Miller, WA)

HUNGARY—Radio Budapest, 11950 at 1503 with IS and announcement. (Wilden, IN)

ICELAND—Icelandic National Broadcasting, 11402 at 2317 in Icelandic with mentions of Reykjavik. (Miller, WA)

INDIA—All India Radio, 11620 at 1847 with EE to Western Europe. ID by woman at 1900 followed by news, then man with commentary. (Schwartz, WI)

INDONESIA—Radio Republik Indonesia, Ujung Pandang in II on 4755 at 1033. (Miller, WA); RRI Bangkulu, Sumatera, 3625 at 1230 in II with rock. (Miller, WA)

ISRAEL—Reshet Bet service, 9390 at 1940 in Hebrew, various sorts of pop interspersed with apparent commercials. Man with ID and "Shalom" greetings at 2200 followed by presumed news. (Schwartz, WI)

Kol Israel, 7465 at 2006 to North America and Europe with news. Weaker on 9365. (Schwartz, WI) 11605 at 1500 with news. (Ericksberg, MA)

ITALY—RAI on 15250 at 2130 to Europe and Africa with IS, canary and bells IS. (Wilden, IN)

JAPAN—Radio Tampa, 3945 at 0920 and 1240 in JJ. (Miller, WA) 6055 at 0903 in JJ with man/woman talks. (Foss, AK); Radio Japan on 11895 at 1997 in SS. (Wilden, IN)

KAZAKSTAN—Kazak Radio, 9626 heard from 2300-0000 with news and music. (Ziegner, MA)

LIBERIA—Radio Liberia, 5100 at 2333 in EE with variety of music; IDs. (Jeffery, NY)

LIBYA—Radio Jamahiriya, 15415 at 1540 in AA with news, Arabic music. (Davis, MA)

LITHUANIA—Radio Vilnius, 5890 at 2359 in LL/EE to North America. ID and into Lithuanian; EE ID at half hour and into EE. (Schwartz, WI)

MEXICO—Radio Mexico Int'l, 9705 at

1404. (Wilden, IN); Radio Mil, 6010 in SS at 0353. (Miller, WA); Radio Educacion, 6185 at 0353 in SS. (Miller, WA)

MONGOLIA—Radio Ulaanbaatar, 12085 at 1240 to 1259 with Dotar music and woman announcer. (Ziegner, MA)

MOROCCO—Radio Medi Un, 9575 at 1823 in FF; woman with pop music. (Miller, WA); Voice of America relay, 7295 at 0533 with "VOA Saturday" and 15410 at 1905 with news. (Jeffery, NY)

NETHERLANDS—Radio Netherlands, 6020 at 2332 with news. (Wilden, IN) 12085 at 1230 to 1325 in Indonesian and EE. (Ziegner, MA)

NETHERLANDS ANTILLES—Radio Netherlands Bonaire relay, 15315 at 1941 with "Newslines." (Wilden, IN)

NEW ZEALAND—Radio New Zealand Int'l, 15115 at 0007 with national weather. (Jeffery, NY) 0338 with pops. (Miller, WA)

NIGERIA—Radio Nigeria, Kaduna, 4770 at 0503 with news. (Wilden, IN)

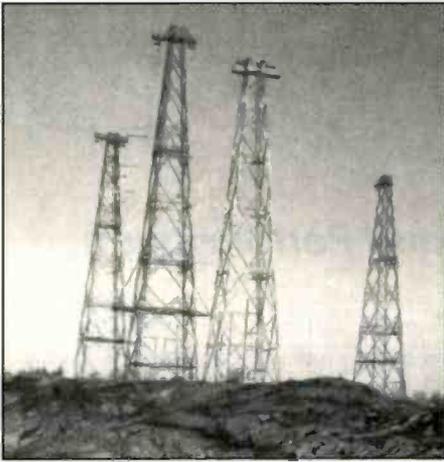
NORTH KOREA—Radio Pyongyang, 3560 at 1017 in KK. (Miller, WA) 9505 at 0827 with what appeared to be a long speech in KK. (Foss, AK) 9975//11335 at 1100 to 1148 sign off. //6575 barely audible. (Silvi, OH)

NORWAY—Radio Norway Int'l, 11840 at 1615 with EE to North America on humor and standup comedy in the Nordic countries. (Schwartz, WI)

PAPUA NEW GUINEA—NBC Port Moresby, 4890 at 1237 in Pidgin with music variety. (Miller, WA); Radio New Ireland, Kavieng, 3905 in Pidgin at 0925. (Miller, WA); Radio Sanduan, Vanimo, 3205 in Pidgin at 0944. (Miller, WA); Radio Morobe, Lae, 3220 in Pidgin at 0947. (Miller, WA); Radio Madang, 3260, in Pidgin at 0953. (Miller, WA); Radio Manus, Lorengau, 3315 at 1000 with conversation in Pidgin. (Miller, WA); Radio East Sepik, Wewak, 3335 at 1003 with conversation in Pidgin. (Miller, WA)

PERU—Radio Gotas de Oro, 4567.5 under a utility station, at 0058 in SS with vocals and talk. (Paszkiwicz, WI); Radio Atlantida, Iquitos, 4790 at 1036 in SS. (Miller, WA); Radio Union, Lima, 6115 at 0536 in SS with Latin music. (Miller, WA); Radio Cora, Lima, 4914 at 0345 in SS with classical music. (Miller, WA); Radio Ancash, Huaraz, 4990 (varies to 4991, editor) at 0358 in SS with Peruvian folk music. (Miller, WA)

PHILIPPINES—Radio Veritas Asia, 11850



Here's a view of the antennas at Radio Norway's Sveio transmitter site, a 500 kw unit which replaces the old site at Fredrikstad.

ing phone calls in CC and translating replies into EE. (Silvi, OH)

TUNISIA—RTV Tunisienne, 7475 at 2057 to 2315 in AA. (Ziegner, MA) 2201 to past 2300. (Silvi, OH)

TURKEY—Voice of Turkey, 9655 at 2310 with "Outlook," ID, feature on women in Turkey, DX program, tour program, time/frequency info and off at 2351. (Jeffery, NY) 2229 with Islamic history, Turkish music. (Miller, WA) 15145 at 0657 with Middle Eastern music. (Foss, AK)

UNITED ARAB EMIRATES—UAE Radio, Dubai, 15395 at 1535 in AA to Europe. (Davis, MA) 1615 in EE with pops, news. (Ziegner, MA)

UNITED STATES—WINB, 11950 heard from 0118 to past 0200. Gone at 0500 recheck. (LaSoya, TX)

URUGUAY—Radio Monte Carlo, 9595 at 0005 with SS talk about Patagonia, Montevideo, IDs, jingle, whistling song, vocals. (Paszkwicz, WI)

VATICAN CITY—Vatican Radio, 6095 at 0313 in FF with IS, religious message. 7305



Loyal Pop'Comm reader Trevor Fletcher in front of the CBC in beautiful British Columbia, Canada.

in SS at 1914 and 0314. (Miller, WA) 9600 at 2252. (Wilden, IN) 11625 with African-style religious music. EE at 2000—2025, French from 2030 to 2056. (Silvi, OH)

VENEZUELA—Radio Tachira, 4830 at 0341 in SS with letters and messages. (Miller, WA); Ecos del Torbes, 4980 at 0331 in SS with Latin music. (Miller, WA)

VIETNAM—Voice of Vietnam, 4939 in VV at 1314. (Miller, WA) Via Russia relay on 7260 at 0355 with Aussie-accented EE announcer, schedule and ID. (Paszkwicz, WI)

YUGOSLAVIA—Radio Yugoslavia, 7130 at 0220. 9725 at 2034 in unidentified language. (Miller, WA)

That's the story for this time. Hat's

raised, please, and a rousing cheer for the finefolks who checked in and helped out this month:

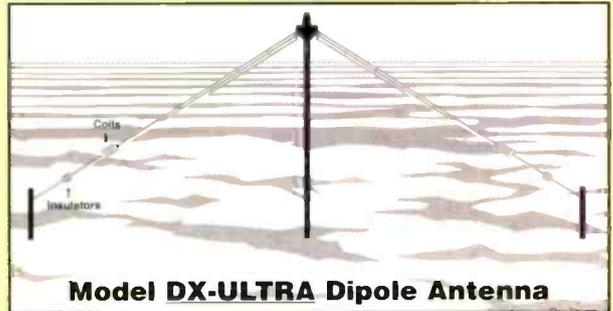
Michael S. Miller, Issaquah, WA; Lee Silvi, Mentor, OH; Don Davis, Pittsfield, MA; Tricia Ziegner, Westford, MA; Ronald Stokes Schwartz, Madison, WI; Richard Ericksberg, West Springfield, MA; Dave Jeffery, Niagara Falls, NY; Marty Foss, Talkeetna, AK; Al LaSoya, Channelsview, TX; Sheryl Paszkiewicz, Manitowoc, WI; Sue Wilden, Columbus, IN and Ernie Wachter, South Daytona, FL. Thanks to each of you.

Until next month, good listening! ■

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Product Spotlight

POP'COMM REVIEWS PRODUCTS OF INTEREST

The Drake SW-2: A Nice Balance of Price and Performance

When R.L. Drake & Company introduced its economy-priced SW-1 tabletop receiver last year the joy was short-lived among HF utilities fans as they searched in vain for a mode switch or BFO knob that would allow tuning single-sideband transmissions. Alas, no such switch or knob existed. How could Drake have made an AM-only receiver, they asked? And when would a sideband-capable version become available?

"That's been the single most often asked question from our customers," said Georgia Mergler, Drake's media director.

We now have the answer. By the time you read this, the new Drake SW-2 receiver should be on dealers' shelves. The SW-2 offers not just AM reception, but SSB and AM synchronous sideband detection to help lock in those fading signals.

Like its SW-1 sibling, the SW-2 owes much of its styling and ergonomics to Drake's SW-8, a portatop communications receiver that's been on the market for about four years. All three Drake rigs share similar sturdy metal cases and nearly identical front panel layouts.

Priced at \$499 (independent dealers may offer discounts), the SW-2 falls squarely between the SW-1 and SW-8 in both price and performance.

According to John Schlipp, communications product manager for Drake, the SW-2 is much closer internally to the higher-priced SW-8 than to the economy model SW-1, while leaving out the things that make the SW-8 portable, such as the battery compartment and built-in telescoping antenna, and also deleting the SW-8's VHF airband and FM broadcast band coverage.

But Drake didn't just take away. They included 100 programmable memory channels (the SW-8 has 70) and gave the SW-2 the ability to work with an optional infrared remote control.

The SW-2 used for this report came direct from the factory. But ordering direct isn't a privilege reserved just for magazine writers. Drake is one of the few (perhaps the only?) radio manufacturers that



Drake's new SW-2 receiver. (Courtesy R.L. Drake Co.)

sells directly to the public as well as through a network of dealers. Order the radio directly from Drake and you can try it for 15 days. If you're not satisfied, then return it for a full refund, less the shipping expenses. Independent dealers set their own return policies.

When my SW-2 arrived I did what most buyers are likely to do. I tossed the instruction manual aside without opening it, hooked up the power supply and attached the supplied length of antenna wire (which was then draped across the back of my couch). Punching the power button and spinning the VFO dial immediately brought the SW-2 to life.

The folks at the Drake factory in

Franklin, OH, (yes, it's made in the United States) had pre-programmed the first 32 memory channels with a variety of international and domestic shortwave broadcasters. The BBC, Radio France, Deutsche Welle, WWCR and others were quickly located. Audio from the front-mounted speaker is excellent and the 6.0 kHz bandwidth for AM broadcasts does well for both voice and music.

Tuning is a breeze with either the VFO knob (50 Hz steps) or the up/down buttons (5 kHz steps), plus there's a keypad in standard telephone layout for direct frequency entry. The display reads down to 100 Hz, and displays either the memory channel or meter band, along with the receive mode (AM, LSB or USB).

The Synchronous Sideband Detector

The synchronous sideband detector seems to work well most of the time. However, the detector will lock to the strongest signal that's within the IF passband. Normally, the carrier of the desired frequency will be the strongest signal, but

Drake SW-2 Specifications

Frequency Range: 100–30,000 kHz
Sensitivity: AM (10 db S+N/N) Less than 2.0 mV, typical 100–30,000 kHz
Sensitivity: SSB (10 db S+N/N) Less than 0.5 mV, 100–30,000 kHz
Readout Accuracy: To nearest 0.1 kHz
Selectivity: AM 6 kHz @ –6 dB, less than 12 kHz @ –60 dB
Selectivity: SSB 2.3 kHz @ –6 dB, less than 5 kHz @ –60 dB
IF Frequency: 1st IF: 55.845 MHz
2nd IF: 455 kHz
Step Sizes: 50 Hz with Tuning Wheel 5 kHz with UP/DOWN buttons
Antenna Inputs: SO-239 connector, 50 Ohms Screw terminal, 50 Ohms
Headphone Jack: 1/8" stereo/mono type (monaural reception only)
External Speaker: 1/4" mono type
Supplied AC Adapter Wall Transformer: Input 120 Vac @ 60 Hz, 15 Watts Output: 12 Vac at 1.67 A maximum
DC Power Requirements: 12 Vdc nominal at 1.5 A
Operating Temperature: 0 degrees to +50 degrees C°
Weight: 5.8 lbs., 2.6 Kg (includes AC adapter)
Size: Width: 10-7/8" (27.6 cm), **Height:** 4-3/8" (11.1 cm) (includes feet)
Depth: 7-5/8" (19.4 cm) (including front knobs and rear panel connector)

"The SW-2 offers not just AM reception, but SSB and AM synchronous sideband detection to help lock in those fading signals."

occasionally the detector will lock onto an adjacent signal. When that happens you must repeat the tuning process. When used properly, the synchronous selectable sideband detector will reduce distortion when a broadcaster's signal is fading badly or it will help reject interference from nearby stations.

As a SSB fan, I spend 99 percent of my HF radio listening time monitoring military communications, and it's here that the SW-2 misses the mark by a bit.

The 50 Hz minimum tuning step is too large to let you really zero in on a SSB transmitter that's a little bit off frequency. And, since the display only reads down to 100 Hz, you have to tune those 50 Hz steps by ear.

So far, I've always been able to understand what was being said, but sometimes the audio just isn't as clear as I would like it to be.

The SW-2 also lacks a noise blanker, automatic gain control, passband tuning, multiple bandwidths and most of the other goodies that let you pull a weak signal out of the mush.

On the plus side, the SW-2 is built like a tank, the audio is superb and the display is world class—large and bright and easily seen from across even a large room, making the optional infrared control a very handy gadget. The only useful function missing from the remote is the volume control. Since the radio uses mechanical pots for volume and RF gain the electronic remote won't trigger them. There is a mute button for when you want to silence the radio to take a phone call or answer the doorbell.

Programming the SW-2

Programming is simple, with either the keypad or the remote. I tend to use the remote even when I'm sitting at the desk next to the radio. The \$49 price for the optional remote does seem a bit high when you consider that Wal-Mart sells multi-function TV-VCR-Cable remotes for less than \$15. This isn't earth-shaking technology we're talking about here.

The radio does have one odd quirk I stumbled across. When you engage the

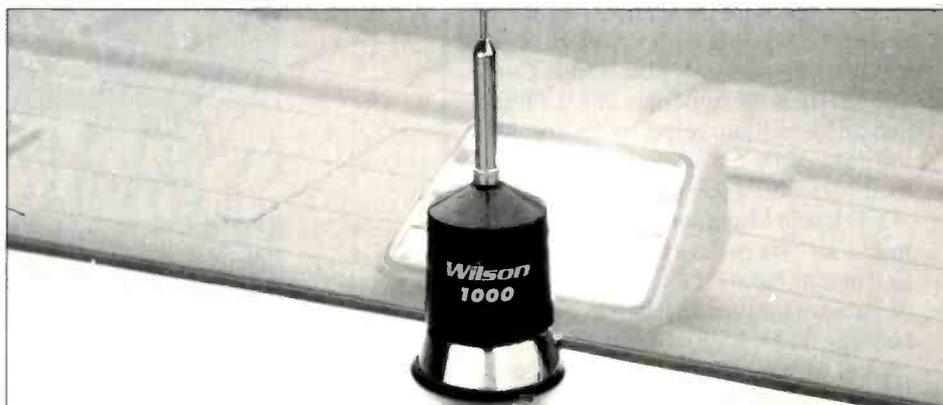
mute function while in memory mode it resets the microprocessor. When you disengage mute the radio switches to VFO mode and whatever frequency you had tuned in the VFO is replaced with the frequency in the last memory channel tuned. Drake's engineers say they are aware of this and that it's the result of a compromise made during the design process.

All in all, the Drake SW-2 is a very good, but not quite great, radio at an attractive price for the level of quality built into all Drake products. While it doesn't have all the bells and whistles

built into many less expensive portables today, I'd expect the SW-2 to be going strong after years of use.

