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POPULAR COMMUNICATIONS

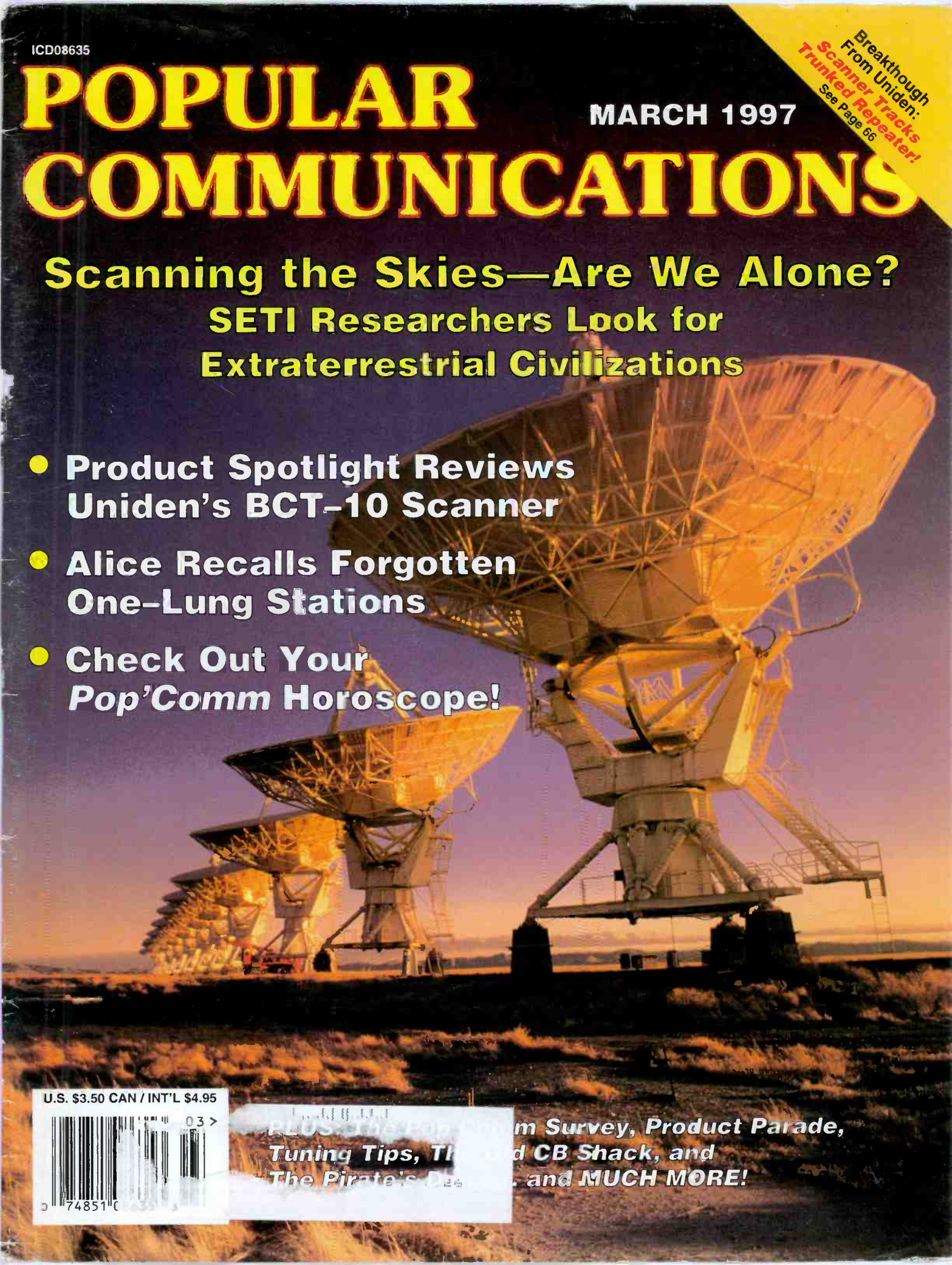
MARCH 1997

Breakthough From Uniden: Scanner Tracks Trunked Repeater! See Page 66

Scanning the Skies—Are We Alone?

SETI Researchers Look for Extraterrestrial Civilizations

- Product Spotlight Reviews Uniden's BCT-10 Scanner
- Alice Recalls Forgotten One-Lung Stations
- Check Out Your *Pop'Comm* Horoscope!



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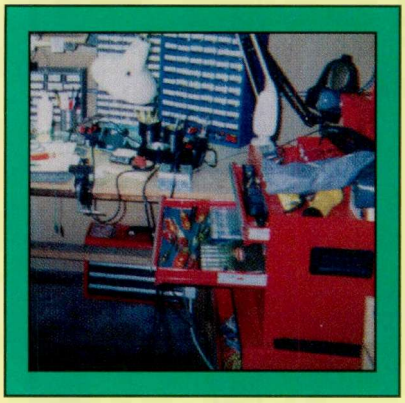

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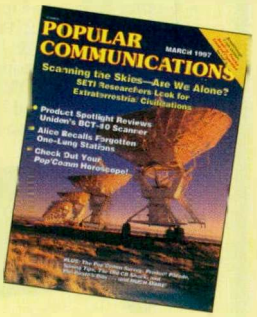

ON THE COVER: *If an extraterrestrial signal is ever detected by SETI researchers, this Very Large Array in Socorro, New Mexico, along with the Hubble Space Telescope, may be called upon to produce detailed images of the region of space where the radio signal was discovered. (Photo by Larry Mulvehill.)*

FEATURES

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Tuning In

AN EDITORIAL

BY HAROLD ORT, N2RLL, SSB-596

Making Your Radio Life Easier AND More Fun!

OK, I'll admit it, I'm a computer neophyte. A few years ago I was the type of person who would rather clean the ball on an IBM Selectric than replace the cartridges on a new inkjet printer. So after at least a thousand ribbon changes on nearly every imaginable type of printing machine—electric and manual, I've finally learned that using the computer isn't quite as baffling as I first thought. Strange isn't it, how some of us proudly think we're right at the cutting edge of technology with our brand new mega-buck rigs, scanners and receivers, only to use Post-It™ notes to record on-air contacts and station information. Well, there'll be no more Post-It notes for me—goodbye paper notes, hello hard drive and floppies!

Interestingly, every time something new comes along, it's a good bet that most of us are right there in line getting one. For radio enthusiasts, it's just the natural thing to do, especially when we're talking about new scanners, receivers and ham rigs. Many times dealers can't keep up with the orders! But why are we always so quick to embrace the latest high-tech wizardry from 35-in-one TV remotes, CD players, camcorders, satellite systems, and multi-thousand dollar rigs, but when it comes to a computer we have to think? What's to think about? Tomorrow the darned thing will be nearly obsolete anyway!

In the case of computers it seems, according to what I'm hearing, many radio hobbyists are still in the wordprocessor, Internet chat room, and game-playing mode. Don't get me wrong, there's nothing wrong with using the computer for word processing and surfing the Internet, but as radio enthusiasts shouldn't we be embracing the computer as another resource to further our enjoyment of our hobby? Shouldn't we be putting the pen back in the drawer, saving it for writing a letter to Great Grandma? Heck, today even *she* has a computer to shop for her needlepoint goodies (and her radio gear!).

There are, believe it or not, folks who hang on to the past so tightly they're turning blue! If you're thinking "Who needs a computer?" or "What can *it* do for me that I can't already do?," think again. Today you can now upload frequencies; download frequencies; print your loggings; log your contacts/stations; instantly tune, scan, write to memory, switch modes, antennas and filters on your radio; call up station data by time, location, frequency, mode and a zillion other ways; see when the space shuttle will be overhead; and 15 million other time-saving and receiver/rig-enhancing things—and all at the click of your mouse or touch of your keyboard.

Receiver Control and Logging

Keep in mind that I've only scratched the surface of what you can do with a computer in the shack. Even so, one of the most powerful and useful tools I've found is receiver control and logging. Take my R-8 for example. I've had this super radio for quite a while, but recently discovered a very easy-to-use software program called FirstRate by Spectrum Systems, Inc. <Mark.Chalkley@ibm.net>. Now remember, I'm just *beginning* to use this program. With one eye shut and the other eye covered, I installed the disk and hooked a cable between the receiver and a comm port on the computer. It comes with TRS Consultant's English-language SW station database which simply allows me to "click on" a particular highlighted station, and like magic, it's there with all the settings I've prescribed. I can add new stations to the records and tell the computer to sort my findings by time, location, frequency, etc.—all in a

(Continued on page 77)

POPULAR COMMUNICATIONS

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A publication of

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

Offices: 76 North Broadway, Hicksville, NY 11801. Telephone (516) 681-2922. FAX (516) 681-2926. Popular Communications (ISSN-073-3315) is published monthly by CQ Communications, Inc. Periodical class postage paid at Hicksville, NY and additional offices. Subscription prices (payable in U.S. dollars): Domestic—one year $22.95, two years $41.00, three years $60.00. Canada/Mexico—one year $32.95, two years $61.00, three years $90.00. Foreign Air Post—one year $40.95, two years $77.00, three years $114.00.

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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>.

Congrats to Hurricane Watch Net Operators

Dear Editor:

I would like to congratulate the Ham Net, especially K5SIV, and all those who spent so many hours operating under the more severe conditions during Hurricane Fran. I was monitoring 14325 kHz (Hurricane Net Watch) and passing on the information to our local radio station, WMBG. Although I do not know these individuals on the Net, I only wish I was part of such a great communication team! I missed her call, but there was also a lady named Judy.

Debbie at the radio station, who is the announcer and DJ, was more than eager to get the information out on the airwaves. The news about Hurricane Fran was far more current than watching the weather channel or listening to other radio stations. Though it was not important to our area at that time, they kept local residents aware of worsening conditions.

I only wish REACT had a net we could operate under such conditions. I have a license for GMRS (KAF4988) and monitor via scanners all other national and Coast Guard frequencies, so in a way I feel compensated for helping out. This really gives me the incentive to get my ham ticket! Again, congratulations to all on the Hurricane Watch Net!

Don Aspinall
Peninsula REACT #56

Give CB Back?

Dear Editor:

One alternative is to switch CB to a higher band using FM (900 MHz for example) and return the 11 meter band to the amateur service, from whence it was taken lo these many years ago.

Don Turner
Vacaville, CA
(via e-mail)

We've Got Jim Hoppin'

Dear Editor:

Only a person of little wit can excuse *Pop'Comm* writer J.T. Ward's comment, "Few folks have a legitimate need to own a rifle, shotgun or handgun." Perhaps "private gun ownership is controversial" in the Democratic Peoples' Republic of New York, but that's a better reason to avoid New York than to impose such totalitarian views on the rest of an ostensibly free country.

The framers of the U.S. Constitution enacted the Second Amendment to protect the inalienable right of Americans to own firearms for their own defense and as a means to resist tyranny in government. Our forefathers refused to adopt the original Constitution until this protection was codified in the Bill of Rights. Evidently you and Mr. Ward do not understand what "inalienable" means. According to my Webster's dictionary, it's defined as "that which cannot be taken away." Nowhere in the Constitution, or in the two years of debates preceding the Bill of Rights, is there any remote suggestion of any "legitimate need" requirement for private gun ownership in the United States of America.

Mr. Ward refers to what he calls "reasonable gun regulation." My copy of the Second Amendment states in pertinent part, "the right of the people to keep and bear arms shall not be infringed." What part of "shall not be infringed" do you fail to understand? Years ago, gun owners in Australia were duped into "reasonable gun regulation." At this very moment, Australian police are confiscating all privately-owned semiautomatic firearms (including .22 rimfires) and pump-action shotguns using gun registration lists. Australian gun owners (who committed no criminal act in their lives) face death or years of imprisonment if they refuse to surrender their firearms.

I find Mr. Ward's remarks to be contemptible. Rest assured I have purchased my last copy of your magazine.

James L. Waller
Sioux Falls, SD

Dear Mr. Waller:

OK.

"Hello, Philadelphia?"

Dear Editor:

I would like to say that I love your magazine. Although I do not subscribe (I am a college student who moves back and forth between school, internships and home), I buy it at the newsstand price. I read it every month I can find it in the stores. In fact once I drove 20 minutes to a mall bookstore to find that they didn't have any in stock.

I was wondering if you ever publish news about radio groups or clubs. I am very interested in scanning and have been for many years. I would like to join a local club. It would be a good idea to have an issue devoted to clubs on all of the spectrums. Do you know of any groups in the Philadelphia area that are devoted to scanning and emergency communications? I can be reached at <priority@FreeMark.com>.

David Donohue
PA

Dear David:

While we don't know of any club that specifically covers the Philadelphia, PA area, you might want to contact our friend Les Matson, editor of "The Scanner Club", a fine TV Guide size publication that puts a lot of scanner-only material in a small package. Tons of frequencies and tips are in each bi-monthly issue. Contact Les at P.O. Box 62, Gibbstown, NJ 08027 and tell him you read it in *Pop'Comm*!

Let's Get Technical

Dear Editor:

I just received my January issue of *Pop'Comm* and have noticed a change in the direction of this fine publication. And, in my opinion, a change for the better. The addition of the new "Radio Connection"

(Continued on page 48)

THE SRX100 RECEIVER

The new LOWE SRX100 is an economy communications receiver intended for the newcomer to shortwave listening, or as a second receiver for the more experienced enthusiast. It sells for well under half the cost of our most popular receiver, the HF150, but nevertheless has an excellent specification for the price.

The SRX100 is extremely simple to operate, and can receive AM, CW and SSB signals. Some of the key features are shown below:

- Frequency range 30kHz to 30MHz
- 1kHz tuning steps
- Clarifier for SSB tuning ±800Hz
- 1μ sensitivity
- 2 watt audio output
- Modes available: USB, LSB, AM
- Liquid crystal display
- Built in speaker
- Dual conversion superhet design
- Signal frequency readout to 1kHz
- Digital frequency readout to 1kHz
- British made
- 12VDC power adaptor supplied
- Dimensions: 7.3"W x 7.5"D x 2.5"H

HF150 RECEIVER

A proven performer, the HF150 offers superb audio and simplicity of design, it has come to be synonymous with the LOWE name. A compact, rugged features and ease of operation make this receiver a welcome addition to any listening post. Can also be fitted with batteries for mobile use, or controlled via computer (with optional IF150 interface.)

Specifications:
Frequency coverage: 30kHz to 30MHz continuous coverage
Reception modes: LSB, USB, AM, Synchronous AM (USB, LSB, DSB)
Receiver system: Microprocessor controlled PLL tuning, dual conversion superheterodyne receiver.
Tuning steps: 8Hz in LSB, USB, and AMS modes; 60Hz in AM mode. Step size increases with rapid spin-wheel rotation.
Memories: 60 memories holding frequency and mode.
Aerial inputs: 50Ω input via SO-239 socket. 600Ω input and earth connection on press terminals.
RF attenuator: 20dB
IF Filters: Wide: 7kHz, Narrow: 2.5kHz
Power Supply: 12Vdc (AC adaptor included)
Internal batteries: 8 AA size cells.
Nicad charging system included in main receiver.

Shown here rack mounted with the AP150 audio processor, and the PK150 preselector, sold separately.

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EDCO

High Performance Magnetic GPS Antenna

The NEW LOWE antenna shown above consists of a very efficient antenna, correctly polarized for the satellite signals. It is enclosed in a weather resistant plastic housing with fixing magnets in its' base, together with a high gain low noise active preamplifier. The preamp is powered by a 5VDC supply fed via the coax cable from the GPS receiver. It comes complete with 16.4 feet of cable and a BNC connector.

We conducted a series of tests using this antenna and the results obtained were excellent, with full lock being obtained on all visible satellites even with the antenna laying on the dash inside the front windscreen of the car.

This antenna is ideal for use on a car or boat, or on any metallic surface.

HF225 EUROPA

This is the radio that enthusiasts have been raving about! Designed especially for the serious SW DX'er, the HF-225 Europa is fitted with custom AM filters measuring 7.0, 4.5 and 3.5kHz (@ -6dB) in addition to the standard 2.2kHz SSB filter. Magnetically shielded coils and low-noise diodes in the RF bandpass filters improved front end performance. The synchronous detector and external keypad are both included as standard items. The HF225E is slightly larger than the HF-150 and adds some useful features for more serious DX'ers, including dedicated controls for mode selection, variable tuning rate, RF attenuator, 30 memory channels, and an analog S-meter, also includes: Built-in speaker, external speaker and record jacks. Options include an amplified whip antenna, rechargeable NiCad battery pack, and leather carrying case. SIZE: 10"W x 4.2"H x 8"D, WEIGHT: 4.2lbs.

WiNRADiO

The WiNRADiO World Station Database Manager (WINDATA), is an add-on utility for any version of WiNRADiO. It contains a database of over 300,000 radio stations worldwide, operating between 500kHz and 1.3Ghz, which are suitable for reception by the WiNRADiO receiver.

The Galactic Gamble

SETI Researchers Boldly Comb the Cosmos for Steller Radio Stations . . .

By Michael Mechanic

It was 3 a.m. in Green Bank, West Virginia, when Frank Drake's alarm clock sounded, but the 29 year-old radio astronomer had no trouble waking. Drake and two student assistants at the National Radio Astronomy Observatory —a facility then under construction— were about to make history. The date was April 8, 1960, and the team was going to take humankind's first-ever crack at interstellar communication. For the first time, human beings would turn an ear to the cosmos in an attempt to intercept radio signals transmitted from far-off planetary systems by intelligent, though probably quite non-human beings.

Dubbed "Ozma," after a princess from L. Frank Baum's fictitious land of Oz, the experiment relied on the observatory's recently completed 85-foot diameter radio telescope. The scope's receiving device was located in a cylinder at the reflector's focal point, more than five stories off the ground. Before proceeding on that cold morning, Drake had to spend nearly an hour tuning an amplifier inside this "glorified garbage can." By 5 a.m. he was back in the control room, ready to listen. It was a verifiable radio signal he sought—one that would stand out from the cosmic background noise in a distinctly artificial way. Drake's search would, in time, unite some of the world's leading scientific minds, escort the emerging field of radio astronomy into prominence, engage NASA, Congress and roughly $75 million in private and federal funds, and, ultimately make a legitimate scientific pursuit of one of the most profound questions in human history: Are we alone in the universe?

"Drake's search would, in time, unite some of the world's leading scientific minds . . ."

Today, more than 36 years later, despite exponential leaps in technology and numerous cosmic eavesdropping projects worldwide, the listeners have cov-

The National Science Foundation's 1000-foot diameter radio telescope near Arecibo, Puerto Rico listens to tiny segments of the universe for signals from advanced civilizations.