I guess the bottom line for any reviewer is, "Do I like the radio well enough to buy one for myself?"

The SW-2 I have was loaned to me for review purposes, but I'll probably send the folks at Drake a check and keep the radio. While I would love a new R-8A, I can't justify that much money for the amount of HF listening that I do. The SW-2 strikes an excellent balance between cost and capabilities. ■



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Henderson, Nevada 89015

Subject: Comparative Gain Testing of Citizen's Band Antennas
Ref: Rye Canyon Antenna Lab File #870529

We have completed relative gain measurements of your model 1000 antenna using the K-40 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

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Broadcast DXing

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

Satellite-Delivered Radio Services to Debut Worldwide by 2000

It took seven years, \$173 million and 25 rounds of bidding to award the first licenses in the United States for the new digital audio radio service (DARS), which uses high-powered satellites to deliver CD-quality audio directly to listeners. American Mobile Radio Corp. and CD Radio in April paid \$89.9 million and \$83.4 million, respectively, for their licenses. Now the big question is, will their persistence pay off?

CD Radio Chairman David Margolese thinks so. "We believe this is a better way to listen to radio," he told *Broadcasting & Cable* magazine. Just how confident is he? The \$83.4 million for the license is on top of his company's startup costs, which he estimates at \$500 million. CD Radio, which expects to launch its first satellite in late 1999, plans to offer 50 channels for about \$10 per month. That fee doesn't include the receiver, which, when they become available, should go for about \$150.

AMRC, meanwhile, plans to offer 35-45 channels, perhaps within three years. Neither company has said whether it will be subscribers or advertisers or a combination of the two who will finance their programming.

DARS will operate in much the same way as DirectTV and Primestar, delivering music, news and other programming directly to homes and cars equipped with receivers and silver dollar-size antennas designed for the 2310 MHz broadcasts.

DARS isn't without its critics, however. Some broadcasters worry it will simply duplicate programming available on AM and FM stations, putting smaller terrestrial stations out of business. The industry group Consumer Electronic Manufacturers Association (CEMA), meanwhile, told the FCC the S band wasn't suited for DARS.

That's not to say CEMA is anti-DARS. In fact, CEMA President Gary Shapiro said DARS "is poised to revolutionize radio in the same way that digital television will revolutionize TV." But CEMA said its tests determined "the innate propagation characteristics of the S band make

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WORCESTER'S TALK STATION

WORC first signed on in February 1925. (Courtesy Bob Gilbert, Portland, ME)

it incapable of allowing seamless service in a suburban or urban environment." At that high frequency, CEMA said, S band signals would be blocked by hills, trees and buildings, much like FM signals become choppy or lost altogether in cities and tunnels. Those gaps in coverage would then have to be filled in by networks of supplemental transmitters on the ground. Instead, CEMA proposed studying alternate DARS bands, including the L (1452-1492 MHz) and UHF bands (470-512 MHz). CEMA is so opposed to using the S band that it took out a full-page ad in *The Washington Post* to argue its case. "The American public deserves a nationwide digital radio service that works," the ad read in part. "But that won't happen if the FCC auctions digital radio spectrum at the wrong frequency."

As AMRC and CD Radio were sweating out the DARS auction, another com-

pany was wrapping up a series of tests of its DARS service for listeners outside North America. WorldSpace plans to launch its AfriStar satellite in June 1998, providing hundreds of channels of audio and multimedia programming to audiences in Africa, the Middle East and parts of the Near East and Europe. By June 1999, the Washington, D.C.-based company plans to have its AsiaStar and CaribStar satellites up and serving, respectively, India, Korea and Southeast Asia, and South America, Latin America and the Caribbean areas.

Seven years in the making, WorldSpace would offer international programmers access to some 4.6 billion people outside North America and Europe—an

"Now the big question is, will their persistence pay off?"

WKBW

1520 KC

50,000 WATTS

BUFFALO, NEW YORK

Other Capital Cities Broadcasting Stations

WPAT — 930 KC Metropolitan New York

WPRO — 630 KC Providence, R. I.

WROW — 590 KC Albany, N. Y.

WJR — 760 KC Detroit, Mich.

WSAZ — 930 KC Huntington, W. Va.

WKBW acknowledges and confirms your DX report of August 24, 1964
Thank you for your letter. May we wish you good listening.

LEROY FIEDLER
Chief Engineer

WKBW's QSL from the mid-1960s includes a list of its Capital Cities sister stations. WKBW became WWKB on Jan. 2, 1986, following its sale to Price Communications, making it a sister station of WWVA. (Courtesy Doug Meyer, San Diego, CA)

audience its developers say is "grossly under-served by existing shortwave, AM and FM." Each high-powered satellite could beam as many as 288 mono or 72 near-CD-quality audio channels to portable L-band (1452-1492 MHz) receivers. The radios, which will also be able to receive AM, FM and shortwave, are expected to run about \$200 when they become available by mid-1998. Future models could include units that can be installed in cars and laptop computers.

Ancillary data services, such as stock tickers and news headlines, could be piggybacked on the audio streams. Jeff Lenorovitz, WorldSpace Press Consultant, told *Pop'Comm* that with advances in digital compression, the second generation of WorldSpace radios might be able

to display limited motion information—such as a weather satellite picture—on built-in miniature screens.

Broadcasters that are already signed on to WorldSpace include the Voice of America (VOA), Colombia's Radio Cadena Nacional, Ghana Broadcasting Corp., Kenya Broadcasting Corp. and Radio Nederland.

Free Spirits

Days before 39 members of the Heaven's Gate cult committed suicide in March, they sent a package containing two video tapes to an Adrian, MI, radio station. An enclosed letter read, "By the time you receive this, we'll be gone—several dozen of us."

WNYR

68 WINNYR 101

Country Club

931 Main St. East

Rochester, N. Y.

This is to certify that

Douglas B. Meyer
is a Life Time Member in good standing and entitled to all the benefits offered to Country Club Members.

Bill Edward
WNYR Representative

No 22613

The WNYR calls have made the rounds over the years, including stops in the upstate New York towns of Rochester, Syracuse and Waterloo. (Courtesy Doug Meyer, San Diego, CA)

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CIRCLE 86 ON READER SERVICE CARD

Applied for Permits to Construct New AM Stations

MD	Pikesville	540 kHz
TX	West Odessa	540 kHz

Applied for Permits to Construct New FM Stations

AL	Piedmont	88.3 MHz	2.7 kW
AL	Thomaston	97.7 MHz	
AR	Mena	105.3 MHz	
AR	Mountain Home	88.7 MHz	
AZ	Hotevilla	89.1 MHz	
CA	Eureka	89.3 MHz	
CA	Newberry Spgs.	103.7 MHz	
CA	Redding	88.9 MHz	
CO	Carbondale	88.9 MHz	
CO	Holyoke	92.3 MHz	
CO	Julesburg	96.5 MHz	
CO	Meeker	98.1 MHz	
CO	Montrose	89.1 MHz	
CO	Yuma	100.9 MHz	
FL	Key Largo	91.7 MHz	
FL	Keystone Hts.	91.5 MHz	
FL	Nocatee	105.3 MHz	
FL	Panama City	91.7 MHz	
GA	Peachtree City	91.7 MHz	6.1 kW
HI	Princeville	98.9 MHz	
HI	Princeville	99.9 MHz	
IA	Britt	99.5 MHz	
IA	Dubuque	90.1 MHz	
ID	Island Park	106.5 MHz	
IL	Colchester	104.1 MHz	
IL	E. St. Louis	89.7 MHz	
IL	Peoria	90.7 MHz	
IN	Frankfort	90.7 MHz	
KS	Manhattan	88.7 MHz	
KY	Drakesboro	103.9 MHz	
LA	Arcadia	92.5 MHz	
LA	Bastrop	91.9 MHz	
LA	Natchitoches	89.3 MHz	
MI	Negaunee	99.5 MHz	
MI	Negaunee	101.9 MHz	
MN	Rochester	88.7 MHz	250 watts
MN	Sunburg	106.5 MHz	
MO	Concordia	88.1 MHz	1 kW
MS	Port Gibson	89.3 MHz	25 kW
NC	Aurora	104.5 MHz	
NC	Roanoke Rapids	91.1 MHz	
NM	Farmington	97.9 MHz (KISZ booster)	
NM	Grants	90.5 MHz	
NY	Ithaca	90.1 MHz	
NY	Spencerport	90.9 MHz	
NY	Sylvan Beach	100.3 MHz	
NY	Watertown	90.1 MHz	
OH	Hicksville	106.7 MHz	
OH	Painesville	88.3 MHz	
OK	Alva	103.5 MHz	
OK	El Reno	88.5 MHz	
OK	Lawton	91.1 MHz	
OR	Jordan Valley	90.9 MHz	
PA	Oil City	88.3 MHz	
SC	Dillon	90.5 MHz	
SD	Lead	94.3 MHz	
TN	Elizabethtown	90.5 MHz	500 watts
TN	Newport	90.7 MHz	1 kW
TN	Tullahoma	88.5 MHz	1.9 kW
TX	Brackettville	94.7 MHz	
TX	Brenham	89.7 MHz	

TX	Denison	91.5 MHz	
TX	Fannett	90.5 MHz	
TX	Gatesville	89.9 MHz	
TX	Kerrville	88.7 MHz	1 kW
TX	Lufkin	88.1 MHz	22 kW
TX	Markham	92.5 MHz	
TX	Mart	88.9 MHz	50 kW
TX	Nacogdoches	88.1 MHz	
TX	San Angelo	105.7 MHz	
UT	Blanding	92.1 MHz	
VA	Cape Charles	90.7 MHz	
VA	Dilwyn	105.3 MHz	
VT	Norwich	88.1 MHz	1.7 kW
VT	Woodstock	91.7 MHz	100 watts
WI	Barron	97.7 MHz	
WI	Forestville	102.1 MHz	
WY	Afton	91.3 MHz	400 watts

Permits Granted to Construct New AM Stations

MN	Sauk Rapids	800 kHz	(reinstated permit)
IN	Bluff City	1680 kHz	(reinstated permit)

Granted Permits to Construct New FM Stations

AZ	Show Low	90.7 MHz	100 watts
CO	Ignacio	90.1 MHz	
CO	Silverton	107.3 MHz	100 kW
GA	Rome	91.3 MHz	
GA	Warrenton	93.1 MHz	
ID	Wallace	97.5 MHz	
ID	Wallace	100.7 MHz	82 kW
MO	New Bloomfield	90.3 MHz	150 watts
MT	Cut Bank	102.7 MHz	100 kW
NM	Las Cruces	88.9 MHz	500 watts
PA	Johnstown	89.7 MHz	8 kW

Cancelled, Revoked or Otherwise Deleted

KFIA	Sausalito, CA	96.9 MHz	2.5 kW
WAJP	Altoona, PA	1560 kHz	2.5 kW
WERA	Plainfield, NJ	1590 kHz	500 watts

Seeking to Modify AM Facilities

WHJB	Greensburg, PA	620 kHz	Seeks to change community power.
WWWE	Carrollton, GA	1100 kHz	Seeks to change community power.

Changed AM Facility

WONQ	Oviedo, FL	1030 kHz	Increased nights to 1.7 kW.
------	------------	----------	-----------------------------

Changed FM Facilities

KZRO	Dunsmuir, CA	100.1 MHz	Changed from non-commercial to commercial.
WNPL	Mt. Juliet, TN	106.7 MHz	Moved to Belle Meade.
WVYC	York, PA	99.7 MHz	Changed frequency.

Sent Notice of Apparent Liability for Monetary Forfeiture

WADK	Newport, RI	\$3,500, alleged EEO violations.
------	-------------	----------------------------------

Pending AM Call Letter Changes

Pending	Present	
KICR	KDBS	Alexandria, LA
KWUF	KPAG	Pagosa Springs, CO
WDCZ	WCMF	Rochester, NY
WRAQ	WSQL	Brevard, NC

Changed AM Call Letters

New	Old	
KFEZ	KNHN	Kansas City, KS
KGAB	KMRZ	Orchard Vly., WY
KMPC	KBBA	Abilene, TX
KNHN	KPHN	Pittsburgh, KS
KPHN	KFEZ	Kansas City, MO
KPOZ	KXTN	San Antonio, TX
KPTT	KOZZ	Reno, NV
KRGO	KRGQ	Lake Havasu City, AZ
KROO	KBIL	W. Valley City, UT
KRTX	KMPQ	Rosenberg, TX
KSON	KDDZ	San Diego, CA
KTRS	KSD	St. Louis, MO
KTZN	KMPC	Los Angeles, CA
WAZZ	WFLB	Fayetteville, NC
WBUR	WUOK	W. Yarmouth, MA
WPAO	WICT	Farrell, PA
WQOP	WNCM	Atlantic Beach, FL
WQVL	WKEN	Dover, DE
WTLM	WZMG	Opeleika, FL
WVBF	WCEG	Middleboro, MA
WYRD	WFBC	Greenville, SC
WZMG	WTLM	Pepperell, AL

Pending FM Call Letter Changes

Pending	Present	
KWUF-FM	KRQS	Pagosa Spgs., CO
WXRN	WFSN	Port Charlotte, FL
WYBA	WEJM-FM	Lansing, IL

New FM Call Letters Issued

New	Location
KALT-FM	Alturas, CA
KAUH	Nogales, AZ
KCFG	Flagstaff, AZ
KCIF	Hilo, HI
KGSG	Pasco, WA
KLCR	Lakeview, OR
KLDZ	Santa Barbara, CA
KLES	Mabton, WA
KLXM	Salinas, CA
KRZB	Olney, TX
KUAB	Fairbanks, AK

KXJW	Jal, NM
WACD	Antigo, WI
WARD	Glens Falls, NY
WARL	Marengo, IN
WASJ	Maynardville, TN
WASM	Natchez, MS
WASQ	Saltville, VA
WBKT	Norwich, NY
WJNG	Johnsonburg, PA
WNAN	Nantucket Island, MA
WRUO	Mayaguez, PR
WZZP	Atlantic City, NJ

Changed FM Call Letters

New	Old	
KBZR	KONZ	Arizona City, AZ
KCRM	KRLB-FM	Lubbock, TX
KLCA	KQNV	Sparks, NV
KLCX	KANP	St. Charles, MN
KLXX	KROO	Breckenridge, TX
KLVS	KJFA	Grass Valley, CA
KMCG	KUPR	Carlsbad, CA
KMYL-FM	KRDS-FM	Wickenburg, AZ
KRTX-FM	KRTX	Winnie, TX
KSD	KSD-FM	St. Louis, MO
KSON-FM	KSON	San Diego, CA
KTBR-FM	KAHY	Myrtle Pt., OR
KTRS-FM	KTRS	Casper, WY
KZIO	WRSR	Two Harbor, WI
WACL	WPKZ	Elkton, VA
WBLN	WXID	Mayfield, KY
WBOG	WUSK	Tomah, WI
WBUR-FM	WBUR	Boston, MA
WEEQ	WIYQ	McConnellsburg, PA
WFGE	WBLN-FM	Murray, KY
WFLB	WAZZ	Laurinburg, NC
WICT	WICT-FM	Grove City, PA
WKJT	WAES	Teutopolis, IL
WKLR	WLEE-FM	Williamsburg, VA
WKOY-FM	WKMY	Princeton, WV
WLIN-FM	WKOZ-FM	Durant, MS
WLNK	WWSN	Charlotte, NC
WMBX	WHLG	Jensen Beach, FL
WPBG	WMXP	Peoria, IL
WQOP	WNCM	Atlantic Beach, FL
WQZZ	WWQZ	Eutaw, AL
WRZK	WLJQ	Colonial Hts., TN
WTAL-FM	WJPH	Monticello, FL
WTND	WNSX	Poughkeepsie, NY
WUSK	WBOG	Tomah, WI
WXIK	WBHR	Jackson, MI
WXRQ	WXYK	Pascagoula, MS
WXYK	WMLS-FM	Gulfport, MS
WZOD	WSTK	Colonial Hgts., VA

The package sat on a shelf until news of the mass suicide broke and a staff member remembered the tapes. "The tapes had kind of a cultish, weird look about them," said Rev. Rick Strawcutter, the station's operator and pastor of the 250-member, nondenominational Church of the Lord Jesus Christ. "It was kind of religious in nature, and it was kind of weird."

Strawcutter said he doesn't know why

Heaven's Gate members sent him the package. "Maybe they just felt like they trusted us," he said. That may have something with his station: Radio Free Lenawee is an unlicensed—and unabashedly so—95-watt station on 97.7 MHz. Its slogans include "Free speech with no sacred cows." "The Rosa Parks of radio" and "God, guns and guts made America—let's keep all three." The 24-hour format

includes Strawcutter holding forth on everything from government conspiracies to evidence of the New World Order.

That apparently includes the FCC, which Strawcutter said has no authority over low-power, unlicensed stations. Since Radio Free Lenawee debuted last Nov. 4, Strawcutter has openly challenged the FCC. Church members, who make up the bulk of the stations volun-

"Future models could include units that can be installed in cars and laptop computers."

teer staff, walked Adrian's streets wearing sandwich boards reading "Tune to 97.7 now." FCC investigators visited the station on Nov. 22, but Strawcutter simply turned them away. "The fact that the FCC won't approve it won't stop me," he

told The Detroit News. "If David Koresh had a station like we have, do you think they would have pulled that stunt?"

Still, Strawcutter apparently isn't taking his chances: cameras inside and out monitor the station's studio in a church storeroom and the 100-foot antenna tower outside. On top of everything, Strawcutter also is facing a lawsuit from NBC News. The network is suing him and his lawyer, claiming the lawyer had agreed to sell the Heavens Gate tapes to its news division for \$45,000. NBC alleges a

breach of contract because the lawyer immediately turned around and sold the tapes to ABC News for \$50,000.

In Brief

The long-anticipated power cut of WOWO apparently has been pushed back again. Parent company Pathfinder Communications Corp. in April filed for an extension of the construction permit that would cut the Ft. Wayne, IN station's nighttime power from 50 kW to 9.8 kW. The following week, Inner City Broadcasting Corp. (ICBC), filed for an extension of the construction permit that would expand its New York City station, WLIB, to 24-hour operation with a 10 kW nighttime signal. ICBC bought WOWO in November 1994 because the station had clear channel rights to 1190 kHz, and the company wanted to power down WOWO at night so WLIB could remain on the frequency after local sunset.

Turner Classic Movies is adding radio stations as outlets for its programming in an effort to reach the blind. The audio service debuted April 26 on New Orleans' WRBH-FM with *Casablanca*. Each film's dialogue is supplemented by a narrator's description of everything from on-screen action to actors' body language. TCM said it's negotiating with other stations to expand the service.

"Since Radio Free Lenawee debuted last Nov. 4, Strawcutter has openly challenged the FCC."

David Letterman reminisced about DXing as a child after taping his May 2 show that spotlighted St. Louis. "I'd lie in bed late at night and listen to KMOX, to St. Louis Hawks games," he told the St. Louis Post-Dispatch. "I was so excited to be getting this radio station, with those games, that I actually carved KMOX in the top of the radio." And no, despite what Dave said, the Arch does not give everyone in the city free HBO.

Thanks

Your news clippings, bumper stickers, station and shack photos and QSLs are always welcome, as are your questions and comments. Send 'em to "Broadcast DXing" at *Popular Communications*, 76 North Broadway, Hicksville, NY 11801.



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CIRCLE 76 ON READER SERVICE CARD

Communications Confidential

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

USAF Global High Frequency System—GHFS

Some of the more frequent questions I have received deal with the United States Air Forces' "GHFS" system that readers see in many of the logs. GHFS is primarily a USAF network providing support to the United States Department of Defense, NATO, and on a "non-interference" basis to other U.S. government agencies. The stated mission of the GHFS System is to "provide continuous, reliable, rapid, two-way communications to all DoD aircraft, ships, and ground agencies, regardless of their location." This system supports command and control, special purpose, and contingency air/ground/air and point-to-point communications. The Global system consists of 15 stations that are strategically located throughout the world to ensure worldwide HF communications. Offutt Air Force Base, Nebraska is the Global HF System Net Control Station (NCS) and Andrews AFB and McClellan AFB also being GHFS 'Master Network Control Stations.' These stations are able to seize and use the other stations' transmit and receive sites, simulcast transmissions from multiple sites (which are the echoes heard on some Emergency Action Messages or EAM broadcasts), and generally have other functions that the other GHFS stations do not. This stems from the old 'Giant Talk Network' days, when Offutt, Andrews and McClellan were primary stations for that network. Giant Talk was pretty much absorbed into the GHFS system.

Although it is thought of primarily as an air-to-ground system, more and more we are hearing other ground/sea-based users on the system. Besides Air Forces HF-equipped aircraft, other common users now include U.S. Army Transportation Corps vessels with their four-letter call signs starting with Alpha Alpha or Alpha Delta (see 11175 log). Other users that have been heard include the German, Italian, Israeli, Australian (AUSSI call signs) and Dutch Air Force; Royal Air Force (ASCOT call signs), and Canadian Forces (CanForce call sign); the U.S. Coast Guard, Navy, Army and Marines; and the Japanese Self-Defense Forces. I

also recently logged a NASA aircraft heard making use of the system.

The present GHFS stations are: Albrook, at Albrook Air Base, Panama (AFH3), due to be phased out by 1999; Anderson, at Anderson AFB, Guam (AIE2), also reported as possibly being phased out or remoted; Andrews, at Andrews AFB, Maryland (AFA3); Ascension, at Ascension Island Auxiliary Air Base, Ascension Island (AFD14), which is run by a private contractor, which explains why you don't hear them broadcasting the EAM's; Bayonne, at the Military Traffic Management Command Emergency Comms Center, Bayonne, New Jersey (no call sign), possibly moving to Fort Eustis, VA by 1999; Croughton, at Croughton Air Base, England (AJE); Elmendorf, at Elmendorf AFB, Alaska (AKA5); Hickam, at Hickam AFB, Hawaii (AGA2); Lajes, at Lajes Air Base, Azores (CUW); MacDill, at MacDill AFB, Florida (AFE8); McClellan, at McClellan AFB, California (AFI2); Offutt, at Offutt AFB, Nebraska (AFS); Incirlik, at Incirlik AB, Turkey (AJG9); Thule (sounds like Tool-lee), Thule Air Base, Greenland (XPH); and Yakota, at Yakota Air Base, Japan (AIF2). Not all of these stations use the same frequencies, and then not always at the same times. GHFS stations in most cases have separate transmit and receive sites, usually located 15–50 miles apart, with the receive site sometimes only consisting of a couple antennas being located on-base. The GHFS stations ID themselves by their base name, such as MacDill Global. Each has a selection of 'discrete' frequencies they can use for prolonged voice traffic or secure data. However, since almost always these frequencies are passed in the clear after contact on a GHFS primary, I have not listed them. **Table 1** is a listing of primary GHFS frequencies, the stations using them, and any time restrictions. Although not officially a GHFS station, I've included the Eastern Test Range (ETR) stations on 10780 as they are utilized and the frequency is provided to pilots. All frequencies are USB.



65th Comms Grp. "Voice of the Mid-Atlantic," Lajes GHFS Patch.

Global stations operate 24 hours-a-day, seven days a week, 365 days a year, and are well heard throughout the world. In the near future we will see the face of GHFS change again. There is a new net called 'Scope Command' which will be phased in soon, replacing a lot of the GHFS resources. Rockwell-Collins is the main contractor. It will pretty much follow the 'Central Dispatch' philosophy where one central location will control various remote sites and all the assets. Scope Command will feature Automatic Link Establishment (ALE), among other bells and whistles.

The above station and frequency data is unclassified information which appears in the Department of Defense Flight Information Handbook. The FLIB and other government military flight publications can be purchased by the public, although the Defense Mapping Agency no longer sells its publications directly to the public. That job was turned over to the National Oceanic and Atmospheric Administration. Listed below are available military aero publications you may find handy. I have ordered all of them in the past and they are worth having in your library.

Military Aero Publications

IFR Supplement (IFRUSSUP \$5.05);
VFR Supplement (IFRUSSUP \$6.85);

DEPARTMENT OF THE AIR FORCE
6TH AIR BASE WING (ACC)
MACDILL AIR FORCE BASE, FLORIDA

QSL Confirmation



This is to confirm your reception report of MacDill Global:

Date: 16 July 1995 Time: 0046 Zulu Frequency: K1175

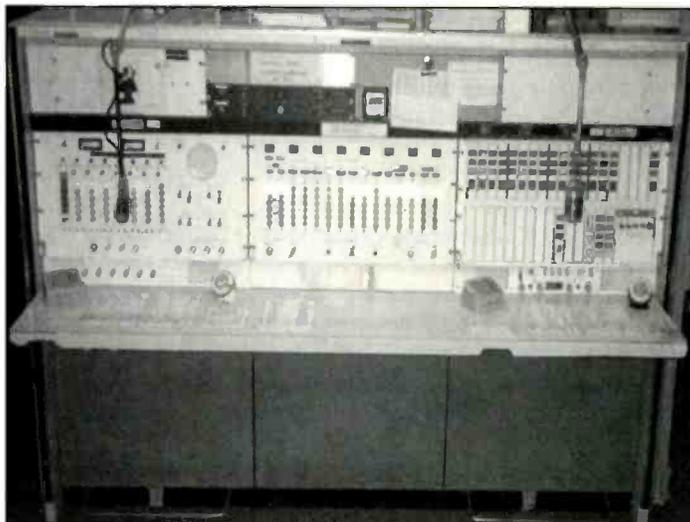
Equipment: Rockwell/Collins URG 208U-3
Watts: 3,000
Antenna: Discone, omnidirectional

Thanks for your interest and best of luck!!

Bryan K. Howell
BRYAN K. HOWELL, TSgt, USAF
Team Leader, Global HF Station

← Allan Renner, PA shares a QSL from his collection.

Radio console at Lajes GHFS (Courtesy USAF, Lajes AB web site)



Flight Information Handbook (FIHB \$1.60); Area Planning (AP1 \$5.85); Area Planning, Special Use Airspace (APIA \$5.85); Area Planning, Training Routes Book (AP1B \$5.60); Area Planning, Training Routes Charts (AP1BCHTS \$1.35); Low Altitude IAP's, all 12 volumes (TLUSSET \$38.40); Low Altitude IAP's, individual volumes, Vol. 1 (ID MT OR WA—TLUS1), Vol. 2 (CA—TLUS2), Vol. 3 (AZ CO NM MV UT—TLUS3), Vol. 4 (IA MN ND NE SD—TLUS4), Vol. 5 (AR KS MO OK—TLUS5), Vol. 6 (LA TX—TLUS6), Vol. 7 (IL MI WI—TLUS7), Vol. 8 (IN KY OH WV—TLUS8), Vol. 9 (CT MA ME NH NY RI VT—TLUS9), Vol. 10 (DL MD NJ PA VA—TLUS10), Vol. 11 (GA NC SC TN—TLUS11), Vol. 12 (AL FL MS—TLUS12) all \$3.20 each. The IFR supplement, which includes all military airports in North America with frequency information, is a must for the military aero monitor. Also a keeper is the Flight Information Handbook mentioned above, which includes HF frequencies. The AB1B shows charts of military 'Training Routes' and Aerial Refueling Tracks, including entry and exit points, contacts and frequencies and is also very useful. To order by mail, be sure to specify the name of the publication and its code number. Unless you want to subscribe to these publications (most of them will last a hobbyist years) make sure you indicate it's a one-time purchase. Payment must be in-

cluded with orders. Checks (US bank), money orders or MasterCard and Visa are all accepted. Mail the order to: NOAA Distribution Branch, National Ocean Service, Riverdale, MD 20737-1199. If you need more information or to order by phone, call 301-436-6990 during business hours on the U.S. east coast.

By the way, the most common call sign heard will be "REACH". REACH is the static call sign used by the USAF Air Mobility Command cargo aircraft. Some long-time listeners may recall when "MAC" was used instead.

Reader Mail

Bill Farley, WA5FLG, out in New Mexico checks in with some beacons heard and passes along some HF aero frequencies: ArInc frequencies used for company business; Honolulu and San Francisco: 3013.0, 6640.0, 11342.0, 13348.0, 17925.0, 21964.0 kHz; Houston Radio: 6637.0, 10075.0, 17940.0, 21964.0 kHz; New York: 3494.0, 6640.0, 11342.0, 17925.0, 21964.0 kHz; ArInc Air Traffic Control (ATC) for international flights: Honolulu Radio-Central and West Pacific: 3413.0, 5547.0, 8843.0, 13288.0, 17904.0 kHz. Same for Northern Pacific: 2932.0, 5628.0, 6655.0, 8951.0, 10048.0, 11330.0, 13273.0, 17904.0 kHz; San Francisco Radio: 2869.0, 3413.0, 5574.0, 6673.0, 8843.0, 10057.0, 11282.0, 13288.0, 17904.0 kHz; Speedbird London, British

Airways Company Freqs.: 5535.0, 8921.0, 10072.0, 13333.0, 17922.0, 21946.0 kHz; Aviation Weather, New York Radio: 3485.0, 6604.0, 10051.0, and 13270.0 kHz.

J. A. Ladd out Montana way, sent a list of ATC's he has logged from his location with best reception between 1100 and 1300 UTC: 2869.0 San Francisco, 2932.0 Tokyo, 2958.0 Brisbane, Australia, 3413.0 Honolulu/SFO, 3467.0 Honolulu/Auckland NZ, 3455.0 Tokyo, 4662.0 Honolulu, 4666.0 Tokyo/Honolulu, 5547.0 SFO/Honolulu, 5574.0 SFO/Honolulu, 5628.0 Honolulu/Tokyo, 5643.0 Tokyo/Auckland/Brisbane/Honolulu/Tahiti, 5667.0 Honolulu, 6521.0 Brisbane, 6532.0 Honolulu/Tokyo, 6586.0 New York, 6640.0 Honolulu, 6655.0 Honolulu, 8843.0 Honolulu, 8867.0 Brisbane/Honolulu, 8903.0 Manila, 8915.0 Tokyo, and 10048.0 Honolulu. Some Volmet stations he has heard include; 5673.0 Sydney, 5679.0 Sydney/Honolulu, 6676.0 Sydney, 6679.0 Honolulu, and 6604.0 New York. All of these are USB mode.

Allen Renner, PA wrote about some interesting beacon QSL's he recently received. For "BGI" on 345 kHz in Barbados, Allen received an envelope filled with pamphlets, maps and travel brochures for the Island of Barbados, along with his completed PFC and a verification letter. For "EEJ" on 428 kHz in Sanford, NC, came a FedEx package after many

USAF Global High Frequency System, Frequency and Stations (Guard Times)

4724.0 kHz Andrews (H24)	Ascension Mahi
Croughton (2300-0500) Elmendorf (Apr-Sep 1800-0800, Oct-Mar H24) Incirlik (H24) McClellan (0400-1600) Thule (H24) Yokota (1000-2100)	11175.0 kHz Albrook (H24)
6712.0 kHz Andrews (0001-1000)	Anderson (H24) Andrews (H24) Ascension (H24) Bayonne (1300-2100) Croughton (2300-0500) Elmendorf (H24) Hickam (H24) Incirlik (H24) McClellan (H24) Offutt (H24) Thule (H24)
Bayonne (1300-2100) Croughton (H24)	13200.0 kHz Anderson (2000-0900)
6739.0 kHz Albrook (0001-1200) Anderson (0900-2000) Ascension (1800-0600) Elmendorf (Apr-Sep H24, Oct-Mar 0600-2000) Hickam (0400-1600) Lajes (H24) MacDill (2400-0900) McClellan (0400-1600) Offutt (2300-0800) Thule (H24) Incirlik (H24) Yokota (1000-2100)	Croughton (0500-2300) Elmendorf (Apr-Sep 1800-0800, Oct-Mar H24) Hickam (1600-0400) McClellan (1600-0400) Thule (H24) Yakota (2100-1000)
8968.0 kHz Anderson (H24)	15016.0 kHz Albrook (1200-2400)
Andrews (H24) Elmendorf (H24) Hickam (H24) Lajes (H24) McClellan (H24) Offutt (H24) Thule (H24) Yokota (H24)	Ascension (H24) Bayonne (1300-2100) Croughton (0500-2300) Elmendorf (Apr-Sep H24, Oct-Mar 2000-0600) Lajes (H24) Loring (0900-2400) [remote from MacDill] MacDill (0900-2400) McClellan (1600-0400) Incirlik (H24) Yakota (2100-1000)
8992.0 kHz Ascension (H24)	17976.0 kHz Andrews (1000-2400)
Croughton (2300-0500) MacDill (H24)	Croughton (H24) Elmendorf (H24) Incirlik (H24) McClellan (H24) Offutt (0800-2300) Yakota (H24)
10780.0 kHz AF Eastern Test Range (Backup for Ascension)	
Cape Canaveral Antigua	

reports are most welcome. Further information will be found on the web at <<http://people.enternet.com.au/~pca/>> and <<http://www.ozemail.com.au/~pentacom/>>, and the mailing address is: Penta Comstat, VZX, P.O. Box 5149, Erina Fair NSW 2250, Australia.