If there's an abundance of life in the cosmos, could it be in one of these distant galaxies photographed by the Hubble Space Telescope?

ered only the tiniest fraction of our galaxy. "You can't even say we haven't scratched the surface, because it's too weak an analogy," says Dr. Jill Tarter, who searched for alien signals with renowned UC Berkeley astronomer Stuart Bowyer and is a top scientist at the SETI Institute (Search for Extraterrestrial Intelligence) in Mountain View. "If you want to enumerate it, which we used to do very assiduously, [we've covered] one part in 10^{12}, one part in 10^{10} maybe."

Drake, now 66, is a professor of astronomy at UC Santa Cruz and president of the SETI Institute, but in 1958, he was among the first few Harvard students to have earned a doctorate in the emerging field of radio astronomy. When a visiting lecturer named Otto Struve presented evidence for the existence of distant planets and suggested that life could exist elsewhere within our galaxy, Drake was inspired. Might some of these alien creatures be intelligent or even technologically capable? Drake and others have bet their careers and a lot of private and federal dollars on this hunch.

The Quiet Zone

For Ozma, Drake chose a radio frequency near 1420 MHz—that of the hydrogen atom. Because hydrogen is the most abundant element in the cosmos, Drake reasoned that intelligent civilizations might recognize 1420 as special. It also falls into the cosmic "quiet zone"—a portion of the spectrum relatively free of interference from natural celestial sources and artificial terrestrial ones. Set to receive on that morning in 1960, Drake pointed the Green Bank telescope toward nearby star *Tau Ceti*. The team waited in anticipation. And waited. They waited uneventfully until noon, when their target plunged below the horizon. They moved the telescope towards *Epsilon Eridani* and resumed their wait. Minutes later, loud squawks burst from the speaker and chart recorder flew crazily off scale with pulses coming in at eight times a second. Barely able to contain his excitement, Drake aimed the telescope away from the star, then moved it back to see if the signal returned. It didn't.

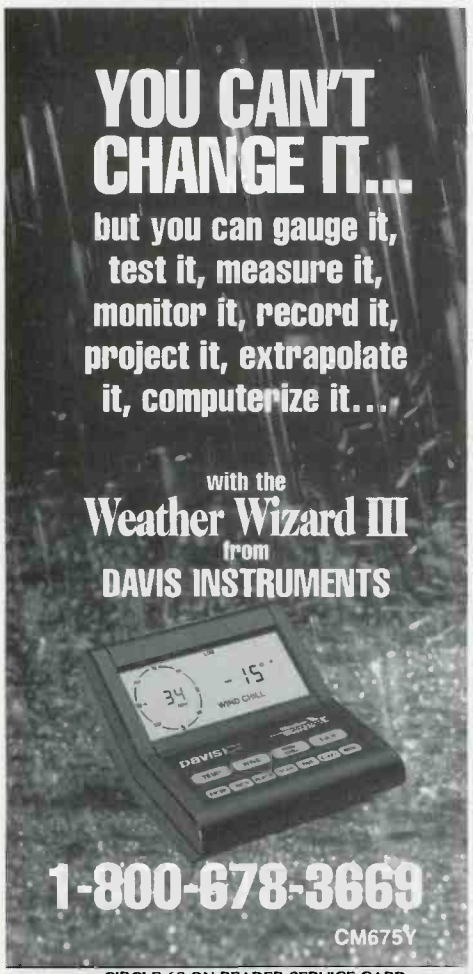
"Drake and others have bet their careers and a lot of private and federal dollars on this hunch."

Ten days later, the signal appeared again, long enough for the scientists to determine its origin: Earth. Only much later did a military source confirm that the signal was a military jamming device.

We're Listening, Is Anyone There?

By the early 1980s, some 42 searches had been conducted worldwide, three by Drake and colleagues, and others by the likes of Stuart Bowyer at Berkeley and Paul Horowitz at Harvard. NASA entered the game, circa 1971, hosting a summer-long brainstorming session of SETI experts that was dubbed "Cyclops." The resulting "Cyclops Report" inspired many scientists, including Bowyer and Tarter to embark on their own SETI projects, and NASA began including SETI into its budget on a regular basis.

Despite the excitement, SETI fielded much criticism from skeptical scientists and politicians. "I finally changed my mind after hearing some good arguments on the, 'They're not there' side," says UCLA Radio Astronomer Ben Zuckerman, who early in his career searched 600 stars in an unsuccessful follow-up to the Ozma experiments. Zuckerman was swayed by "the Fermi Paradox," an argu-



ment raised by Nobel physicist Enrico Fermi: If advanced civilizations are out there, we should have already seen them. This idea was later developed by Trinity College Physicist Michael Hart, who constructed computer models of developing solar systems that suggested conditions so harsh as to make the presence of life-sustaining planets like Earth a fluke. But the SETI community's prospects have been bolstered considerably by recent discoveries of new planets by several teams, most notably UC Berkeley's Geoffrey Marcy and Paul Butler, and by recent evidence pointing to possible microbial life on Mars. "[Some scientists] may think we're the only intelligent life in the universe, but we're talking 10^{22} stars, so I find that theory com- pletely preposterous," says Harvard's Paul Horowitz, who has built some of the world's most powerful SETI receivers. "If in 100 years we haven't found anything, then I'll be a hell of a lot more pessimistic." Tarter concurs. "Our chances of success are zero if we don't do it and greater than zero if we do, and that's a big distinction," she says. "I mean, you don't spend your life doing something you know can't work."

After coming under political attack in the early 1990s, the SETI Institute and smaller searches, like Bowyer's "SERENDIP" projects, were dumped from the NASA budget. Although the smaller projects have struggled to stay afloat, the SETI Institute's latest effort, Project Phoenix, has attracted more than $7.3 million in private donations. From February through June of 1995, Phoenix researchers took up residence at the Parkes radio astronomy observatory in New South Wales, Australia. Using the facility's 64-meter radio telescope, they listened to about 200 southern hemisphere stars—some of the 1000 originally slated for attention—at frequencies from 1200– 3000 MHz. The new equipment scanned 28 million channels simultaneously at single-Hertz resolution, and, for the first time, researchers had a follow-up telescope, located 120 miles away, allowing them to distinguish immediately between terrestrial and potential extraterrestrial signals by the presence or absence of Doppler shift.

The extraterrestrials remained elusive, however. Promising signals turned out to be satellites, military radar and TV stations. "It's disappointing, but it doesn't discourage us. The equipment all worked pretty well and that was a technical triumph," says SETI scientist Seth Shostack. "You never give up. If you look at 1000 stars and don't find anything, can you conclude we're alone? No you can't."

". . . NASA has spent between $60 million and $70 million on SETI since 1971."

Phoenix's now plans to focus on 900 northern hemisphere stars, all within 150 light years of Earth. Drake naturally believes federal funding of SETI research serves the public interest. He notes that NASA has spent between $60 million and $70 million on SETI since 1971. "That's less than the cost of one fighter plane, but the potential payoff for Earth is much greater," says the astronomer. "It's a high-stakes gamble where the payoff is enormously large and, if you succeed, the benefit per dollar spent will be greater than for any project in history." That payoff, Drake says, includes knowledge of technology of other worlds, learning whether space colonization is practical and how it might be done, and whether nuclear fusion is feasible as a clean energy source. "We will learn just what the limits of growth and the quality of life are for other civilizations and this will give us great guidance in planning for our own world," Drake says.

Some scientists question the wisdom of communicating with technologically superior, potentially hostile beings. But most SETI researchers consider the chance of direct contact to be infinitesimally small. "Our existing spacecraft, at the maximum speed they go, would take about 100,000 years to go to the nearest star, and this is not a feasible travel time for a colony or a mini-planet or anything else," Drake says. "At the speeds you must travel, a small pebble striking you releases as much energy as a hydrogen bomb, and that's going to be the end of your mission."

"Travel would be boring and expensive," concurs Horowitz. "Energetically, it's just a stupid thing to do."

But some avid SETI proponents, like Shostak and Carl Sagan, never ruled out the many possibilities. We simply don't yet know enough about what is or isn't possible in the universe, they say. All we can do is go about our small terrestrial lives, make our scientific discoveries in time, and, every so often, on quiet star-filled nights, turn our ears to the heavens, and listen patiently. ■

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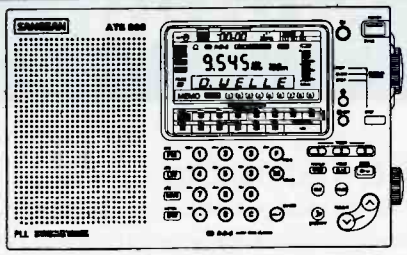

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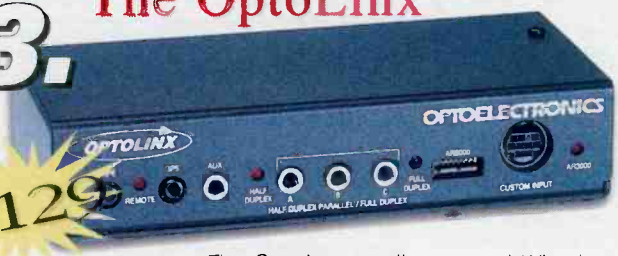
- Two line LCD display. First line displays frequency, second line switches between CTCSS, DCS, DTMF, Deviation or Signal Strength
- GPS interface (NMEA-0183 GPS required)
- Auto Hold, 1000 Lockouts, Skip, Auto or Manual Store
- Real-Time Clock/Calendar with battery back-up
- Rotary Encoder for easy selection of menus for setup
- Internal Speaker, Audio earphone/headphone jack
- Built-in PC interface with interface cable and download software included
- Includes Built-in Rapid Charge NiCad batteries and Rapid Charger

3.