Longtime UK reader Alan Gale, G4TMV, took advantage of my e-mail address and sent his first contributions. Alan was able to confirm recently that GFF is the call sign of Kinloss Rescue, but could not locate any call sign for Plymouth Rescue if anyone can help. Both of these rescue centers (or centres!) are in the UK. He further sent this list of RAF GF series call signs which he has located, if anyone can get any more information about them, he would appreciate the info: GFA, RAF Meteo, Bracknell; GFB; GFC; GFD; GFE, RAF Meteo, Bracknell; GFF, RAF Kinloss (Rescue), Scotland; GFG, RAF Gibraltar; GFH, RAF Kai Tak, Hong Kong; GFI; GFJ; GFK; GFL, RAF Meteo, Bracknell; GFM, GFN, GFO, RAF Lossiemouth, Scotland; GFP; GFQ; GFR; GFS; GFT, RAF Meteo, Bracknell; GFU; GFV; GFW, RAF Akrotiri, Cyprus; GFX; GFY; and GFZ. In addition, Alan sent the list of Search and Rescue call signs shown in **Table 2**. Alan recently monitored 'Exercise Bright Eye' in which a number of European SAR agencies were taking part in. The SAR Exercise (SAREX) appeared to involve simulating rescues from Oil Rigs and ships in the North Sea and made use of 5699.0 USB for non-exercise traffic. This was the first time Alan had heard it used. No prior logs here either Alan. Lastly, Alan had been hearing a station ID'ing as 'Placentia Radio' from Canada. He was able to confirm this is the new name for St. Lawrence Coast Guard Radio. Some operators have still been using the old name occasionally, but the new name of Placentia is likely to be heard more often in future, Alan reports. Those with web access can check the Canadian CG web site at <<http://www.ccg-gcc.gc.ca/Cabot500/welcome.htm>> for more information on this change.

Ary Boender in the Netherlands reports confirmation on the Russian Navy SLHFM's. Ary was the first, and has reported many times, about the ex-Soviet Navy stations with their characteristic single-letter channel markers. Still, many people did not believe that these are really naval stations. Until recently, the only evidence Ary had were the messages that were copied on the channel marker frequencies. Now, Ary has had this infor-

months that included his PFC, beacon information papers, a photo of the airport and an aeronautical chart for North Carolina. Allen concludes that sometimes it pays to be kept waiting!

Larry Fields checks in from his floating shack (see picture) from somewhere in the Pacific ocean with some frequency logs. Larry also reports hearing Singapore Radio active on 11285.0 USB starting around 1030 UTC nightly.

A fax message from Trevor Fletcher in Calgary, Alberta, Canada apparently slipped through the cracks as I took over from Don. Very belatedly, the log is included this month. My apologies to Trevor and I'm happy to report smooth sailing now.

Marc Robinson in Australia reports Coast Radio Station 'Penta Comstat, VZX, at Holgate NSW (Near Sydney), Australia is now running free HF Radio e-mail trials 24 Hrs a day for suitably equipped yachts at sea using assigned frequencies of 6357.0, 8442.0, 12680.0, and 16908.0 kHz. VZX first transmits the following 15 second message on one of the above frequencies in TOR FEC: 'de VZX SeaMail active on G-TOR or PACTOR'. The station then listens 30 seconds for any G-TOR or PACTOR traffic before repeating the sequence on the next frequency. The complete cycle takes three minutes if no traffic is intercepted. Stations making contact for the first time will receive a form inviting them to join. Signal

mation confirmed to him in person by a Russian naval radio operator. The radio operator identified 'L' as St. Petersburg, 'P' as Kaliningrad, 'S' as Arkhangelsk and 'C' as Moscow. Ary reports the following stations are still active: Channel marker 'F', Vladivostok; Channel marker 'C', Moscow; Channel marker 'L', St. Petersburg; Channel marker 'P', Kaliningrad; Channel marker 'R', Ustinov; Channel marker 'S', Arkhangelsk; and Channel marker 'V', Tashkent. We've received lots of great information from all, now, on with the show . . .

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)

UTE Logging's SSB/CW/DIGITAL All Times in UTC

129.1: DCF49, BMPT Bonn, D at 0837 in ASCII, 200bd Encrypted msgs. & foxes (AB)
 189.4: TH, 1 watt lower, Colt's Neck, NJ at 0505, verified by QSL. (AR)
 210: CLO, Cali, Columbia hrd at 0705, 2654m. (AH)
 232: UMZ, NDB Manzanillo, Cuba hrd at 0518. (AR)
 243: IAK, Palatka, FL at 0245. (WP)
 281: CA, NMB Cartwright, NFLD hrd at 0443. (AR)
 305: YQ, NDB Churchill, MB, at 0526, verified by QSL. (AR)
 330: CZM, Cozumel, Mexico at 0258. (WP)
 333: HQU, Thomson, GA heard at 0400, 829m. (AH)
 335: CNK, NDB Concordia, KS at 0501. (AR)
 342: Y, Gallantry Head LS at 0404, 831m, STPM. (AH)
 345: BGI, NDB Bridgetown, Barbados at 0446, verified by QSL. (AR)
 353: UHG, Holguin, Cuba at 0301. (WP)
 360: BFI, Beef Island, VI heard at 0938, 1640m. (AH)
 361: ZMH, Marsh Harbour, Bah at 0758, 1089m. (AH)
 362: GND, Pt Salinas, Grenada, BWI at 0559, 2119m. (AH)
 365: FT, Ft. Worth, TX at 0304. (WP)
 366: YMW, Manawaki, PQ (long dash after) at 0305. (WP)
 369: ZDX, St Johns, Antigua, BWI at 0726, 1776m. (AH)

370: VVC, Villavicencio, Col at 0716, 2592m. (AH)
 385: AUC, Arauca, Col at 0828, 2583m. (AH)
 386: SYF, St Francis, KS at 0455. (BF)
 387: PV, Turks & Caicos Is. at 0306. (WP)
 395: ULS, Ulysses, KS at 0456. (BF)
 397: LLJ, Challis, ID at 0457. (BF)
 398: Unid Beacon ON at 0318. (LF) (poss ONO Oostende, Belgium?—Ed.)
 400: HIV, Santo Domingo, Dom Rep at 0619, 1599m. (AH) OHY, NDB Cordele, GA at 0518. (AR)
 402: SJE, NDB San Jose del Guaviare, Columbia at 0400. (AR)
 404: MOG, Montague, Calif at 0458. (BF)
 405: BVI, Boa Vista, Col heard at 0745, 3138m. (AH)
 410: PEL, Manaus, Braz heard at 0456, 3168m. (AH)
 414: HZE, NDB Hazer, ND at 0553. (AR)
 421: EF, McKinney, TX at 0459. (BF)
 427: KPH, San Francisco, Ca at 0500 in CW w/wx. (BF)
 436: WCC, Chatham Radio in CW w/tfc list at 0150. (AG)
 442: YLQ, Riga Radio in CW w/tfc list at 0132. (AG)
 444.5: PCH: Scheveningen Radio, HOL at 1250 in CW w/tfc list. (AB)
 447.5: LGQ: Rogaland Radio, NOR at 1335 in CW w/wx. (AB)
 500: CTV, Commandante Nunes Ribiero Radio in CW w/"QSW 525 kHz" heard at 0119. (AG)
 511.5: EAF, Finisterre Radio, IRE in CW w/Nav Warning at 2055. (AG)
 558: DZXL, Makatt heard at 1045 in CW wkg unid. (LF)
 2500: ULA4, Tashkent Time Signal Station in CW w/ID at 2329. (AG)
 2760: Unid at 0404 in USB clg Arroyos de Mantua R, Cuba, no joy. (DW)
 2872: Speedbird 216 at 0113 in USB wkg Gander for selcal check, BD-EF. (TO)
 2932: Tokyo Radio NorPac action in USB mode at 1415 w/Fedex-14 giving posn report as follows: "SABES" (N38-27.1/E145-40.0) at 1412, FL 330, est "POXED" (N41-04.9/E148-56.8) at 1432, & "PASRO" next (N48-17.1/E16 0-40.5), selcall BM-DS, Tokyo advised this freq primary, 6655 secondary. (DS)
 3016: Delta 108 at 2355 in USB wkg New York for selcal check CK-BM. (TO)
 3109: SHIPYARD heard at 1140 in USB working BATAAN SEA, also SEABREEZE on channel (USN FACSFAC, Pensacola, FL), mentioning exercise involving aircraft ZAPER 81. (AWH)
 3143: RAINBOW wkg RAINBOW Op's re if station BOOMTOWN is in the net yet, op's adv will be up in 15 mins, hrd 0147 in USB. (RK) (BOOMTOWN is reportedly the USN's Strategic Communications Wing 1 at Tinker AFB, this wing is the parent of VQ-3 & VQ-4, which operate the E-6As out of Tinker AFB, OK, this freq is Z115—Ed.)
 3446: Unid CW sin R5SA rptng "V PV2S DE R5SA" at 1130. (TY)

3461: Khabarovsk Aero wkg Russian a/c in RR at 1150 in USB. (TY)
 3488.1: Veracruz Mexico wx station at 0400, got a clear copy on the CW ID, and it's actually XBC, not XBT as miscopied on voice previously and reported as such for years & years. (AWH)
 3554.2: French Guiana, Moroni at 0400 in ARQ-E 192/170, Ckt ID "GEG" finally located! Not heard here previously, paired w/Ft de France ckt IGE on 3693. (AWH)
 3727: SS/YL at 0105 in USB (Sun) w/5FG in progress. (CS)
 4017: Cuban 5F CW cut # stn w/ 5F msg at 0317. (TS)
 4152: BUFORD, unid heard at 0058 clg NEW HANOVER. (DW) NEW HANOVER heard at 0320 w/GEORGETOWN, BUFORD & O-P 2 (OPIE 2) att comms, none having much luck. (Ed.)
 4222: XSN, Ningbo Radio, CHN at 2106 in CW w/marker. (LF)
 4265: V8LBS, Brunei, at 2115 in CW w/marker. (LF) (Reportedly Shell Petroleum Radio there—Ed.)
 4307: GYA, Royal Navy London at 1140 in 120/576 FAX w/wx faxes. (DG)
 4402: Computer generated voice at 0305 in USB w/ID as station KMI & giving an address of PO BOX 9 Inverness, CA 94937. (UT) (KMI, AT&T Coastal Station Calif—Ed.)
 4480: YL/SS heard at 0406 in AM, missed call-up, somewhat garbled passing 5 FGs. Sounded vaguely oriental. Many groups featured what I call a "new Spanish digit" pronounced "oo-mao", & was distinctly different from the usual "uno." Several 5FG's had both numbers in them, Ex: Tres, Cinco, Uno, Seis, Oo-mao. (SM)
 4509: CAP stn MO0920 wkg NE0021 in 300 baud packet at 0141. (TS)
 4517: 'Warrior Main,' 'Destiny Main,' & 'Destiny Tac' in USB at 0200. 'Destiny Tac' told 'Destiny Main' to QSY to 6875.5, but were nil heard there. (TS)
 4562.5: FDI8, FAF Nice, F at 1909 in CW w/CQ DE FDI8. (DG)
 4645: The Counting Station at 0100 in USB w/msg to "012", the Counting Station is back again! also at 1408 in AM, EE/YL 3/2FG S9+50dB. (CS)
 4666: Honolulu Radio heard at 1328 in USB w/United flight 824 giving posrep to Honolulu. (EW)
 4670: The Counting Station at 0100 in USB w/msg to "234". (CS)
 4745: RAF Buchan, G at 0805 in USB w/IDN, 8NX, R1E during an exercise. (AB)
 4800: TACTICAL DEUCE working BOLD-KNIGHT heard at 1340 in USB "committing GATOR 03 to track xxxx", mentioned radar conf w/SEALORD (Jax FACSFAC). (AWH)
 4893: GYU, Royal Navy Gibraltar w/RYYR & partial encryption of the test msg at 0750 in 75/850 RTTY. (IJ)
 4925: MRB01, RAF Cadets (B-network), G at 1106 in USB w/MRC16 (AB)
 5091: YL/EE at 1704 passes 5LG's in NATO phonetics. Strong, but heavy QRM from

Chinese broadcast station on 5090. On another day, YL/EE at 2100 repeats "JSR" in phonetics. Then, 5LG's noted at 2104. On various other days, skeds heard at 1500, 1530, 1600, 1900, 2000, 2030, and 2230. All USB mode. (DS)

5245: Various RAF Cadets stations. G heard at 1030 in USB w/MRC01. MRH19. MRW98, MRC16. MRA01, MRW34 and MRO20 active (AB)

5257: Cuban CW net at 1545. only one station audible, 5LG t/c. (AWH)

5264.5: DER, MOI Bonn at 1105 in ARQ-E 96/100 w/diplo t/c. (DG)

5277: PANTHER, DEA Ops Center. Bahamas at 0359 in USB w/kg 601. (DW)

5520: New York ATC w/kg UPS 7407 w/secal ck. CF-AQ at 0336 in USB. (RK) (CF-AQ is a D8F, reg N851UP—Ed.)

5550: N305PA at 2249 in USB w/kg New York for selcal ck FG-DE. (TO)

5598: LTU 567 at 0233 w/Santa Maria w/posn @45N/35W. FL 350. selcal EJ-AP. (reg D-AMUR. 767-300). At 0240. Air France 095 w/NY posn @39N/60W, FL 310, selcal DG-BM (reg F-BPVJ, 747-100). Both in USB mode. (JSM)

5616: Northwest 52 at 0011 in USB w/kg Gander w/selcal ck FM-GL. ARP PORGI at 0007. FL 370. (TO)

5680: Ronne Rescue, NOR at 0835 w/Kinloss Rescue. G w/radio ck. At 0848 Architect, RAF Strike Command. testing. (AB) Swedish CG 587. w/kg Sweden Air Rescue at 1410. GFF (Kinloss Rescue) w/CW "test" VVV de GFF GFF AR VA at 1800. Koksidge Rescue (Belgium) w/kg Belgian AF 94. rdo ck at 1051. PC160 w/kg Glucksburg Rescue (Germany) w/posn report at 1202. Gotland Rescue (Sweden) w/daily r/check w/Riga Rescue Radio (Latvia) at 1300. SAREX 240 w/kg Karup Rescue (Denmark) at 1108 for rdo ck. SAREX 6112 w/kg Glucksburg Rescue. asked to contact Yarmouth CG (UK) on 3023 kHz. (AG) Navy 177 at 2054 w/kg Kinloss Rescue ref training mission. (BOZ) (Navy 177 is Royal Navy Sea King—Ed.) All in USB mode except noted CW.

5694: Rescue Operations at 1733 in USB w/kg Jolly 26 for radio cks. Units having difficulty hearing one another. (BOZ)

5699: Plymouth Rescue at 1310 in USB, r/ck w/SAREX 126 (RAF Wattisham). (AG)

5727.4: BRAVO FOXTROT military net at 0130 in USB w/INU (British) passing Track ID of 4137 to L2U (sounds Italian): 5G1, Z2D, R3I, INU w/kg BRAVO FOXTROT w/tracks & ck's. (Ed.)

5753: Unid CW stn 4XML "V BFR7 DE 4XML" at 1250. (TY)

5864: Unid stns in Honduras heard at 1300 in USB incl Leon clg Tegucigalpa, others. no reply. (AWH)

5901: WISHING WELL. unid military at 0121 in USB w/kg GRASSHOPPER w/QL of msg, accents sounded Canadian. (Ed.)

6090: The Counting Station at 1700 (Sun), EE/YL 3/2FG msg to "012" // 4645. (CS)

6200: NLNK. USCGC Point Glass (WPB-



Larry Fields "monitoring platform," the USNS Kilauea.

82366) at 0344 in USB w/kg NMG. CommSta New Orleans (on 6501.0) relaying posn/op's normal report.