The OptoLinx



$129

The OptoLinx is all you need-Whether it's computer control of your AOR AR8000, ICOM CI-V receivers, or downloading Scout data to your PC. The versatility of the OptoLinx also allows for datalogging of frequencies with the Optoelectronics M1, or datalogging CTCSS tones and DCS codes with the Optoelectronics DC440.

- Use with any ICOM CI-V receiver for computer control
- Download recorded Scout frequencies into your PC
- Computer control for the AOR AR8000 scanner
- Easy Flat Flexible cable connection for the AR8000
- Data Slicer Circuit-converts FSK to RS232. Works with popular decoding PC software for ACARS, POCSAG, Etc.
- Includes Radio Manager for Windows computer control software, POCSAG decoding software, and download utility software.

NEW

The OS456LITE
Computer Control Scanning Modification

Remember the days of staring at your scanner while monitoring the local police, sitting around looking at the same old display? That's all changed! Drop in the OS456LITE and take your Radio Shack Pro2005/6 to new heights with the OS456LITE. Now you can scan remarkably faster and import DBase files from the Spectrum FCC database, all with the ease of PC control. The OS456LITE continues in the tradition of the original OptoScan 456 with all the same functions, but without the CTCSS, DCS, and DTMF decoding features. Every good monitoring post should be equipped with a good receiver. The OS456LITE installed in your Pro 2005/6 is the scanner / computer enthusiast's dream.

More Great OptoScan Products:

- OS456 (Decoding included for the Pro 2005/6).... $199.
- OS535 (Decoding included for the Pro 2035 /2042).....$199.

The DC440

No receiver or monitoring station is complete without a DC440 Decoder. See what you are missing when you connect the DC440 with any scanner or receiver and instantly decode all the standard CTCSS, DCS, and DTMF data. Connect the DC440 to your OptoLinx and PC for datalogging all tones and codes with time and date stamp. The DC440's easy operation contains six modes; All Mode Decode, CTCSS Decode, CTCSS Period, DCS Decode, DTMF Decode, and DTMF Recall. Automatically decode 50 CTCSS tones, 106 DCS codes, along with 106 DTMF characters. The serial interface on the DC440 conforms to the CI-V interface standard, allowing it to be connected to a PC for remote control with the optional OptoLinx

5.

6.

Contact Opto Direct

Looking for a good hand-held frequency counter? Optoelectronics Hundi Counters, a name you can trust in frequency measurement

- 10Hz-3GHz Frequency Range
- Measures Period, Ratio, and Time Interval
- 10 Digit LCD w/ EL Backlight
- 16 Segment Signal Bargraph
- Built-in 800MHz High Pass Filter
- Built-in RS232 PC Interface
- Patented Digital Auto Filter / Capture

- 10Hz-2.8GHz Frequency Range
- 10 Digit LCD Display w/ LED Backlight
- 16 Segment Bargraph
- TTL Output for PC Interfacing
- Patented Digital Auto Filter / Capture

- 1MHz-2.8GHz Frequency Range
- 9 Digit LCD Display
- Auto Hold Last Frequency Displayed
- Patented Digital Auto Filter /Capture

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Forgotten One-Lung Stations

We Recall The Days When Bigger Didn't Always Mean Better

By Alice Brannigan

We are a nation that has gotten used to the idea of constant increases in taxes, salaries, horsepower, the height of tall structures, and even the power of broadcasting stations. Had the FCC not put a 50 kW cap on AM station power output, who knows what power level they would have crept up to by now. Don't forget that in the mid-1930s, Cincinnati's WLW was authorized to temporarily test broadcast with 500 kW, and other stations were begging to do the same.

It is all too easily forgotten, that before 1930, the AM band was packed with stations running from 10 to 50 watts. Scores of 50 and 100 watt stations existed into the late 1940s. Such stations were the very core of community broadcasting. They prevailed in remote areas as well as metropolitan cities. In an era when "service" meant more than big profits, some stations were two or three person operations run at a financial loss from private homes or small businesses. Some appeared to be little more than ham stations and, indeed, most had started that way. As late as the 1950s there were still about ten 100 watters active in the U.S., plus four in Canada.

QSLs from such so-called "one lung" stations, were prized DX trophies because they took real effort to pull them out from the static and interference from higher-powered stations. One-lung AM stations are history now. Today the FCC won't license a station with less than 250 watts, and even those are getting rare.

Let's glance back at a representative sampling of flea-powered stations that kept our dads, grandpas, and greatgrandpas glued to their receivers into the wee small hours.

RENO, NEVADA, FRIDAY, JANUARY 23, 1931

FRENCH PRESIDENT SEEKING LEADER FOR SEVENTH MINISTRY

Successor to Steeg's Post Discussed Among Heads Of Chamber and Senate

Fall of Government Causes Sensation at Geneva; May Keep Briand in Session

PARIS, Jan. 23.—(AP)—For the seventh time in the life of the present parliament President Gaston Doumergue today cast about for strong steady hands to take the reins of the French government and hold them against the straining of the badly teamed parties of the chamber of deputies.

PARLEY STARTS

Conferences were begun with the presidents of the chamber and senate and parliamentary committees for a premier-designate to succeed Theodore Steeg, whose ministry fell in the chamber last night, 293 to 283, after a life of forty days. His was the eighty-fifth government of the third republic.

The defeat came on a question of confidence posed after interpellation of the efforts of the ministry of agriculture, headed by Victor Boret, to fix the price of wheat in France at about two dollars a bushel against eighty cents a bushel in Winnipeg and sixty cents in Chicago.

FLANDIN MENTIONED

Pierre Etienne Flandin, minister of commerce in the succeeding cabinet of Andre Tardieu and leader of the fight against M. Boret and the gov-

"BROADCAST" SENT BY RADIATORS IN YALE DORMITORY

NEW HAVEN, Jan. 23.—(AP)—This is station W-R-I-G-H-T, broadcasting from Yale university by authority of student ingenuity and bringing to you nightly the views of famous educators. Your announcer is Graham Cracker."

That, says the Yale Alumni Weekly today, is what has been going on in the stately halls of old Eli for the past month. Though its perpetrators are nameless and its effects apparently harmless, its audacity has set the university by the heels.

It began when a student in Wright hall received a radio set for Christmas. He hooked the aerial wire to a heating pipe and was surprised to find that conversation between him and his roommate could be heard faintly throughout the dormitory. Presto, they bought a cheap microphone and the stage was set for the air.

The program regularly drowned out all others and became a sensation.

But that wasn't the end of it. An enterprising student essayed to hook up entertainment with economics. He attached a power tube to the radio, giving it greater range, and bought thirty minutes on the air. He sped about town and signed to advertising contracts numerous tradesmen who cater to the campus. The program took on a commercial complexions and the sponsors started on the road to wealth.

As far as the Alumni Weekly knows, the station still is in operation. What university authorities or the federal radio commission may do about it is yet to be revealed.

LOTS OF POLITICS

Form Fac Br

FIRST STEP IN PROSEC FOR ALL SWIND

Woman Says C Untrue; She Seclusion in H

New York Confi Is Mentioned In Connection

CHICAGO, Jan. R. Letsinger took the in his threatened pros Myrtle Tabner revenue collector, said she had in the game" swindle.

WRITES HIS VER

Litsinger wrote $50,000 loan and to the state's at in Springfield, disappeared. she lost the Springfield charged from the

Reno newspaper from 1931 tells of pirate station established in a Yale University dorm.

For instance, in late January, 1931, the newspaper in Reno, Nevada carried an item about the Yale Alumni Assn. being upset about a little pirate station "WRIGHT" being operated by a student in the Yale University dorms in New Haven, Conn. According to the story, the operator of the station was selling commercial time to local merchants. He announced his name as "Graham Cracker." That was a good natured rib at Graham McNamee, NBC's top announcer.

That item was sent to us by historian John Faulkner, Reno, Nevada. John reminds us that at one time you could buy small two or three-tube oscillators intended to broadcast record players through household radios. They sent a signal out for about a block, but with a roof antenna you could extend the range. Add a mic, and you had a mini-station. The FCC used to shut down such stations regularly. Thanks, John.

Another pirate was TJW, which ran 7.5

watts on 1490 kHz during 1930–31. It was located in Hamilton, Bermuda, but could be heard nearly 1,000 miles away along the eastern U.S. coast. The call letters stood for Thomas J. Wadson, and it appeared to be a rather well run operation with a regular staff. TJW operated on a regular sked four days per week and sent out veri letters. They also ran DX tests. Programs included hotel orchestra performances and live talent.

TJW was primarily intended for local reception in Bermuda during the summer when reception from the U.S. and Canada was poor.

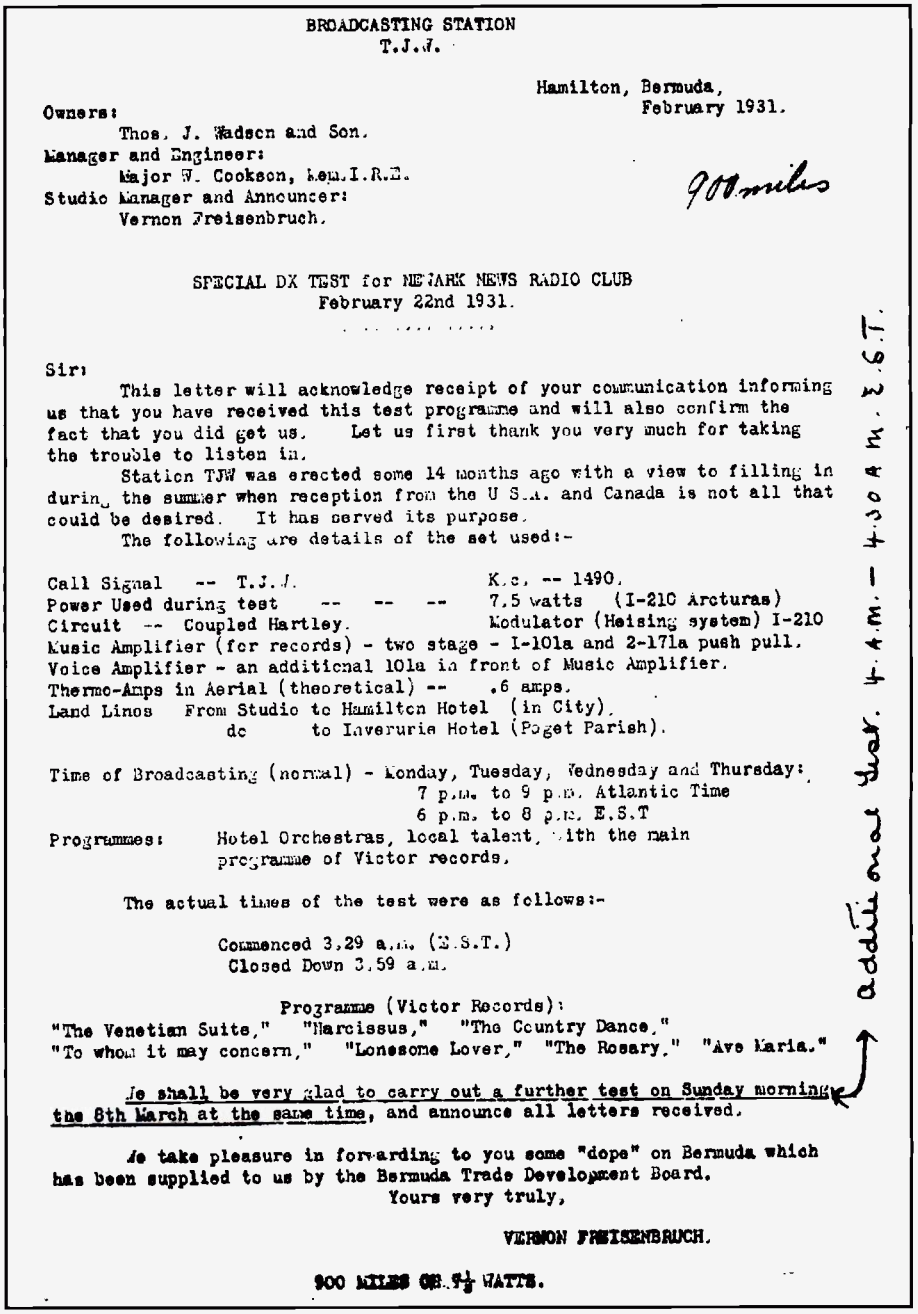
Other Tiny Ones in the U.S.

Decorah, Iowa was the site of KGCA, licensed for 20 watts on 1070 kHz in 1926 to Charles W. Greenley, of 201 Waters St. Decorah, on the Upper Iowa River, was settled largely by Norwegians who made it their chief center west of the Mississippi. It was the site of Luther College (est. 1861), the Koren Library of Norwegian-American literature, and the Norwegian-American Museum. It's a very picturesque area known as the "Little Switzerland" of Iowa.

In 1927, KGCA shifted to 1210 kHz and reduced its power to 10 watts. Later that year the frequency was changed to 1270 kHz. In 1930, KGCA increased power to 50 watts, and by 1936 had expanded to 100 watts. But, by October of 1939 the station had gone dark and it was finally stricken from the FCC's records in March of 1941.

Moorhead, MN, on the Red River, was a leading agricultural distribution center when station KGFK was opened with 50 watts on 1340 kHz (then moved to 1200 kHz) in 1927, but KGFK didn't actually start there. It was first licensed to the Kittson County Enterprise in nearby Hallock, but in 1930 it was moved to Moorhead when it was purchased by Lautzenheizer and Mitchell. They operated KGFK as the Red River Broadcasting Co., Inc. on 1500 kHz. In 1936 the station was doing so well that it was running 100 watts. By February, KGFK was moved to Duluth and its call letters were changed to KDAL.

Battle Creek, MI, is where the breakfast cereal comes from, also where station WKBP was licensed to the Battle Creek Enquirer and News, 7 N. McCamly, in 1927. Their license authorized 50 watt operation on 1410 kHz, changed to 1420 kHz a year later. In 1930, the station changed its call letters to WELL. As of



BROADCASTING STATION
T.J.W.

Hamilton, Bermuda,
February 1931.

Owners:
Thos. J. Wadson and Son.
Manager and Engineer:
Major W. Cookson, Hem.I.R.E.
Studio Manager and Announcer:
Vernon Freisenbruch.

900 miles

SPECIAL DX TEST for NEWARK NEWS RADIO CLUB
February 22nd 1931.

Sir:

This letter will acknowledge receipt of your communication informing us that you have received this test programme and will also confirm the fact that you did get us. Let us first thank you very much for taking the trouble to listen in.

Station TJW was erected some 14 months ago with a view to filling in during the summer when reception from the U.S.A. and Canada is not all that could be desired. It has served its purpose.

The following are details of the set used:-

Call Signal -- T.J.W. K.c. -- 1490.
Power Used during test -- -- -- 7.5 watts (I-210 Arcturas)
Circuit -- Coupled Hartley. Modulator (Heising system) I-210
Music Amplifier (for records) - two stage - I-101a and 2-171a push pull.
Voice Amplifier - an additional 101a in front of Music Amplifier.
Thermo-Amps in Aerial (theoretical) -- .6 amps.
Land Lines From Studio to Hamilton Hotel (in City).
dc to Inverurie Hotel (Paget Parish).

Time of Broadcasting (normal) - Monday, Tuesday, Wednesday and Thursday:
7 p.m. to 9 p.m. Atlantic Time
6 p.m. to 8 p.m. E.S.T
Programmes: Hotel Orchestras, local talent, with the main programme of Victor records.

The actual times of the test were as follows:-

Commenced 3.29 a.m. (E.S.T.)
Closed Down 3.59 a.m.

Programme (Victor Records):
"The Venetian Suite," "Narcissus," "The Country Dance,"
"To whom it may concern," "Lonesome Lover," "The Rosary," "Ave Maria."

We shall be very glad to carry out a further test on Sunday morning the 8th March at the same time, and announce all letters received.

Additional test. 4 A.M. - 4.30 A.M. E.S.T.

We take pleasure in forwarding to you some "dope" on Bermuda which has been supplied to us by the Bermuda Trade Development Board.

Yours very truly,

VERNON FREISENBRUCH.

900 MILES ON 7½ WATTS.

TJW was a 7.5 watt pirate that operated from Bermuda in 1931. It was widely reported along ther Atlantic coast.

the mid-1030s, it was running 100 watts. In 1941 it moved to 1400 kHz and increased its power to 250 watts. The station went dark and out of business around 1970. It is apparently unrelated to Battle Creek's present station WELL on 1600 kHz, which first went on in 1993.

Back when Brooklyn, NY was the place where The Dodgers played baseball, one of the New York City borough's local broadcasters was WMBQ, "The Home Sweet Home Station." WMBQ was licensed in 1927 to Paul J. Gollhofer for 100 watts on 1470 kHz, and was operated from 95 Leonard Street, at the intersection of Montrose Avenue, in the Williamsburg section. In 1928, the station was forced to shift to 1500 kHz.

In 1936, WMBQ was operated by the Metropolitan Broadcasting Corp., and soon after was shifted to 1310 kHz. When the FCC decided to reshuffle frequency assignments in early 1941, it appeared that little WMBQ might be shifted to 1600 kHz to share time with Arthur Faske's Brooklyn neighborhood station WCNW, and also station WWRL located in the Woodside area of Queens, New York City. Ultimately, the FCC decided to cancel both WMBQ and WCNW in or-

1270 K C
236.1 Meters

Radio Station KGCA

100% Modulated
50 Watts

DECORAH, IOWA

Report of
Date 2-7-32

We wish to advise that your report of reception from KGCA Agrees with our station log.

We thank you for the report and comments and assure you they are appreciated.

RADIO STATION KGCA.

By C W Greenley
Manager

Station KGCA sent this QSL out in 1932 when it was running 50 watts. The card is signed by C. Greenley, the station's owner.

RADIO STATION KGFK
Moorhead, Minnesota.

HELLO DXer:-

Was glad to hear from you and to learn that you picked us up the other night. We have checked your report with our log and use this method of verifying your reception of this station.