6270: VLX, MOSSAD heard at 0100 in USB (Sun). (CS)

6315.5: KFS: Palo Alto Radio. CA at 0556 in FEC w/MEBA Telex Times and Globe Wireless info msgs. Traffic list at the top of the hour. (DW)

6316: UFN. Novorossiysk Radio, Rus at 2045 w/sitor free signal & CW ID. (LF)

6318.5: UFL. Vladivostok Radio, Rus at 2105 w/sitor free signal & CW ID. (LF)

6434.4: Royal Navy, G at 0929 in 100 bd RTTY w/encrypted msgs. (AB)

same at 1400 w/CRATT bdcst. (DG)

6577: HLA 645 at 2104 in USB w/kg New

York w/ARP 'LAMER', FL 350. est 'NOOGY' at 2122. (TO)

6586: Air Europe 741 at 2354 in USB w/kg New York w/selcal AE-JR, ARP 'GRATX' at 2353, FL 330. est 'NANCE' 0003. (TO)

6604: New York Radio at 0313 in USB w/wx, baro pressure, dew point etc. NOAA aviation wx for major cities. Boston, Baltimore. New York. Atlanta... (UT)

6625: Cuban Babbler heard at 1345 in USB, at t/in SS t/c. 5688.0 USB on at same time but not //. First time this frequency active in months. No sign of the usually accompanying 5341 freq. (AWH)

6679: Honolulu Volmet at 0326 in USB w/aviation WX. (DW)

6727: Probably Japanese stations in air-to-

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UK SAR Callsigns (Courtesy of Alan Gale)

Rescue 01 to Rescue 19 allocated to RAF Maritime Recon Nimrods
 SRW09—RAF St. Mawgan SAR Wing HQ
 Rescue 20 to Rescue 30 (spare).
 SMG31 to SMG50 RAF St. Mawgan Sea King Training Unit
 SMG34 to SMG48 heard being used by SAR Maintenance Base
 SAREX 41 used for training exercise
 SMG35 to SMG44 used by Sea King Training Unit
 R50—RAF Chinook
 Rescue 51 to Rescue 69 allocated to RAF Maritime Recon Nimrods
 Rescue 70 to Rescue 90 spare
 VLL91 to VLL99 RAF Valley SARTU
 Rescue 115 (EI-HBO) and Rescue 116 (EI-CNL) Irish Republic
 Rescue 7 Sumburgh Coastguard (G-BDOC) S-61N Mk II
 Rescue 118 Sumburgh Coastguard
 Rescue 119 Stornaway Coastguard (G-BIMU) S-61N Mk II
 Rescue 120 Stornaway Coastguard
 Rescue 121 Spare
 SRD122 to SRD124—RAF Valley C Flight 22 Sqn. (all Sea Kings by end of 1997)
 SRD125 to SRD 127 RAF Wattisham B Flight 22 Sqn. (Sea Kings)
 SRG128 to SRD130 RAF Leconfield B Flight 202 Sqn. (Sea Kings)
 SRG131 to SRD133 RAF Boulmer A Flight 202 Sqn. (Sea Kings)
 R134 to R136 ex-RAF Leuchars (no longer in service).
 SRG137 to SRG139 RAF Lossiemouth D Flight 202 Sqn. (Sea Kings)
 R140 (Swift 140)
 R141/142 Northern Ireland Operations. (Sea Kings)
 R143 to R144 BP Forties Field (North Sea) S-61M Mk II
 R145 to R146 Shell Brent Field (North Sea) Bell 212
 R166 to R168 ex-RAF Manston (no longer in service)
 SRD169 to SRD171 RAF Chivenor A Flight 22 Sqn. (Sea Kings)
 R172 to R173 Now operated by HM Coastguard (Portland)
 R174 Lee-on-Solent Coastguard (G-BDIJ)
 R175 Lee-on-Solent Coastguard (G-BDIG)?
 R176 Lee-on-Solent Coastguard (G-BDJJ)?
 R177 to R179 RNAS Prestwick 819 Sqn
 R180 to 189 Spare
 R190 to R192 ex-RAF Brawdy (no longer in service)
 R193 to 199 RNAS Culdrose 771 Sqn.

UK SAR Frequencies

International Daytime Primary—5680 kHz

UK (RAF) Daytime back-up—4745 kHz
 UK Primary Daytime—5695 and 4718 kHz

International Nighttime Primary—3023 kHz
 UK Primary Nighttime—3085 kHz
 Kinloss—Night usage—2782 kHz
 Plymouth—Night usage—2242 kHz

SAR/Craft in Water—8364 kHz

RCC Control Centers Commonly Heard on 5680 kHz:

Kinloss Rescue	Northern UK
Plymouth Rescue	Southern UK
Shanwick Rescue	Ireland
Stockholm Rescue	Sweden
Bodo Radio	Norway
Ijmuiden Rescue	Netherlands
Glucksburg Rescue	Germany
Gotland Rescue	Sweden
Koksidje Rescue	Belgium
Karup Rescue	Denmark
Riga Rescue	Latvia
Sweden Air Rescue	Sweden

RAF Mountain Rescue Teams:

Alpine 20 Stafford (Alpine Kilo)
 Alpine 21 Valley (Alpine Victor)
 Alpine 22 Leuchars (Alpine Lima)
 Alpine 23 Kinloss (Alpine Kilo)
 Alpine 24 Leeming (Alpine Tango)
 Alpine 25 St. Athan (Alpine Sierra)
 Alpine 90?
 Alpine 95 St Athan?

Regular radio checks on 5680 kHz:

Kinloss/Plymouth Rescue 1930 UTC 1747 UTC
 Riga Rescue Radio/Gotland Rescue 1300 UTC

ground comms. mostly in heavily accented EE, heard in USB mode from 0130 until past 0215. Sounded like one main ground station working various a/c. Maybe a domestic/regional channel or military. Didn't recognize any of the aircraft calls as airlines. At times, it sounded like the a/c were having as much trouble with the EE as the ground station, but most if not all—of the comms were in EE. Similar traffic heard on this freq in September '96. (DS)

6754: Male ann at 0323 in USB giving aviation wx for Winnipeg & Edmonton International. (UT) (VXA, Edmonton Military, CanForces at this time slot—Ed.)

6756: WAR46, Nat'l Military Communication/Command Center. Alt. site "R", Raven Rock Mountain, Pa at 0021 in USB wkg NIGHTWATCH 01 for rdo ck on Z165. (Ed.)

6819.5: Unid CW stn transmitting 5FG's. Vy powerful. (TY)

6825: FAV22, French Air Force, F at 0925 w/CW Msgs. (AB) 5FG cut numbers at 0208 in CW (Tue). (CS) (poss same stns—Ed.)

6835: GFL22, Bracknell Meteo. UK at 2035 in 75/425 RTTY w/wx info. (EW)

6871: HEP7, Interpol Berne, at 0921 in CW w/CQ DE HEP7. (DG)

6916.2: RFLIGE, St. Jean du Moroni, French Guiana, at 0400 in ARQ-E 192/170, tent ckt GEG (return ckt for 6643), back on 3554.2 next night. (AWH)

6992.5: Various Royal Navy Sea Cadets stations, G at 1010 in USB. MFP34, MFQ40C, MFJ04 and MFP29 were active (AB)

7468: OZU25, MFA Copenhagen at 1225 in Twinplex 100/400 w/diplo t/c. (DG)

7558: RJF94, unlocated Royal Navy at 0948 in CW w/prosng & chatter. (DG)

7600: YL/EE in AM mode at 1506 repeats 1-0 counts & "427-427-427" until 1510, then 10 beeps. "count 104, count 104", & into 3/2F groups. "End" at 1530. Shortened group count probably intended to cut xmsn time for practice messages down to a half hour. (DS)

7836: Unid "R3G" w/RYYR & encryption at 0730 in 50/170 RTTY. (IJ)

7857: 4XZ, Israeli Navy Haifa w/CW marker at 0500. (IJ)

7880: DDK3, Hamburg Meteo at 0549 w/120/576 FAX wx chart. (DW)

8038: V5G, MFA Bucharest at 1801 in RUM-

FEC 164.5/400 w/diplo t/c. (DG)

8108.2: RFQP, French Forces Djibouti at 1951 in ARQ-M2 200/425 idle. (EW)

8122: HMAS Moresby, RAN Survey Vessel #73 at 1045 in USB clg Canberra Control no joy. (DW)

8125: Unid net, RTTY bursts fol by YL/EE "This is the KDX50 net." Then w/special ann of net meeting cancelled, Hrd at 1636 in USB. (RK) (FAA Net, poss KDM50, Hampton, Ga, which is a Wed NCS sta—Ed.)

8160: Russian Man at 0239 (Sun) in USB, in progress, booming in at S9+60dB. (CS)

8190: 'Alpha Whiskey' AAW (Air-Anti Warfare) net at 2100 in USB w/various single letter C/S's utilized. American & English accents heard. (BOZ)

8255: ELCP5, M/V World Empire heard at 1115 clg Singapore Radio no joy. At 0418 IBAR, M/V Arno clg Rome Radio no joy. Both in USB. (DW)

8300: New Star Broadcasting Station, TWN heard at 1510 in AM w/numbers msg in Chinese (AB)

8465: Unid Russian sta at 1119 in 50/170 RTTY w/l quick TG & off, no ID, definitely

not Kaliningrad on 8466 kHz. (EW)

8634: PPR, Rio Radio, B at 2327 in CW w/CQ DE PPR. (DG)

8686: PKF, Ujung Pandang Radio, Indonesia heard at 1059 in CW w/mkr, into t/c (MLB) at 1100. (DW)

8861: Khabarovsk Volmet at 0945, Irkutsk Volmet at 0955 & Yakutsk Volmet at 1010 in USB. w/avian wx report in RR. (TY)

8894: KLM 588 at 0027 in USB w/kg Alger w/selcal ck AF-HR, ARP AMTES at 0026, FL 330, est Insalah 0120. (TO)

8933: North American 202 at 2230 w/pp through New York to North American Dispatch. (TB) Jamba 002 at 2302 w/kg JNB LDOC w/air-to-air comms & help from SA265 ops normal enrt Entebbe-LHR, departed 2216, ETA 0620, FL 350, est JU 2257, MLK 2305. (TO) Both in USB.

8942: Hong Kong Aeradio at 0925, Singapore Aeradio at 0930, Manila Aeradio at 0935 and Bangkok Aeradio at 0936, w/kg various a/c in USB. (TY)

8965.5: LIMA 6 ROMERO clg NAWS, 17F answers, adv 3 'foxes' fired, oprs had Dutch accents, hrd at 2049 in USB. (RK) (NAWS is NATO/Allied WarShips—Ed.)

8990: Spy stn hrd at 0200 in AM, YL/SS w/"atencion 23801" 0200 to 0210, then 5FG's, off at 0230 w/"finale" x 3. (RK)

9018: GASER 91, probable MC-130P "Combat Shadow" of 9th SOS, Elgin AFB, FL at 0205 in USB w/kg GASER 92 w/authentications then in-flight chat, also ID'ed as LEAD & LEAD 2. (Ed.)

9025: Offutt at 1410 in USB w/kg unid a/c (gave tail number 350250), a/c said testing on ALE #2 but his ringback not w/kg correctly, some ALE bursts noted on channel. (AWH) (no 350250 I can find—Ed.)

9031: Unk sta at 1730 in USB simo keying 9031/6739/4724 kHz. Accent vaguely British. (BOZ) (RAF Strike Command Integrated Communications System—STCICS freq. Ed.)

9130: YL/EE at 1601 repeats "EZI2" in NATO phonetics. On another day, YL/EE at 1730 repeats "EZI" in NATO phonetics until 1733, then "Message. Message. Group 39, Group 39. Text. text." & into 5LG's, also heard at 1230 and 1400 skeds. All USB mode. (DS)

9362: DGJ36L1, PIAB Bonn at 1542 at FEC-A 96/400 nx items. (DG)

9983.7: Unid at 2215 in ARQ-E3 100/400, on several evenings now, no t/c or CdVs. (AWH)

10132.3: TNL, Brazzaville Aeradio, Congo at 1848 in 50/650 RTTY wx info, FZAA headers. (EW)

10655: Unid FAPSI stn at 0840 in 75/500 RTTY w/5LG's. (DG)

10708: Unid Polish Military w/RYYR & msgs to UNIFIL Forces heard at 0700 in 50/425 RTTY. (IJ)

11175: PINON 13, U-2R, at 0036 in USB w/kg McClellan, req they pass msg to Beale AFB for "Ops normal" at 0023. (DW)

11217: SAM 204 at 2128 w/kg MacDill w/pp to Panama re Joint Op, J.R.O.C? (JM) (Joint Requirements Oversight Council—Ed.) At 1833, MacDill w/pp for SPAR 84 to MacDill base ops. (MF) Both in USB.

11229: Andrews VIP at 2115 in USB w/kg SAM 204 w/pp from General on board. (BOZ)

11341.5: OZU25, MFA Copenhagen, Denmark selcall'ing TPEP & w/msgs at 1000 in Twinplex. (IJ)

11402: Unid CW stn at 2249 w/5FG's, signed down w/000 000. (TS)

11416: YL/RR in USB mode at 1123 passes 5FG's, ratty sigz, & very sloppy delivery. Hrd on another night between 1209-1212 w/typically sloppy delivery & ratty sigz, abruptly down at 1212. (DS)

11538: Rescue Operations heard at 1720 in USB w/kg Jolly 26 for radio checks. Jolly 26 advised this frequency was 'worse than before', adv go back to original frequency of 5694 kHz. (BOZ)

11557: V5G, MFA Bucharest, ROU at 1954 in ROU-FEC 164.5/400 w/circular t/c to consulates. (Ed.)

12268: GEORGETOWN, unid at 0143 in USB clg OP2 (Opie ???). (DW) (same as 4152 stns Ed.)

12561.5: UVEZ, mv Novoukranika, at 0934 in 50bd RTTY w/msgs. (AB)

12727.5: LGB, Rogaland radio, Norway at 0828 in CW w/de lgb. (EW)

12843: KFS, Palo Alto rdo, CA at 2318 in CW w/wx bdest. (TS)

12883: Valentin radio, Russia at 0900 in CW w/traffic list. (EW)

13270: Honolulu Radio w/kg Korean Air 017 in USB w/posn report, told to contact Anchorage Center. (TF) (UTC?—Ed.)

13285: Beijing Volmet in USB heard at 0025 w/wx. (TS)

13339: Unid Alitalia flight at 1710 in USB w/kg Roma w/flight ops in Italian. (TB)

13457: KIA21, unid, at 1704 in USB clg unid stn w/no reply. (TB) (FAA Oklahoma City, OK—Ed.)

13533: YL/EE in USB at 0730 repeats "EZI2" in phonetics. (DS)

13900: BMF, Taipei Meteo at 2120 in 120/576 FAX w/plaintext Chinese text, this is reportedly a plaintext fisheries wx forecast. (DW)

14396.5: KJK79, FAA, Jacksonville, FL at 1736 w/kg Navy MARS NNN0VUV (as NCS) w/ck in during NCSE Exercise 97-1; ltr w/kg WWJ59, FWHA Montoursville, Pa; at 2130 KMA65, DOE, New Orleans, La w/kg AAA6USA, Army MARS Fort Sam Houston, Tx w/ck in. (Ed.) Many NNN0 stns at 1650 checking into net. (TB) All in USB mode.

14448: CLP1, MFA Havana, Cuba with nx in EE at 2000 in 50/500 RTTY. (IJ)

14470: NNN0CYT, USS Yorktown MARS stn at 1725 in USB running patches through NNN0ERA. (TB)

14654.5: SPW, Warsaw radio at 1350 in FEC w/maritime t/c list. (DG)

14686: USCG 6581 at 2224 w/kg ATLAS w/pp to AIRSTA Miami, 6581 is airborne from Greater Antigua. (DW) ATLAS, at 1720 w/kg 15 CHARLIE asking if he had any luck contacting PANTHER. (TB) Both in USB (ATLAS is Customs/DEA comms ctr, Rockwell-Collins, Cedar Rapids, IA—Ed)

14781.5: "CJL" Mossad, Tel Aviv, Israel w/encryption ended msg w/"Have a nice day too CIA" at 0700 in ARQ-E 96Bd. (IJ)

14927.7: French Forces, Provence, F at 2135 in ARQ-E3 192/400. CdV on ckt LFB; return link BFL on 15961.7 at time. (AWH)

15462: JANA, Tripoli, Libya at 1750 in 50/425 RTTY w/FF nx under SWBC stn to 1758. (Ed.)

15861.7: RFFX, MOD Paris (assumed) heard at 1146 in ARQ-E 96/400, idling, no traffic. (RH2)

16084: Lincolnshire Poacher nbr stn in USE heard at 1015 w/5FG's in EE, also on 14487 kHz. (TY)

16335: FZS63, St Denis Meteo, Meteo de France, at 1135 in 120/576 FAX w/Indian Ocean wx. (RH2)

16432: 3EIMC, Zanzibar Rdo at 0830 in USB clg M/V Pina, no reply. (RH2)

16800.5: UBDK, TR Mathias Thezen heard at 1102 in 50/170 RTTY w/crew TG'S to Murmansk. (RH2)

16880: XSQ, Guangzhou Radio, CHN at 0248 in CW w/marker. (LF)

16911: JNA, Japanese Maritime Safety Agency (JMSA), Tokyo, J at 0247 in CW w/marker. (LF)

16966: SV16, Athens radio, Greece at 0929 in CW w/de svi6. (EW)

16985: VRX81, Hong Kong at 0245 in CW w/marker. (LF)

18064: MFA Warsaw at 1130 in POL-ARQ 100/340 w/nx in Polish. (RH2)

18376.5: RPFN, Lisbon Naval at 1300 in 75/850 RTTY w/RYS, ID & foxes. (RH2)

18503.7: French Forces, Provence, F at 1600 in ARQ-E3 192/400, ckt LFB to RFLI, long t/c dump, return link 19101.7. (AWH)

18646.6: PCW1, MFA the Hague, HOL at 0946 in CW w/marker. (AB)

18893.1: MB-0136, unid RR vsl at 1115 in 50/170 RTTY w/TG'S to Murmansk, unusual frequency. (RH2) (ULSU, Russian trawler BMRT Volgobalt—Ed.)