These special DX programs are broadcast every other Friday Morning between 1 and 3 o'clock CST and the next one will be broadcast January 8, 1932. We operate on 1500 keys, 50 Watts.

Very truly yours,
Red River Broadcasting Co., Inc.

KGFK, in Moorhead, MN was another 50 watt wonder station when this card was sent out in early 1932. Soon enough it went off to Duluth and received new call letters.

Dear Listener

THIS IS TO VERIFY YOUR RECEPTION OF STATION

50 W. **WELL** 1420 Kc.

BATTLE CREEK, MICH.

DATE Dec. 7, 1934 TIME 3.30 am

THANK YOU FOR YOUR REPORT

REMARKS:

Sincerely Yours,
George MacKenzie
Engineer

This WELL from Battle Creek is the 50 watt one from 1934. It appears to be unrelated to the present-day station in Battle Creek with the identical call letters.

Your verification of Jan 5 1935 O. K.

Thank You!

1500 K. C. **W M B Q** 100 WATTS

"The Home Sweet Home Station"

95 Leonard Street Brooklyn, N. Y.

Remarks:-

Paul F. Sweeney

Brooklyn, NY even had 100 watt stations. WMBQ was forced off by the FCC in 1941 when its air time was awarded to another local co-channel station. This 1935 QSL is signed by the station's owner.

"Some appeared to be little more than ham stations and, indeed, most had started that way."

der to allow WWRL to have full time local use of 1600 kHz in New York City.

These are merely a few of those wonderful one-lung broadcasters, gone but (we hope) not forgotten. The QSLs in our column from KGCA, KGFA, WELL, and WMBQ are courtesy of Tom Buckley, Washington, D.C. Tom recently purchased an enormous collection of great 1930s and 1940s QSLs and was kind enough to make copies of the cards and letters so that we could use them here. Really appreciated, Tom!

Rare Photos

Oil City, PA was the site of station WLBW when it opened for business on December 10, 1926 under the auspices of the Petroleum Telephone Company. WLBW was on 930 kHz with 250 watts from the Veach Building, 1 Sycamore Street. This building was later to become the home office of the Quaker State Oil Company, and by 1970 was known as the Fred H. Chambers Building.

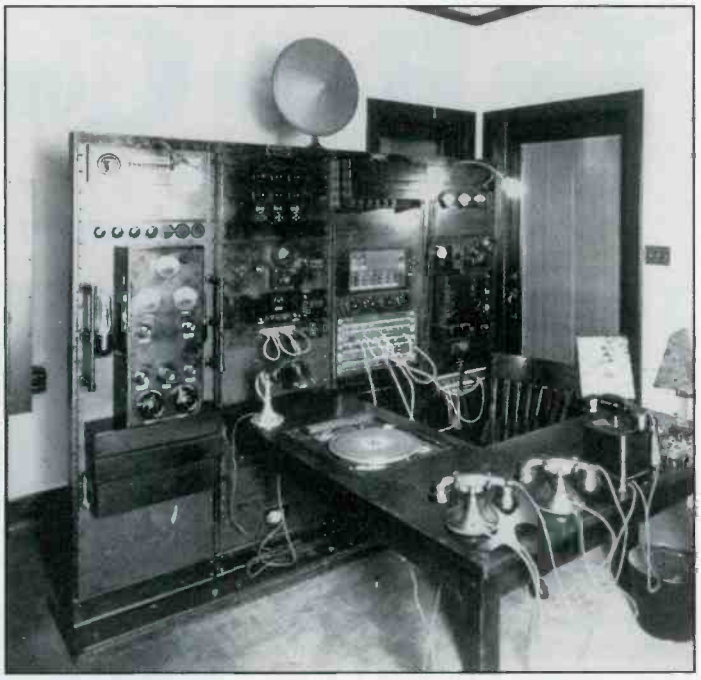
Within its first year of operation, WLBW shifted over to 1020 kHz and was licensed for 500 watts, although it was running 1 kW. In early 1929, the WLBW transmitter was relocated to the top of Hogback Mountain. Soon after, the studios and offices were moved to the "beautiful and spacious" Col. Drake Theatre Building on Seneca Street.

Another move took place in 1932 when the station's part-owner, The Erie Telephone Company, relocated WLBW to Erie, PA. In 1934, the station was purchased for its wavelength by Gov. James M. Cox of Ohio. Presumably the old equipment was scrapped as WLBW was completely reborn on February 9, 1935 in Dayton, Ohio as "new station" WHIO. Today, Oil City, Pennsylvania's WLBW is one of America's long-lost stations.

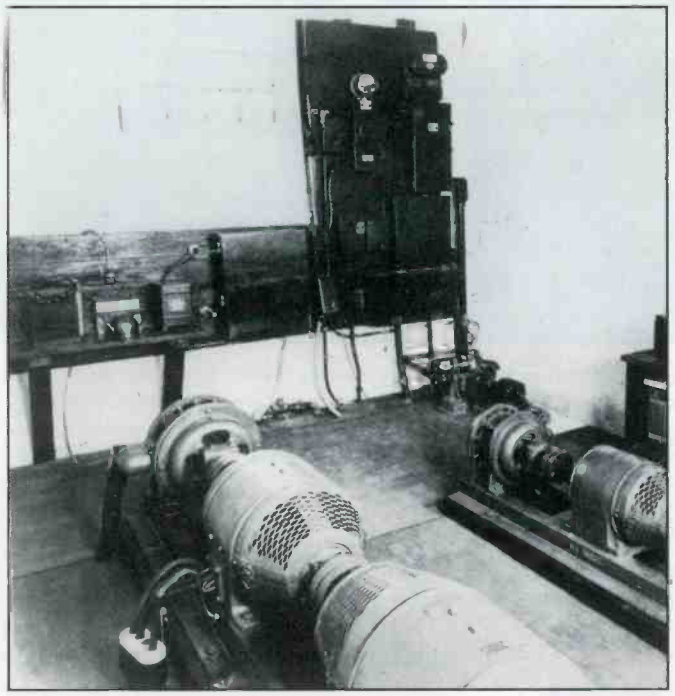
We are lucky to have rare never-before-seen WLBW photos from the 1926–27 era. The photos were taken by Lambert F. "Bill" Pope, who was an engineer and announcer in WLBW's early days. He even played the role of "Uncle Limber" on a kiddie program. In 1931, Mr. Pope became WLBW's manager. The original negatives were passed down to his son, a former TV network engineer. Jan D. Lowry, of Broadcast Pro-File, was permitted to run several prints from those negatives, and has shared them with us.

Broadcast Pro-File is a professional research company that prepares highly detailed historic profiles of past and pre-

The WLBW studios as they looked in 1926 and 1927. Note the bird in the cage over to the far right! (Photo courtesy Jan D. Lowry.)



The speech input equipment as Oil City's WLBW, as it looked in 1926–27. (Photo courtesy Jan D. Lowry.)



Power at WLBW came from these DC motor generators in 1926–27. (Photo courtesy Jan D. Lowry.)

WLBW's transmitters and engineering staff, as appearing in 1926–27. (Photo courtesy Jan D. Lowry.)

sent American AM/FM/TV stations. A reasonable fee is charged. For a complete catalog of fees and services, send $1 to Broadcast Pro-File, 28243 Royal Road, Castaic, CA 91384-3028.

Sail On

An e-mail from a reader signing <Me Cthulhu@aol.com> notes that TV commercials in the New York area have been plugging the big Broadway musical "Titanic," based upon the famous ship that sank in 1912. He reports that the commercials are accompanied by the CW letters "SOS" repeated over and over, but he questions if the [RMS Titanic] actually transmitted an SOS.

Very astute. As it turns out, the ship never sent an SOS, so the commercials are in error! When the vessel sank, the international distress signal was the old CQD, and that was the distress signal sent out from the [Titanic]. In 1912, SOS had not yet been adopted as the international distress signal.

Based on the e-mail name, we assume that <Me Cthulhu@aol.com>, is a fan of fantasy author H.P. Lovecraft. Either that, or we heard directly from Cthulhu, in "person." Let's hope it's the former.

Hope to meet you here again next time. Always looking forward to receiving old-time radio and wireless-related picture postcards, QSL cards and letters (good copies are fine), station lists and directories, newspaper clippings, memories, questions, suggestions, and so on. See you on the road to Radioville. ■

BY PETER J. BERTINI

The Radio Connection

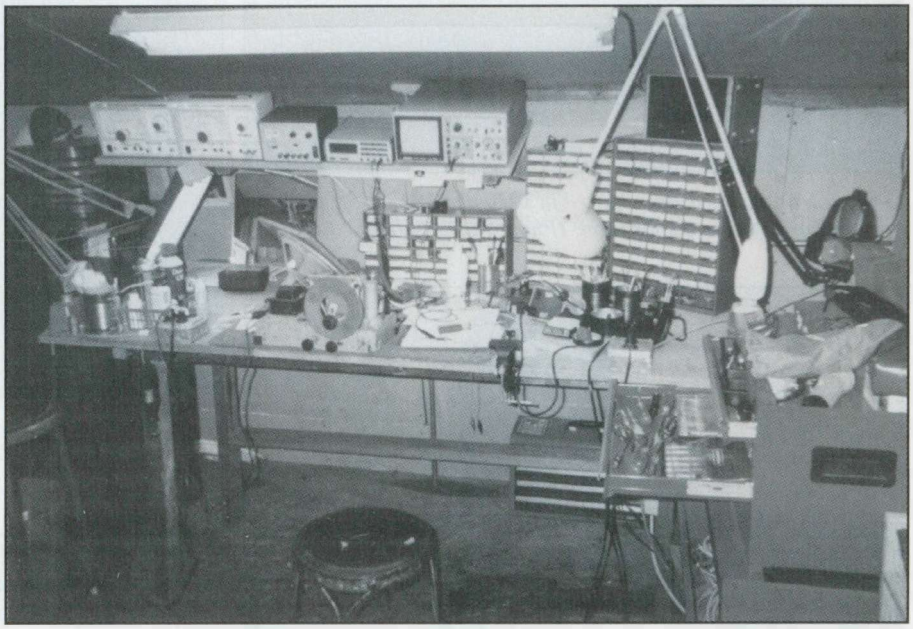
A LOOK BEHIND THE DIALS

Digging Deeper Into the Emerson

Longtime *Popular Communications* reader Charlie Warfield, Jr., KA9OFN writes about his "ideal" electronic workshop, saying "My workshop is a tiny operation on the second floor of a building my dad owns near historic downtown Naperville, Illinois. The workbench is pushed against one wall. My scope and signal generator are on a shelf—tipped forward ever so slightly for a perfect viewing angle. On the bench is a parts cabinet with about 60 different values in it. To my right is a upright toolchest containing many years accumulation of pliers, screwdrivers, knives, more test equipment and doo-dads—all handpicked to make my life easier. Some of these doo-dads were handmade to do a specific job. My favorite is a right angle Phillips screwdriver, heated with a torch and bent for the sole purpose of installing the output transformer in a homebrew tube radio I made as gift to my parents.

My radio projects are stored on shelves, and I have a place for my tube tester and growing stock of tubes. I need more storage area for my radios! (*Don't we all!—Ed.*) In the outside hallway, I've made a bed for my dog Jake. I'm his best buddy, and he prides himself on being my shop dog. So, that's my little world."

Let's hear it everybody, what about you? Tell us about your "shop" or radio collection and send a photo along to me at The Radio Connection, *Popular Communications*, 76 North Broadway, Hicksville, NY 11801.



Overlooking a portion of Charlie's workshop. This is a well-planned layout; his test equipment is close at hand and easily reached, replacement components are in well organized parts cabinets, and there are plenty of good quality tools. Two bench lights combine with the overhead lighting to give needed illumination. Note the nifty large-chassis Philco front-and-center on Charlie's workbench.

Tying the Knot—The Right Way

Few of us have given this one much thought: What is the correct way to secure a lamp cord where it enters a radio chassis or lamp base? I have seen every knot imaginable used for this simple task. There is an Underwriter's Knot just for this purpose.

Examine the power cord entry hole in the radio chassis. Most sets use a smooth metal grommet to avoid chaffing the wire insulation. Otherwise, you should use a rubber grommet or cord restrainer to protect the cord. Sources for inexpensive polarized lamp cords are listed at the end of this column.

Fusing the Chassis

The Riders manual for the Emerson radio shows it draws about 40 watts. I like to fuse my sets—the added cost is minimal. Using some simple math and the common power equations gives us the correct fuse value.

P = I E

P is power in watts, or 40. I is the unknown, the value of the fuse in amps. E is voltage, or about 120 Vac.

40 watts = I 120

P = I E or I = P/E

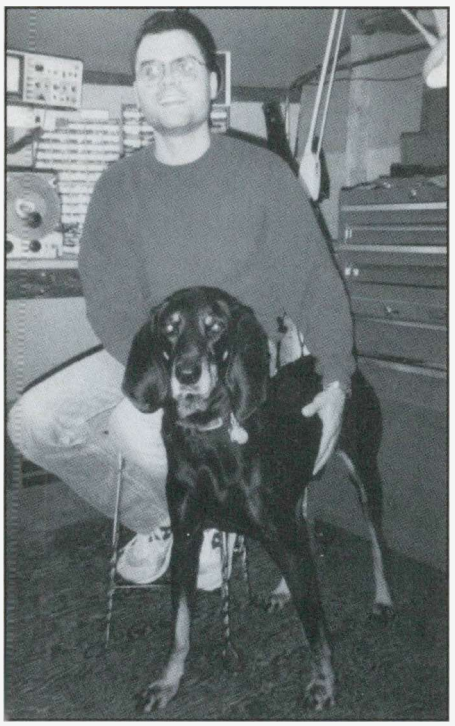
I = 40/120, or I is equal to .33 amps.

In this case, a good value fuse to use is .5 or 1/2 amp. The radio will initially draw a bit of extra current when it is first turned on. The tube filaments draw a lot of power when cold; their resistance is very low until they reach operating temperature. This is why tubes and pilot lamps are most likely to fail when the radio is first turned on; the current surge may blow the weakest point of the filament.

Fuses are sold with different time-delay ratings. A regular fuse may withstand a small overload for several minutes. Fuses are also made with MDL (Medium Delay), and these are intended to tolerate moderate overloads for a period of time. In our case, the extra 200 mA rating provided by a 1/2 amp fuse will suffice. Inexpensive fuse holders can be purchased from the vendors listed at the end of this column.

Replace Defective Wiring

I noticed the Emerson radio's IF transformers had rubber insulated wiring that had become very brittle with age. The first IF transformer secondary grid lead goes to the IF tube grid-cap connection.



Charlie shares the limelight with his pal, Jake the Coon Hound.

This lead is subjected to handling when replacing the IF tube, thus the rubber insulation had flaked away leaving exposed bare wire. I replace wires with defective insulation as a matter of practice.

Antique Electronic Supply carries cloth-covered wire in several popular colors. They also carry the old style "push-back" insulated wire. To use this wire, you first cut the wire to length, and then "push-back" the insulation to expose bare wire to make your connection.

It's a good idea to follow the color code used by the IF transformer manufacturer—usually coded red, blue, green and black. You might get away with transposing the B-plus and plate lead terminations, or the grid and ground return terminations—most of the time. I learned a hard lesson when I did my first restoration on a Zenith 12-tube console radio. I had to replace all of the rubber insulated wire used in the set—and it was considerable work! Even the tube filament wiring was rubber insulated and crumbling. Both Zenith IF transformers had rubber insulated wiring that was in bad shape. To compound matters, these IF transformers were dual-frequency—the set also covered the early Armstrong FM band. The FM section used a much higher IF frequency than the AM and SW bands. There were quite a few wires emerging from those IF cans! I made a bad assumption that the 455 kHz secondary windings could be transposed without adversely affecting the sets operation. The restored radio didn't play right; the tone was poor and the sensitivity was lacking. It took me a while to figure what was causing the problem. Zenith had installed the 100 pF IF bypass capacitor, which removes the residual IF RF energy from the detected audio signal and AGC line, inside the last IF transformer. With the secondary winding transposed, the capacitor was shunting the detector diode instead of the audio and AGC path signal path! I guess there is a lesson to be learned here.

Going a bit off topic, I often find crumbling insulation on wires emerging from power transformers in early AC sets. This seems to be a rather common problem in many early AK (Atwater Kent) radios that used 2.5 volt filament tubes. This is a judgement call. Sometimes the leads are heavy enough, and the insulation, although cracked, is unlikely to be dis-

turbed when the chassis is bolted in place. But if insulation is missing, especially where the transformer leads enter the transformer shell, action is needed. I start by putting heatshrink tubing over those leads, and adding a second layer of insulation provided by large diameter spaghetti tubing. This work must be done carefully to avoid further damaging whatever original insulation remains inside of the transformer shell. *The wires must not be disturbed any more than needed.* The larger diameter spaghetti is available in assortment packages from AES. Sliding insulating spaghetti back over IF transformer leads that have bad insulation often works. Be sure the spaghetti enters the IF transformer can and covers the entire wire length!

The Emerson Electrolytic Capacitor

This Emerson uses a dual-section paper electrolytic capacitor; each section is rated at 20 mFd at 150 Vdc. Normally, I would simply remove the old capacitor, and install a terminal strip with two new replacement caps. For the purists, there is a much better way. Frontier Electronics offers new replacement caps in various values to replace the vintage capacitors in early AC/DC sets. This keeps the under chassis appearance close to original, and the prices are very reasonable. Antique Electronic Supply carries the Frontier capacitor line.

Frontier Electronics will also rebuild those old can electrolytic capacitors from larger radios for a nominal fee. They replace the internal workings with new components, and return them good as new! Drop them or a line or call them for pricing information.

My 1935 Atwater Kent model 435 lowboy console. It's a "boy" because it has legs; and it's a lowboy because the legs are less than 1/2 the height of the case. Even my wife thought it was a "cute" radio.