19776.6: MFA Jakarta at 1019 in ARQ w/t/c to Cairo Consul re passport problem. (RH2)

22525: IRM, International Medical Radio, Italy at 0900 in CW w/cq de irm. (EW)

This months contributors: (AB) Ary Boender, The Netherlands; (AG) Alan Gale, UK; (AH) Al Hemmalin, RI; (AR) Allan Renner, PA; (AWH) Albert W. Hussein, FL; (BF) Bill Farley, NM; (BOZ) Richard in Iceland; (CS) Chris Smolinski, MD; (DG) Dave Gentile, UK; (DS) Dave Sabo, South Korea; (EW) Eddy Waters, Australia; (IJ) Ian Julian, New Zealand; (JM) Jim McLeod, MD; (JSM) Steve McDonald, BC, Canada; (LF) Larry Fields at sea, near Guam & Okinawa; (MF) Mike Fink, FL; (RH2) Robert Hall, Capetown, South Africa; (RK) Rich Klingman, NY; (SD) Scott Miller, TX; (TB) Tim Braun, VA; (TF) Trevor Fletcher, Calgary, Can; (TO) Tony Orr, VA; (TS) Tom Severt, KS; (TY) Takashi Yamaguchi, Nagasaki, Japan; (UT) Logs from Utah w/no name; (WP) Walt Petersen, FL; and (Ed.) ye editor in Ohio. Thanks to all. ■

27 MHz COMMUNICATIONS ACTIVITIES

Cherokee's Fantastic New SSB Base Station

It wouldn't surprise me that in the year 2017, CBers of the twenty-first century will look fondly back and say, "Remember those great CBs they made in the late '90s?" If that happens, it's a sure bet that the Cherokee CBS-1000 AM/SSB base station will be counted among the greats.

There has been a lot of interest in the new Cherokee base, as there always is when a new base station is introduced. So let's take a guided tour of this new radio. At upper left, there is a power button. Press it, and the radio springs to life with all the controls set exactly where you left them. To the right of the power button is a transmit power meter. To the right of that is a meter that calibrates and measures the SWR and modulation.

To the right of the meters is a back-lit liquid crystal display that serves as the information center for the CBS-1000. It displays channel and frequency as you might expect, but it also displays other operating information, such as whether the noise blanker, automatic noise limiter, dual-watch function, and other capabilities, are activated. At the far upper right corner of the front panel are eight buttons that control various functions of the radio. More about that in a moment.

Just below the power switch is a head-phone jack, and below that, a connector for the hand microphone that comes with the CBS-1000. To the right of that, a knob for volume, followed by knobs for squelch, RF gain, MIC gain, clarifier, channel selector, SWR calibration, and a three-position switch for setting the function of the SW/CAL/MOD meter. All the knobs are molded of hard plastic with a knurled perimeter, and all but the channel selector knob have a small blue dot that makes it easy to spot at a glance the position of that knob. On top of the radio is a grill for a top-firing speaker, and on the back panel you'll find an AC power cord and connectors for an external speaker and coax.

A Striking Appearance!

The appearance of the Cherokee CBS-1000 is quite striking: a light-gray sculpt-



Cherokee's brand new CBS-1000 AM/SSB base station: an innovative classic.

ed front panel highlighted by dark gray knobs. And the fit and finish of the unit I tested was excellent. At 12 inches wide by 3 3/4 inches high (including supporting feet) by 10 3/4 inches deep (including knobs and protrusions), the CBS-1000 is slightly narrower and not as tall than the Cobra 2010, and the Cherokee is also a bit deeper.

"... Cherokee has departed from tradition in the way that some of the functions are actuated, but I like the results."

The CBS-1000 also sets itself apart with a combination of features that is simply unavailable on any other base station: 10 NOAA weather channels, including marine; five preset memory locations; one touch access to channel 9 and channel 19, dual watch channel monitoring, auto channel scan and auto memory scan. In short, this transceiver has more built-in tricks than a bridge tournament!

In designing the CBS-1000, Cherokee has departed from tradition in the way that some of the functions are actuated, but I like the results. For example, to select AM, USB, LSB, or weather mode, push the MODE button (No. 5 of the 8 buttons at the upper right of the front panel) until you get the mode you want.

An indicator in the main display will tell which mode is currently active. If you want to go from upper sideband to lower sideband and back again, you have to keep pushing the button to "go around the carousel." But since there are only four possibilities, the mode you want is never more than three button-pokes away.

The Weather Mode and Other Controls

When the weather mode is activated, the main tuning knob can be used to select among the 10 weather channels. And while the CRB-1000 does not have a weather alert function, this radio has the clearest and most sensitive weather channels of any CB that I have tested.

Some of the buttons on the Cherokee have a secondary function that is enabled by the FUNC button. For example, if you want to activate the ANL (automatic noise limiter) circuit, press the FUNC button, then the No. 5 button. A small indicator pops up on the main display to let you know the ANL is activated.

If you press the No. 2 button, you'll activate the dual-watch function. This allows you to set a main channel to monitor and a secondary channel which the radio checks every six seconds for activity. If there is activity on the secondary channel, the radio holds there until it

ceases. If you transmit on the secondary frequency, the dual-watch function is deactivated and the transceiver stays tuned to the secondary channel.

“... this radio has the clearest and most sensitive weather channels of any CB that I have tested.”

If, however, you press the FUNC key and then the No. 2 button, you will activate the noise blanker, and an indicator will appear in the main display. Similarly, if you press the No. 4 button, you will activate the SCAN function, which will cruise through all 40 channels until a signal breaks the squelch. But if you press the FUNC button and the No. 4 button, then you activate a scan of the five memory channels.

To store a channel in one of the memory presets, first select the channel you want to store with the channel selector, press the FUNC button, followed immediately by the MEM button. The letter “S” will appear on the display. Then press the Memory Location button (1-5) where you would like to store the channel.

To access a channel stored in memory, press the MEM button. The letter “L” will appear on the display. Press the number (1-5) of the Memory Location that you desire. The channel stored in that memory location will appear on the display.

While this operating scheme may sound complicated, in operation it is actually quite simple. It took me about five minutes to learn how to make everything work. I particularly liked the SCAN function—if you wake up in the middle of the night and want to know if anyone is on the radio, just set the squelch, press SCAN, and let the radio do the rest.

Wait, There's More!

During my explorations with the CBS-1000, I also discovered an “undocumented feature.” If you press the No. 1 button to activate instant Channel 9, it will appear on the display and flash. You can then use the channel selector knob to switch between instant Channel 9 and instant channel 19. Neat!

A curious feature of the CBS-1000 is a coarse clarifier button. Press it once in SSB mode, and the receive frequency jumps UP 5 kHz. Press it again, and the

receive frequency DROPS 5 kHz. In ordinary sidebanding, I found no use for this feature, but it doesn't take Einstein to realize that if the clarifier were unlocked, you'd have an instant 5 kHz switch. Of course, unlocking the clarifier would be against FCC rules, and we wouldn't want to do that, would we?

Please note that the CBS-1000 has a *frequency display*, not a frequency counter. That means the radio doesn't actually measure the frequency that is shown but instead it displays the frequency that is programmed for a particular channel. For most CBers, this doesn't amount to a hill of beans, but if you're the kind of operator who likes to get inside your rig with a screwdriver... that means you could put the CBS-1000 out of alignment with the frequency display, and you would never know it. Bottom line: Keep the cover on, and you'll be fine.

But as impressive as the features of the CBS-1000 are, a CB transceiver must also be judged by its electrical performance. Here the new Cherokee base station proves it belongs in that rarefied class of “top-gun” CBs. The Cherokee's receiver is a dandy. Sensitivity to faint signals is high—the highest I've observed in a type-accepted CB. Adjacent channel rejection is also very good—right there with other top-of-the-line SSB base stations. The noise blanker and automatic noise limiter work well, as they should. So if DXing is your passion, this is a radio that will work well for flushing out faint signals.

A Quality Transmitter

The transmitter is even better than the receiver. In on-the-air testing, I consistently got remarks like, “Boy, your signal is really clear!” On sideband, the audio is so good that one sidebander told me he liked the quality of the signal better than the signal from my Kenwood TS-850 ham rig. (Incidentally, the tests were conducted offshore.) Wherever I talked, whether on AM or SSB, CBers would tell me about the clear and natural-sounding audio from the CBS-1000.

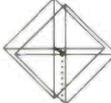
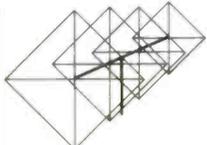
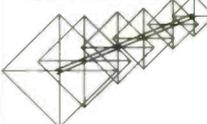
The design that Cherokee has selected for the hand mic that comes with the CBS-1000 is apparently borrowed from the noise-canceling microphones frequently used by truckers. When I first began talking with this rig, I sometimes would get comments like, “Your audio is low.” I tried a power microphone, but it didn't really help—all it did was ruin the great-

sounding audio. Then I tried “swallowing the microphone”—putting the mic right against my mouth—like you would with a Road King or similar trucker's mic. Bingo! The modulation meter began swinging like a bandit, and I started getting highly satisfactory reports on audio quality and strength. So take my advice: put the Cherokee's mic right against your mouth; you won't overdrive the rig, and you won't ruin the audio. And forget the power mic.

“Wherever I talked, whether on AM or SSB, CBers would tell me about the clear and natural-sounding audio.”

To sum it up, the Cherokee folks have really done their homework on this new SSB base station, with solid performance and some ground-breaking features. In doing so, they have created a genuine classic that CBers will treasure for years to come. ■

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The Computer Corner

RECEIVER CONTROL, SOFTWARE AND MORE

Shortwave Listening on the Web

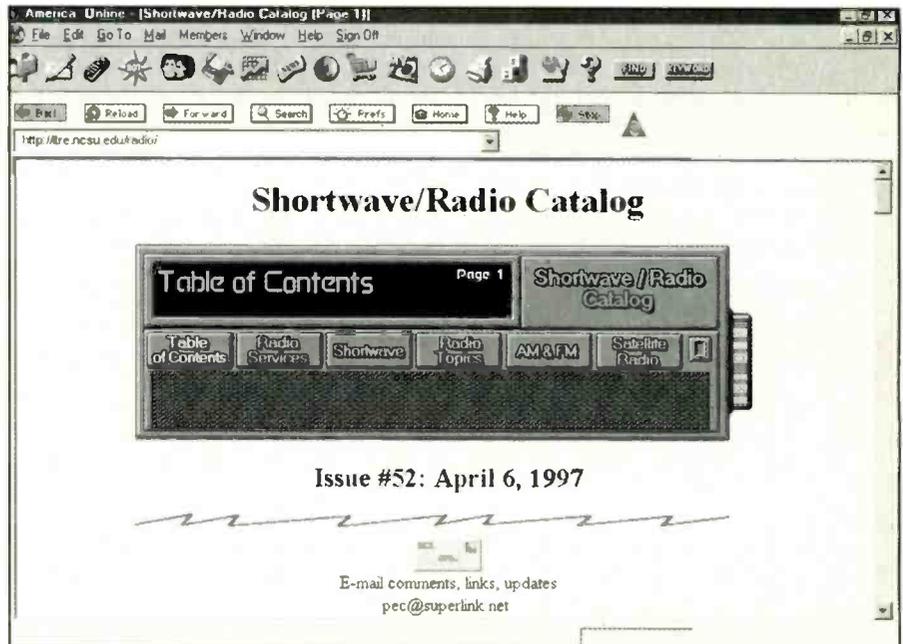
Is there anyone out there interested in shortwave radios? Have you always wanted to get into listening to shortwave, but you're not sure which radio to buy? Are you wondering what stations are available to listen to and where to find them? Well, I found a web site that can answer all of these questions and many more you haven't even thought of yet.

It is "The Shortwave/Radio Catalog" by Pete Costello. The URL address is <<http://itre.ncsu.edu/radio/>>. Many subjects listed in this catalog will be of interest to radio hobbyists. Under Basic Information the web designer states, "The purpose of this document is to provide the shortwave and radio hobbyist with informative and timely links to services and information related to Shortwave Listening (SWL), Satellite radio, and other topics on or about radio." The table of contents gives the headings of General Information, Radio Services, Hardware & Software, Shortwave Radio, Radio Topics, AM/FM, and Satellite Radio.

Under the heading of Radio Services, Hardware & Software are the topics Basic Radio Related Services and FAQs, Radio Propagation, Clubs and Newsletters, Other Info Sources, Utility/Digital/Internet Radio Info, Software, and Hardware. Many of the links note that they are of particular interest to "Newbies" which is a real plus when faced with the countless number of radio links recorded here. A couple of links that a newbie might want to check out include Shortwave Radio Reviews at <http://vectorbd.vivanet.com/sw_review.html>. Here is a collection of SW receiver reviews written by readers of <Rec.radio.shortwave>. A number following the brand and model number is the number of readers who indicated they use this type of receiver.

Beginning Shortwave

Next, check out Beginning Shortwave at <<http://www.mcrest.edu/~moore/begin.html>>. Don Moore <moore@acc.mcrest.edu> has created several web



Visit the Shortwave/Radio Catalog at <<http://itre.ncsu.edu/radio/>> for tons of information about Shortwave listening.

pages for those who are beginning to tune in and turn on to shortwave radio. You will find guidance on what there is to hear, radio hardware, radio suppliers, and where to get more information, including books and web sites. This is an important site for those radio hobbyists who would like to get the most out of international broadcast listening.

There is also a section on Clubs and Newsletters. The North American Shortwave Association and the Association of North American Radio Clubs have listings here. Other clubs and newsletters are listed here for the countries of Finland, Sweden, Australia, Russia, India, Czechoslovakia, Brazil, the UK and others. There is also a club made up of employees, retired employees, relatives or friends of employees of the R. L. Drake Company of amateur radio fame. They use vintage Drake equipment. This page is for the specific use of the DRAKE Amateur Radio Club and not that of the R. L. Drake Company. It is at <<http://magwa.i-sol.com/DRAKE/>>. And, there

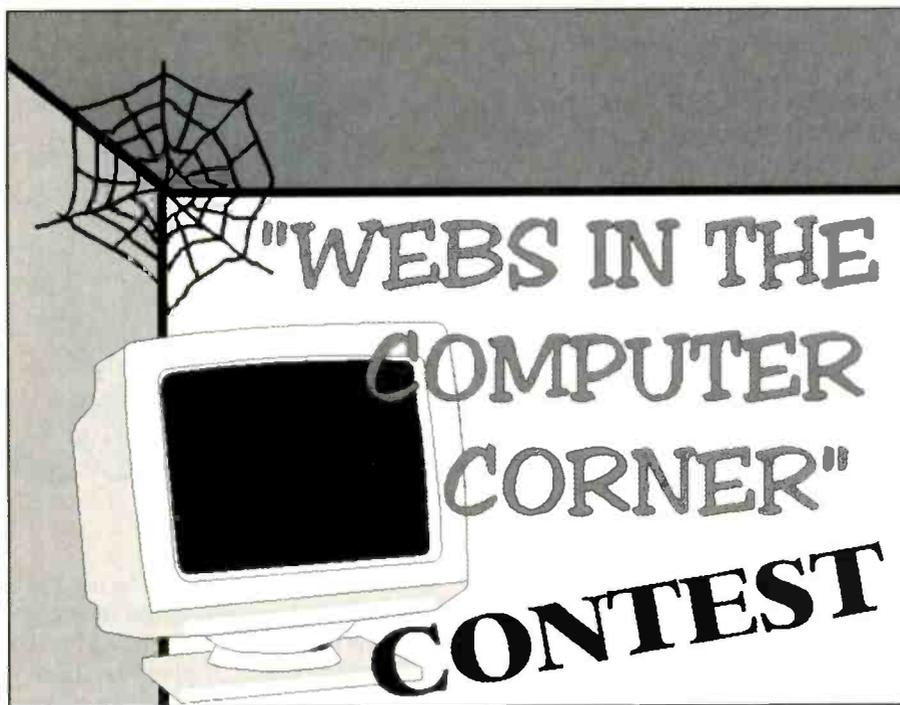
"The first 100 URL addresses I receive will be considered for this contest."

is the Bearcat Scanners club at <<http://www.bearcat1.com/bearcat/>>.

Interested in Africa?

Are you interested in Africa and radio topics on this continent? You can find a link under the heading of Other Info Sources for Electronic African News at <http://www.sas.upenn.edu/African_Studies/Electronic/menu_Electronic.html>. Here you will find links to find African Broadcast Frequencies, BBC Arabic Language Broadcasts, Ethiopia: Seven Days Update, Radio Moscow Service to Africa, Radio Nigeria, and even Telephone Area Codes of Africa.

Farther down on page two are listings for various software for shortwave listening and logging of calls. Below that



"If there is enough interest or an overload of entries, it is quite possible that another contest will be started right away!"

subscription to *Pop'Comm* or a one-year extension on a current subscription!

Let's Expand on the Judging Criteria

Content & Design—Are the words spelled correctly? Is proper grammar used? Basically, does the text on this page make sense? Additionally, do the color of the words and the color of the background compete and make it difficult to read the text? Does the design of the page get across the message that was intended?

Ease of Use—Can the judges (and your fellow readers) start loading your page and have enough time to grind, brew and drink a pot of coffee before your page finishes loading?

Technical Effects—Does this page make use of interesting fonts, graphics and other files? How much wiz-bang is too much? Will readers look at this page and be impressed or bored?

You can send your contest entries to <BSZ3866@AOL.COM> and mark the subject line "Webs in the Computer Corner." If there is enough interest or an overload of entries, it is quite possible that another contest will be started right away! Thanks for stopping by, and we'll see you again in October.

Bonnie Zygmunt

are links to numerous hardware providers, including manufacturer's and retailer's web pages. Once you've read the reviews you can then go comparison shopping using these links.

Webs in the Computer Corner Contest

Now for something brand new. Are you an accomplished web master or maybe a first-time web page designer? Have you created a personal home page or one for your ham club, scanner club or other group? With this issue we are beginning

a web page contest. Send me the URL address of the web page you've created and enter the *Pop'Comm* "Webs in the Computer Corner" Contest. The first 100 URL addresses I receive will be considered for this contest. I will print the addresses in future columns as they come in, so all the readers can scope them out. It is not necessary that these web pages be related to radios. The judges will choose the top three web pages based on content & design, ease of use and technical effects. The decision of the judge, yours truly, will be final. And tell them what they win, Johnny! Each of the three winners will receive a FREE one-year

The HOKA Code-3 Gold

If you've spent any time tuning through the HF radio spectrum, you've undoubtedly heard some strange sounding non-voice signals that made you wonder what they were, who was sending them, and what information might they contain. HOKA Code-3 Gold may just be the answer to your questions if you own an IBM compatible PC and are willing to spend a little money to unlock the mystery of digital signals.

Keep in mind that due to the number of military and classified systems in use, no software available to the hobbyist will be able to decode heavily encrypted sys-

tems, but this product decodes all of the most common ones, and even more with the additional shortwave option.

For those of you that may have heard of the HOKA products, but may not have a clear understanding of the difference between Code-3, Code-3 Gold, and Code 30, here's a quick rundown of their features and differences.

HOKA CODE-3 is a IBM PC software and external audio to digital converter setup. The external converter has a built in 115 Vac power converter that plugs into a wall outlet. Twenty six modes are standard, and there are additional op-

tions available. The software is for DOS systems. CODE-3 could be run on a 386-DX 40 or better, although a 486 is strongly recommended. Code-3 could be run off of a floppy, although it is not recommended. Many different HF communications modes are supported via both standard and optional modules.

HOKA CODE-3 Gold is similar, but it's interface gets it's power via the computers Comm port, so no external power adapter is required. It adds additional features for VHF and UHF monitors such as ACARS used by aircraft and POCSAG used for paging. It can be seen as a prod-

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uct that expands upon the features of CODE-3. A shortwave option is available that adds to the number of modes the Code-3 Gold can decode.

One of the differences between HOKA CODE-3 and CODE-3 GOLD is that the audio-to-digital converter for the GOLD version is housed in an RS-232 shell that requires no external power source. The shell has a DB-9 connector on one end, and a DB-25 on the other. Either end may be used to connect it to your PC's comm port, and Code-3 Gold must be installed to a hard disk.

HOKA CODE-30 is a DSP-based professional decoder that is considerably more expensive than either Code-3 or Code-3 Gold.

Reviewing the Code-3 Gold

So let's look at the Hoka CODE 3 GOLD which is a product that allows the decoding of data sent via radio, using software running on an IBM compatible PC (486DX 33 or better) and using an audio-to-digital converter that attaches to an available PC comm port (1 through 4 are supported), and an audio output cable from the radio being used. The program runs on any MS-DOS version from 5.0 and up, and requires at least 640k RAM.

The display adapters supported include IBM compatible VGA and SVGA or Enhanced VGA cards based on the TSENG ET3000/4000/4000W32 and TRIDENT 8800/8900/9000 chip sets. It may be possible to use it with other cards, but they warn against flaky operation when trying to decode faxes. A video card with at least 512k of graphics RAM is strongly suggested. If you wish to print FAX pictures, your printer must also be 100 percent IBM Proprinter 1/2 Graphics compatible. The program, which takes up approximately 2 Mb of disk space, must be run from DOS and not while Windows or Windows95 is running.

For this review a 486DX 33 with 8Mb of memory and a Drake R8 receiver were used. A simple RCA audio cable was run from the audio out jack on the back of the R8 into the small audio-to-digital converter's cable.

Navigating the Program

The software features on-screen menus which are navigated using the Pg. Up, Pg. Dn., and cursor arrow keys. All of the features are organized under six different main menus which are MODE, ANALYSIS, FILE, INFO, TOOL, and QUIT. Hot Keys are also available using Function Keys that call up features from most anywhere in the program. One of the first screens to check is the AD Level scope on the Analysis menu. You use this to see if the audio signal from your communications receiver is too low, too high, or just right for decoding. Some receivers may require the audio output to be attenuated in order to not overload the Audio-to-Digital converter. ATC is Automatic Threshold Control; this feature can compensate for a small amount of receiver or signal frequency drift.

Baud rate can be auto-detected or set by the user. A bar graph tuning display may be used to aid in tuning in and centering the frequency. This bar graph has tick marks every 100 Hz.

Decoded data is easily saved to disk and may also be viewed using the program. A feature that makes reading the text on screen easier, and saves paper when printing out decoded data, is the multiple carriage return inhibit function. The Shift speed may also be manually set. Signal analysis is possible using several features. Shift Speed Measurement can be performed using a graphical audio spectrum analyzer. A horizontal scale is used to gauge the Shift and Center Offset, and the baud rate can also be calculated.



An Oscilloscope display can be used as a tuning aid, because it displays frequency over time information. The top half of the Oscilloscope screen displays the signal's sampled audio frequency data over time, while the bottom half displays the data in real time. This display can be paused, reset, and adjusted to the users liking.

Auto Analysis will automatically try to match the incoming data with one of the many modes that HOKA 3-Gold can decode. Typical operation is a three-step process. The first step is to tune your receiver to the signal you wish to decode. The second step is to press the F1 function key to start the baud speed and shift measurement screen. After accurate shift and baud measurements have been performed, the third step is to hit ENTER and let the Auto Classification feature identify the signal if possible, and begin displaying the decoded data on screen. The first time I tried the software on a HF Morse code CW signal, I had it decoding a solid copy within a minute or so. I also found it very easy to use the ACARS decoder for copying the many messages sent by commercial airliners in my area on VHF.

HOKA CODE-3 Gold comes with a well illustrated 66 page user's manual, and it's a good thing. Even though the software contains tuning aids and auto classification of signals, if you are unfamiliar with digital decoding as I was, reading and referring back to the manual helps you learn both the operation of the software, as well as some concepts that relate to digital signals and decoding them. Purchasers of products from Computer Aided Technologies can take advantage of their telephone support line, and/or support via e-mail. The product, which costs \$425 (plus \$10 shipping/han-

ding, comes with a 12-month guarantee on the audio-to-digital converter and program diskettes. The U.S. distributor for HOKACODE-3 Gold is Computer Aided Technologies, P.O. Box 18285, Shreveport, LA 71138, phone 318-687-4444. We thank them for the loan of a copy of the software and hardware to facilitate this review. Their web site is located at <<http://www.scancat.com>> and their e-mail address is <scancat@scancat.com>.

Radio Manager for Windows

Radio Manager for Windows adds support for the new RadioShack PRO-64 scanner in it's version 3.05 release. This shareware program features a modest registration cost and many features including support for multiple radios, the Opto Scout, and Opto Xplorer. The new RadioShack PRO-64 scanner features a computer interface for downloading frequencies into the radio. No provision was made for uploading them, or for computer control. Details on Radio Manager for Windows can be found at the following web

site: <<http://www.interplaza.com/bensware/rm.htm>>.

CHP Dispatch On-Line

The CHP has placed information from it's Computer Aided Dispatch (CAD) system online, providing very near real time updates for incidents out of it's various dispatch centers. This is one of the best combinations of public safety and a web site that I've ever seen, and you can see it to by pointing your browser at <<http://cad.chp.ca.gov>>. Check out the Golden Gate Communications Center link if you want to know what traffic is like in the Bay area. Click on an incident number to see details such as the unit numbers that have been dispatched.

Coming in October

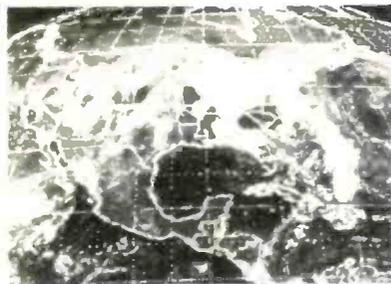
My apologies to those that were looking forward to a review of MacScan 8000, the computer control package for Macintosh and AR8000 users, in this edition. I ran into some availability problems with the Macintosh that I had arranged to use

"The first time I tried the software on a HF Morse code CW signal, I had it decoding a solid copy within a minute or so."

in order to perform the review, and only spent a very limited amount of time with the software before the deadline for this column had come and passed. Rather than make my editor any grumpier and provide a limited review for the readers, I've pushed that review back into the October column. I also will provide some other timely information on how computers and radios working together can help make your listening more enjoyable. If you've got something to add or suggestions for future column topics, please send me e-mail at <griffined@sprynet.com> or send me snail mail via the *Pop'Comm*, 76 N. Broadway, Hicksville, NY 11801. Until then, good listening!

Ed Griffin

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CIRCLE 67 ON READER SERVICE CARD

August 1997 / POPULAR COMMUNICATIONS / 73

The ACARS Downlink

BY BOB EVANS

YOUR LINK TO DIGITAL AIRCRAFT COMMUNICATIONS

Downlink Messages from British Airways

Anyone following international ACARS traffic has certainly come across downlink messages from British Airways. Thanks to a BA captain, who shall remain anonymous, I am able to share the following insight as to message content.

ACM—Aircraft Maintenance Report

On the 747-400, just before top-of-descent, the crew is required to downlink a CMC (Central Maintenance Computer) report. This contains all the CMC- detected faults for the sector so far. The report also includes all the NON-FDE (Flight Deck Effect) faults detected. These reports consist of fault codes, maintenance manual references etc.—hence the strings of numbers.

G-BNLP 102 2325 BA0115
ACM01EGLLKPIIL1751ACM231B

.G-BNLP 103
0334BA0115 2 520027025
059076185 65114606 -61111 88413901257000 081000 3800028901399655 1
197 913 919 860 5584 8196 332718921322456356804263 79491559... 39 508
8-167136115591767082015050102161 62121614 141 3701

.G-BNLP 104
0355BA01155401398970 1197 9
08 914 861 5448 8136 334918731307414655904174 78791560100 38 5078-167
137515571768047019052073 49 79114609 191 37033101399951 1197 909 92
3 856 5392 8162 33411890 76459755154224 7887156

.G-BNLP 105
0403BA01150130 36 5074-16713651
5611768285012036293352 63119616 161 340

CMC—Current Maintenance Report

Those codes are part of the groups of characters at the right-hand end of the reports below. The "I" means Intermittent, "HA" means a Hard, i.e. continuing, fault. "NA" means fault status Not Available. The flight phase "LT I" remains unknown.

The a/c may eventually have two CMCs, hence L-PRESENT on line three is the only one fitted (in the Left position). PG1 is simply page 1. RPT1 means report no.1 for this sector. There should be a 5-digit header, a 13 digit date/time stamp in the format ddmmmyyhhmmss followed by an 8 digit alphanumeric group which gives the Fault Reporting Manual code. Of this 8-digit code, the first 2 digits correspond to the ATA chapter code, the next two give the subsystem, the next two the fault and the last two often—but not always—give the position, engine number or left/right or system number.

The groups end with 01 = left or number 1, 02 = right or no. 2 etc. If no position info is available or relevant, 2 other letters or numbers may be inserted.

.G-BNLP 10 2 2351 BA0268
CMC01KLAXEGLL1546F/.

0A RPT1 PG1 L-PRESENT LEG FAULTS SUMMARY
B G-BNLP 08MAR96 1023 BAW268 KLAX/EGLL 685-2270-008 RR-008
C 71062300A
D 7166308MAR9606067100 CLNA
D 7162808MAR9606067100 CLNA
C 21501600
D 2111608MAR9605592151V423 ICI
D 2111308MAR9604572151V93 TAI
D 2112208MAR9605562151T534 TAI
A 283121 0A
D 2865508MAR9605562831M224 TAI
0268508MAR9605562831M224 TAI
C 215017 0
D 111608MAR9605592151T423 ICI
D 2111308MAR9605572151V93 TAI
D 2112208MAR9605562151T534 TAI
NON-FDE FAULTS
F 3426788MAR9609053451 ERI
D 2803408MAR9608492841M7874 ERI
D 2803308MAR9608102841M7873 ERI
D 3255808MAR9607463261X402 ERIHA
D 3428708MAR9606003451 CLI
D 3800408MAR96055 3832 TAI
D 380 108MAR9605503832 TAI
D 2114108MAR9605492151T1599 TAI
D 2740108MAR9605472730B169 ESI
D 3402608MAR9605453 43 LTHA
D 2145808MAR9605452126H527 LTHA
D 77662426BA0268 LTNA
D 380 108MAR960545385 LT A
D 3800208MAR9205453832 LT A
D 4901908MAR9605454911T1511 LTHA

Departure Information Advice

An OUT/OFF event is declared for BA when the doors are closed and the brakes released (CLOSEDRLS) also giving the time (13hrs 15 mins 50 secs. In the OFF message below message below, the group BA7K042594 refers to the ACARS software build date. NVD stands for No Valid Data and INOPER indicates that the cockpit thermal printer is switched off. (It seems that a design flaw causes the printer to overheat and set the paper on fire—so for now, the fix is to leave the printer powered off).

2 .G-AWNJ 10 5 4838 BA0094
DIA01KDTWCYMX0234BA7K042594OFF CLOSEDRLS1315500K N/A
OK NVD NVD
NVD N/A NVD INOPER

FST—Flight Schedule Times

Flight Schedule times report 01 for GBNLD LHR to SEA position N5616.37 W00415.34. Altitude 31009 feet, wind 260/124, OAT minus 055 degrees, the next group is a mystery, but I suspect the last 4 digits represent an ETA for SEA.

X .G-BNLD 10 9 5917 BA0083
FST01EGLLKSEAN561637W004153431009260124M055C039281334331452
XS2334

INI—Initialization Report

This Initialization report, downlinked from the aircraft at the beginning of the flight, is for a DC10 from Atlanta to Gatwick. It shows a fuel uplift of 70.7 tons, a flight time of 7h 20m, Captain Geoff Leask in command with F/O Ian Hibberd and F/E Mike Park. The crew reported for duty at 1950z. The groups LEAKZ, HIBDI and XPAKM are the five-letter name codes for the aircraft crew members.

If I tell you that the code for Bob Evans would be EVASB, you should be able to work out for yourself how the codes are derived! Flight Engineer codes always start with an X.

```
2 .G-BEBL 10 3 0612 BA0226
INI0117KATLEGGK0707020LEAGK 1950HIBDI
1950 1950 1950 195
0 0000XPAKM 1950
```

The next 3 are examples of OOOI reports. I.e. Out, Off On, and In. Out from the gate—doors closed, brakes released; Off—airborne: on—landed: In—brakes set to park, doors open.

Below you can see that DC10 GBEBL landed at Atlanta at 1748z, no IN time recorded, was off blocks at 2049z and airborne at 2106z.

OFF—OFF Report

```
2 .G-BEBL 10 4 0627 BA0226
OFF012106
```

ONN—ON Report

```
2 .G-BEBL 10 0 4856 BA0227
ONN011748KATL
```

OUT—OUT Report

```
2 .G-BEBL 10 8 4958 BA0226
OUT0120492049
```

This next one is unusual—most stations do not send this info to the crew—they know it already! The info relates to the same DC10-30 flight from Atlanta to LGW. There's that 70.7 tons of fuel I mentioned. The TIF is the Trip Fuel—i.e. the burnoff. The regulated takeoff weight is 250 tons.

WAB—Weight and Balance

```
2 .G-BEBL 10 H
```

```
:WAB 11 .BBSWRBA -IFNL FUEL
(uplink from ground station—:WAB)
FINAL FUEL FIGURES NUMBER 1
BA0226 LGW D30 GBEBL
70700 KILOS
TIF 60200
RTOW 250000
1950Z 170CT
END
```

—[17/10/1996 15:50]

The next message is a final loadsheet transmitted to the a/c nine minutes after pushback, but eight minutes before takeoff giving the accurate takeoff load. The captain would have been given and signed a provisional loadsheet (usually referred to as Issue 1) in the operations office before boarding the office. This message gives the changes. ZFW—zero fuel weight in tons, TOW—takeoff weight, PAX—passengers. MACZFW—mean aerodynamic chord ZFW i.e. zero fuel trim, MACTOW—trim at TOW, LIZFW—laden index at ZFW, LITOW—laden index at TOW.

Remember that the fuel loaded was

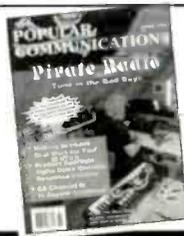
70.7 tons. The fuel remaining on takeoff is planned to be 226.3—156.9=69.4. The a/c is therefore expected to burn 1.3 tons during taxi.

```
:WAB 11NIL
CHANGE FM ISSUE 1
BA226/17 17OCT96
ATL LGW GBEBL
```

```
ZFW 156.9
TOW 226.3
PAX 220 PLUS 1
MACZFW 18.0
MACTOW 21.7
LIZFW 84.9
LITOW 103.2
```

.....
2058Z 17OCT

Remember to send along your ACARS experiences. What have you monitored recently? Send along your shack photos and examples of your monitoring to me at *Popular Communications*, 76 North Broadway, Hicksville, New York 11801. ■



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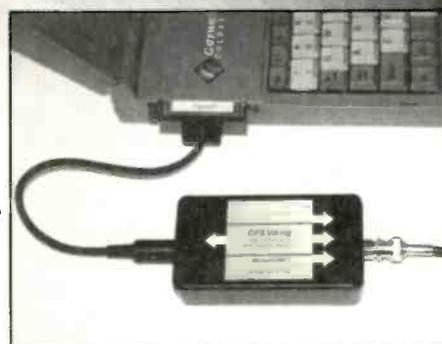
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The Ham Column

GETTING STARTED AS A RADIO AMATEUR

Be Safe, Not Sorry!

When I was a brand new 13-year-old ham, I didn't have a high-tech rig and a goody-laden shack—even by 1975 standards. What I did have was a TCS-6 AM/CW transmitter/receiver combo that was given to me by the hams of the local Civil Air Patrol chapter. It was a WWII relic and, although it was in decent shape and worked OK on 80-meter CW, that old boat anchor almost ended my then short-lived ham radio career.

“A loud electric snap punctuated the fact that I had been thrown across the room!”

No, its clumsy ergonomics and “old-world” technology didn't dampen my enthusiasm for the hobby—the thing almost killed me outright! To be truthful, I almost killed myself, even though I was being quite careful at the time.

The transmitter needed an adjustment, and I had it opened up—and fired up—on a plywood workbench in the basement, near my operating position. As an added safety precaution I was standing on a thick rubber mat I had placed on the concrete floor.

During the adjustment, as careful as I was, my foot edged off the mat and onto the bare floor. Somehow, because the screwdriver I was holding contacted a high-voltage source, or because of a grounding fault, a tremendous jolt of electricity slammed through my body. A loud electric snap punctuated the fact that I had been thrown across the room! I hit the wall and crashed to the ground. The air had been expelled from my lungs and my heartbeat was faltering and irregular. Braaaap, it fluttered, bouncing around inside my chest. The room was spinning, and I thought I would soon be dead.

After an endless dozen seconds or so, my heartbeat finally returned to normal and my head started to clear. That incident—which forged a heightened respect for my own mortality—was a lesson I never forgot. Later, in college, I was



Does your test bench have a master electrical shut-off?

excruciatingly careful as I homebrewed linear amplifiers and tube-type amateur transmitters. My caution paid off and I had no further “accidents.”

Other Hams Haven't Been As Lucky!

In the mid-'80s, an experienced North Dakota ham was killed when a vertical antenna he was installing accidentally touched an overhead power line. In the late '80s a life-long ham from Texas, with thousands of hours behind the key and test bench, was fatally shocked when he touched a high-voltage line inside his linear amplifier. Had he lived, he would have had to adjust to the fact that the powerful jolt had charred his hands completely off his body.

While operating from remote locations, hams have electrocuted themselves by running power cords (plugged into gas-operated generators) through standing water. And more than a few hams have been killed by lightning strikes.

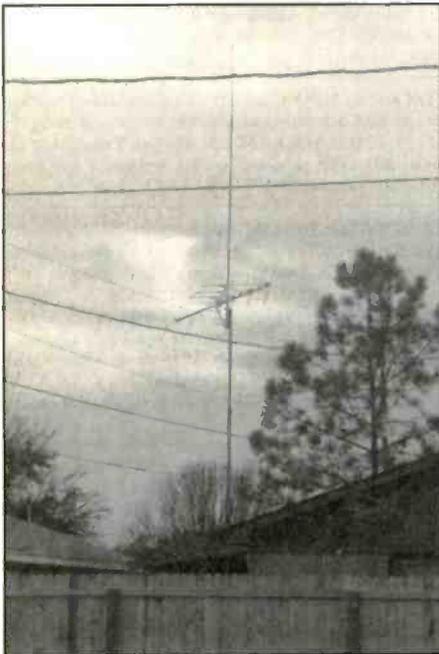
Recalling these events—and there are others—is a chilling reminder that anyone who works with or around electrical equipment needs to be alert and careful.

High voltages *are not* required to cause death or injury. Lower voltages can be just as deadly, and strong RF fields can cause severe burns and can damage tissues and organs.

Working on rooftops and towers also calls for caution and common sense. Ham radio isn't an inherently dangerous hobby, especially if you use your head. But by learning—and practicing—the right safety habits at the start of your ham career you'll hopefully avoid having to learn them the hard way. Keep these tips in mind while building, repairing, installing, adjusting and operating amateur radio and electrical equipment.

RF Safety

- ✓ Use good-quality feed lines and connectors.
- ✓ Never touch an antenna with RF power applied.
- ✓ Never operate a transmitter or amplifier with its safety shielding removed.
- ✓ Make sure antennas cannot be powered up while you're working on them. If you're out in the back yard or on top of a tower, put a warning sign in your ham shack, pull out fuses or switch off circuit



Whether you're installing your own, or helping a neighbor install a TV, ham or CB antenna, always ensure there's a margin of safety should Mother Nature take a whack at the antenna. This installation near overhead power lines is an invitation to disaster!



This rooftop tower didn't get there by magic! Always have a helper working with you when performing an antenna installation. Remember, even a small gust of wind is a mighty powerful force when you're struggling with an antenna or mount.

breakers, and disconnect all feed lines at the transmitter.

✓ Never look into the open end of a power waveguide, and never aim a beam antenna (dish, Yagi, etc.) toward yourself or others. Keep VHF/UHF antennas up in the air and away from people.

Climbing Safety

- ✓ Never climb alone. Always use a helper/spotter.
- ✓ When working on a tower, always use an approved, secure safety belt.
- ✓ Plan your work before you start. Have the proper tools and materials on hand.
- ✓ Take a break every now and then.
- ✓ If you're uncomfortable working at heights, stay on the ground and get help from an experienced climber.
- ✓ Stay away from—and be alert for—power lines or other overhead wires.
- ✓ Don't climb when you're tired or distracted.

Electrical Safety

- ✓ If possible, *personally* disconnect equipment from power sources before beginning your work.
- ✓ Drain (ground) electrolytic capacitors before touching them.
- ✓ Try not to work alone.

- ✓ Use tools with insulated handles.
- ✓ Install a master "power cut-off switch" near your test bench and ensure everyone in your household knows how to use it.
- ✓ Work in a well-lighted area.
- ✓ If you must service equipment while the power is on, follow the electrician's rule of thumb: Keep one hand in your pocket while you work. That way, electrical energy won't have an easy path across your chest should your working hand contact a live source.

Because life—in addition to ham radio—is often full of surprises, consider attending Red Cross first aid and CPR courses. Why not take your ham club buddies with you! One last thing. Don't be afraid to enjoy your new amateur radio hobby. Common sense and clear thinking cover almost every situation. Have fun and be safe!

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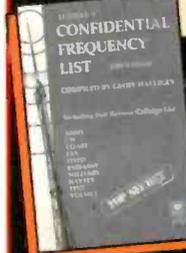
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The Loose Connection

BY BILL PRICE, N3AVY

RADIO COMMUNICATIONS HUMOR

Alternative Energy Sources

My friend Dave Bradley and his brother Dan saw their first ham radio "Field Day" in the summer of 1961. There they saw ham rigs running on batteries and generators. Thus began the "what-if" that led to their alternative power experimentation and the eventual discovery of such flash-in-the-pan inventions as the "Bradley Boys' Series-Parallel Lemon-Cooker," "Dave's Vanishing Potato," and Dan's famous "400 Amp Pumpkin."

Dave (his real name) and Dan (a pseudonym, as he has gone on to live a normal life and get a ham license) had watched *Mr. Wizard* make small batteries by inserting copper and zinc plates into potatoes and other produce items. They learned that the best *electric* fruit is the lemon, and that it's the lemon's acid that helps the electrons flow through copper and zinc plates inserted in either end of the sour fruit.

They also saw Mr. Wizard make a hefty battery using a five-gallon galvanized trash can filled with sauerkraut and a carbon rod. Since bigger is better, they immediately emptied mom's *thirty-gallon* garbage can onto the lawn, filled it with some 200 pounds of cheap sauerkraut, and left it sitting in the sun while they searched their entire county—unsuccessfully—for just one large carbon rod. When Mom Bradley found her garbage on the lawn and couldn't lift Schenectady's first-ever batch of *Kim Chi*, she summoned the boys, who told her not to worry—the kraut didn't cost much in the big institutional cans, and besides, they'd been feeding the stuff to the family Pug dog, "Flatty," who'd been required to sleep outside until his taste for the stuff wore off.

After reasoning correctly that it was the acid that gave the lemon its electrical "kick," young Tesla and Edison brought the bottle of hydrochloric acid that had sat high on the garage shelf for years. Aware that the acid was dangerous, the boys hollowed out a hole in the top of the potato, inserted copper and zinc plates into the potato's ends, and, with diving goggles and rubber aprons in place, they dripped the acid ever so carefully into the

potato, hoping that the increased acidity would up the spud's voltage and current. The meter readings began to increase, but then the smoke started and the boys ran out of the garage to get the hose. When they returned, two small ends of the potato remained, and the foil and pie-tin that held them were well-perforated. They concluded that increasing the acidity of a vegetable would work, but it was too hard to control under such crude conditions. They took their remaining four dollars to the store and returned with 62 lemons.

Our two young wizards snipped endless strips of galvanized steel and copper, twisted opposite strips together, and wired the 62 lemons "in series." They got a couple of volts, but not much current. The elder Bradley's electronics books showed him how to double the current and half the voltage by rewiring the fruit into a series-parallel circuit, which the boys did. This still didn't give them enough current, and now they'd given up half their voltage. Dave thought that adding the family car's battery into the circuit would increase both voltage and current, demonstrating that the experiment would work once they could afford more fruit. He was right. Adding the car battery did indeed increase the current and voltage in the 62-lemon circuit.

If any of you remember the wonderful time-savers of the '70s, you remember the hot dog cooker which browned one's wiener by passing house-current through it. Whether the dog-zapper's inventors know it or not, their homebrewed device owes its origin to the Bradley Boys' Series-Parallel Lemon Cooker, which, when connected not-quite-properly with the Bradley family car battery, cooked 62 lemons in a matter of seconds. Had the boys gone on to develop a market for fresh-roasted lemonade, the device could have made them millions.

With their funds diminished and a trail of burnt and rotten produce marking their failures, the Bradley Boys lost interest in the production of veggie-watts and citrus-amps for a while. They had also lost interest in Flatto, who they now called "Methanno the Stench Pug," but they continued to feed him the fermented

sauerkraut since he liked it, and they had already paid for it.

Soon young David learned of an upcoming Science Fair at school. He and his brother had been to the county fair, where he tells me there was a man who looked an awful lot like James Whitmore exhibiting some of the largest, heaviest fruits and vegetables the boys had ever seen. This man, they said, always won blue ribbons with his 350-pound pumpkins, his 200-pound squash, and his five-foot zucchini.

"No, I've never grown a lemon," Mr. Almost-Whitmore said, "It's too cold up here. You can have the squash after the fair, though, and you can have that damned zucchini, too, for all I care. You can't have the pumpkin, though—I always donate the innards to my church for pies and make a huge jack-o'-lantern from the rest of it."

Dan, with his brand-new driver's license, drove the family sedan to pick up the massive vegetables. They gave the zucchini to their mother as a sort of penance for dumping her garbage on the lawn, and hoisted the squash onto the garage workbench. They began to measure voltage and current with large plates at different locations. They had hoped to power Dan's 6-meter ham rig with the squash for David's science project, but they didn't have enough power to light a panel light, and hadn't given any thought to AC vs. DC.

In the end, the lessons they learned from their experimentation paid off handsomely: They wheeled the squash-cell into the gym on the day of the science fair, and when the time came, David won first prize by lighting a string of bright, 12 volt bulbs which surrounded his vegetable. Some careful questioning had revealed that the junior high school science staff, made up entirely of Mrs. Schwartz, didn't have a clue just how much power a squash could generate. No one ever found out about the calculated risk the boys took by slipping their car battery into an opening in the bottom of the squash and connecting insulated plates through the "squash-goop" to avoid cooking the thing, proving—at least in some perverse way—that knowledge is indeed power. ■

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The foremost in top-performing, durable, dual band handhelds now includes the FT-12 DTMF keypad with CTCSS enc/dec, DCS enc/dec, DVRS and paging/coded squelch. Manufactured to rigid commercial grade standards, the FT-50RD is the only amateur dual band HT to achieve a MIL-STD 810 rating. Already a winner; the deluxe keypad makes this stand-out HT even better! Water-resistant construction uses weather-proof gaskets to seal major internal components against the corrosive action of dust and moisture. And, the rugged FT-50RD withstands shock and vibration, so throw it in with your gear!

Exclusive features set the FT-50RD apart, too. Wide Band Receive includes 76-200 MHz (VHF), 300-540 (UHF), and 590-999 MHz*. Dual Watch checks sub-band activity while receiving on another frequency, then when a signal is detected, shifts operation to

that frequency. Digital Battery Voltage displays current operating battery voltage. Digital Coded Squelch (DCS) silently monitors busy channels. Auto Range Transpond System™ (ARTS™) uses DCS to allow two radios to track one another. And, the FT-50RD is ADMS-1C Windows™ PC programming compatible, too. To round out the FT-50RD, it has four battery savers, and super loud audio—remarkable in an HT this size.

A reliable companion where ever you go, the FT-50RD is one tough little dual bander with all the features you want!

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FT-10/40R
Ultra Compact Handhelds

VHF or UHF. Similar to FT-50RD including MIL-STD 810, and other exclusive features.

QuickCheck

The **Xplorer** Test Receiver. The professional choice when speed, performance, and reliability are an issue!

For Commercial and Mobile Radio testing, the **Optoelectronics Xplorer** stands alone. Let the Xplorer perform all your quick radio checks, instantly determining the radio's frequency, **CTCSS**, **DCS**, **DTMF**, deviation or signal strength. The Xplorer automatically locks on to any nearfield signal from **30MHz - 2GHz** in less than a second.

There is **no setup necessary**. Whether you're in the field or in the shop, the Xplorer is the portable, compact and **economical solution** for any two-way communications business.



Patent No. 5,471,408

FEATURES

- Nearfield receiver, sweeps **30MHz-2GHz** in <1 second (Cellular bands are blocked on all U.S. versions)
- Decodes **CTCSS**, **DCS**, and **DTMF**. Manually record tones into memory
- Lockout up to 1000 frequencies
- Store **500 frequencies** in **memory** with time & date stamp, as well as number of hits per frequency
- **NMEA-0183 GPS interface** for recording Latitude & Longitude coordinates (GPS Required)
- **VFO mode** for tuning to specific frequencies
- PC interface for **downloading** data from **memory**
- FM demodulation / **Built-in speaker**
- **Auto** or manual frequency **hold**
- **Maximum nearfield** reception / Up to **1/4 mile** away

\$899

**Summer Special Includes:
Spectrum CD & CC30 Case**

Xplorer includes: TA100S antenna, NiCads, Charger, PC Download cable and software

SPECIFICATIONS

Freq. Range	30MHz - 2GHz
Modulation	FM Deviation
Freq. Response	50 - 3000Hz
Auto Sweep Time	<1 second
Input 50 Ohm	-59dBm @100MHz -25dBm @1GHz
Display	2 line LCD
Power	Internal NiCad



CTCSS Decode

DCS Decode

DTMF Decode

FACTORY DIRECT ORDER LINE: 800•327•5912

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5821 NE 14th Avenue • Ft. Lauderdale, FL • 33334

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