Electrodynamic Speaker

AC/DC radios use halfwave voltage rectification. The drawback is poor voltage regulation, and higher ripple levels (hum). AC/DC sets typically use RC filtering in the power supply; following the input filter capacitor is a series dropping

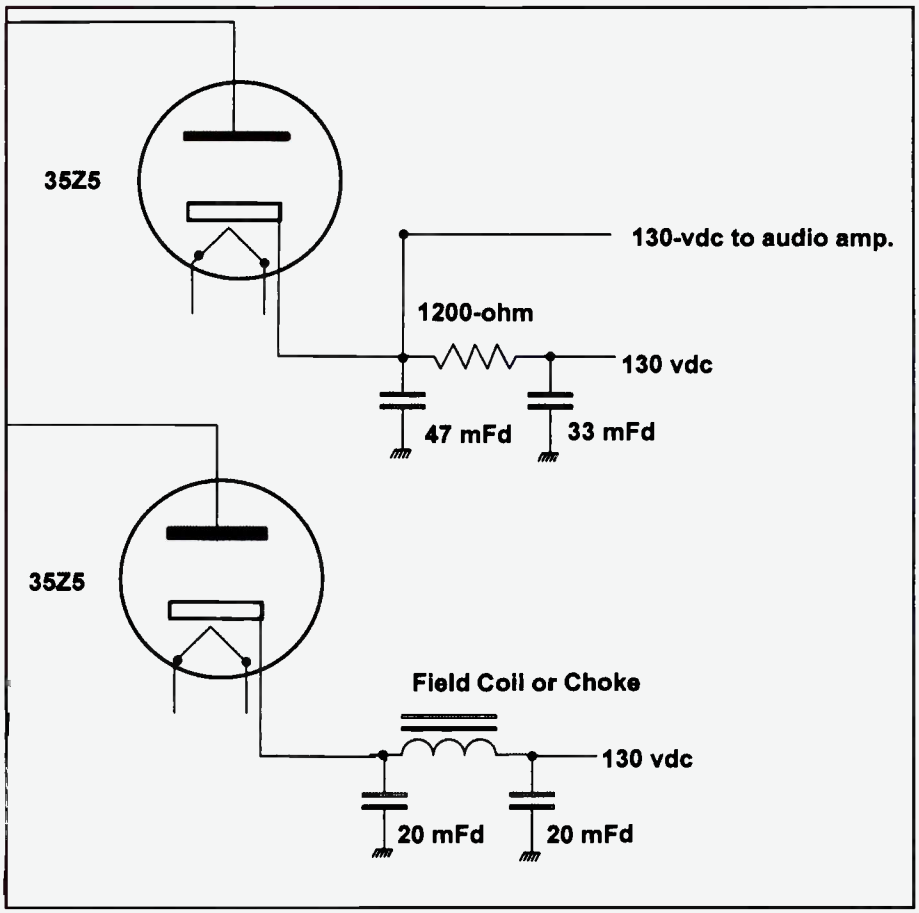


Figure 1: Typical halfwave rectifier, and the RC and LC filters used in AC/DC set power supplies.

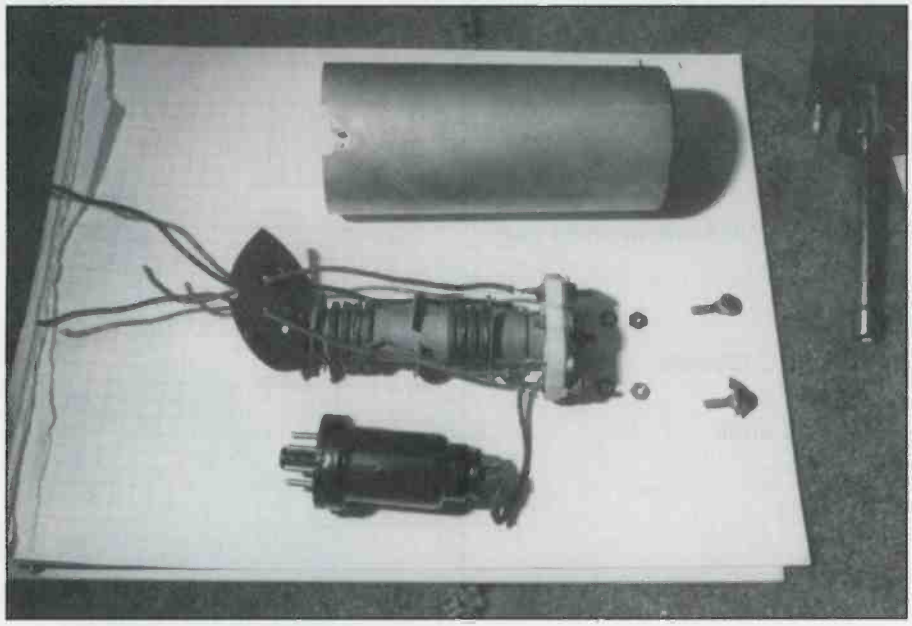
resistor and output filter capacitor. Better quality, and more expensive to make, suppliers use *filter chokes* in place of the series resistor.

Many beginning restorers assume the more capacitance the better when it comes to filter capacitors. While this may be true to a small degree in many sets, those employing filter chokes rely on choke and capacitor values that are best determined by established formulas rather than by random experimentation on the part of the restorer! If the set has hum in the audio, you should look for the cause of the problem rather than attempting to mask the symptom. The Emerson radio we have been working on for the past few months uses an electrodynamic speaker. Modern speakers use a Permanent Magnet (PM Speakers), while older electrodynamic speakers use a field coil winding to produce the strong magnetic field for the voice coil. The very first horn speakers used magnet-based drivers resembling the construction of a single earphone piece. Some early drum shaped speakers used horseshoe-shaped magnets.

The field coil commonly serves as the filter choke in the power supply sections of these radios. The current drawn by the radio through the winding creates the magnetic field for the speaker to operate. There are exceptions. Some sets placed the field coil directly across the B-plus supply, rather than in series with it, to generate the electromagnetic field. Other set designers placed the field coil in the "cold," or negative return side of the power supply. We will discuss this in more detail when we look at how early sets developed negative bias voltages for the audio stages.

"It's a good idea to follow the color code used by the IF transformer manufacturer . . ."

Luck has it that most of these field windings in our radio have survived over the years! I like these old-style speakers, they add a bit of class to the sets! Field coils can vary from a few hundred ohms to many thousand ohms resistance. Had the Emerson's field coil been defective, the choices would be either to find a NOS



Inside view of a typical vintage IF transformer. Upper ceramic plate has two compression mica trimmer capacitors for alignment. Note the flying grid lead going to the IF stage tube. When replacing leads great care must be taken not to damage the fine wires used on the coil windings.

or used replacement electrodynamic speaker of similar size and field coil resistance, or to substitute a more modern PM speaker. If a PM replacement speaker has to be used, a power resistor of equal value is substituted for the field coil winding. In this particular Emerson, the speaker field coil has a value of 450 ohms. To find the resistor wattage, we need to know the B-plus supply current. In radios using single-ended class A audio amplifiers (the 50L6 tube in Emerson), the bulk of the current is used by the audio stage. That's why I would bother to fuse a chassis as simple as this Emerson. A shorted B-plus line could cause enough current to flow to burn out the field winding.

My GE receiving tube manual shows the typical plate current for a 50L6 in class A audio service is about 50 mA. Figure about 10 mA for each of the remaining three stages. Using the power formulas we find:

P = I E where I is 80 mA, or .08 amps. E is 140 volts.

P = .08 140, or 11.2 watts.

This electrodynamic speaker is from an American Bosch console. Note the shield covering the massive field coil winding. The audio stage output transformer is mounted on the speaker frame. These speakers aren't hi-fi, but were well matched to the program material of the day. The wire leads on this speaker assembly carry dangerous voltages! If the wires show any sign of age such as cracking insulation, they must be replaced.

"Many beginning restorers assume the more capacitance the better when it comes to filter capacitors."

To be conservative, use a 450 ohm, 25 watt wirewound resistor to replace the field coil. At the same time, I would at least the double the capacity value of the filter capacitors to compensate for the loss of filtering previously provided by the field coil inductance. Where the Emerson originally used 10 mFd caps, 22 mFd replacements would yield better filtering. The 450 ohm resistor will get quite hot, so it must be mounted where its heat will not damage nearby wiring or components. It should be well clear of the cabinet with the chassis back in place.

Next month's column wraps up the Emerson saga. I will show how to do a quick alignment of the set's RF and IF stages, and give a few hints on polishing the bakelite cabinet! ■

Equipment Sources

Replica electrolytics and rebuilding services:

Frontier Electronics
Box 38
403 South McIntosh Street
Lehr, ND 58460
701-378-2341
(see also Antique Electronic Supply)

Chassis-mount fuse holders

Hosfelt Electronics
2700 Sunset Blvd.
Steubinville, OH 43952-1158
800-524-6464

AC line cords with polarized plugs

Hosfelt Electronics
MECI
340 East First Street
Dayton, OH 45402
800-344-4465

Early-style cloth-covered wire, NOS push-back insulated wire and many other restoration supplies

Antique Electronic Supply
6221 South Maple Avenue
Tempe, AZ 85283
602-820-5411

HOT NEWS FLASH!!

Virginia Judge Rules That Radar Detectors Equipped with Safety Warning System Are Legal

We've just been informed by RADAR, The Radio Association Defending Airwave Rights that on October 30, 1996 The Honorable Robert Phillips, Judge of the Accomack County (Virginia) General District Court, Traffic Division, has ruled that radar detectors equipped with the SWS are not subject to Virginia's long-standing detector ban. The Virginia law has been in effect since 1962.

The Safety Warning System uses technology similar to that found in motion detectors, automatic door openers and radar detectors to alert motorists about to encounter abnormal driving situations. A radar-based transmitter operating on pre-approved radio frequencies sends an audible tone to radar receivers or detectors. New "smart" detectors already on the market also have the capability to display a text message which scrolls across a small screen on a portable, dashboard-mounted unit. One of more than 60 standardized messages, such as "Work Zone," "Emergency Vehicle Approaching," "Accident Ahead" and "Train At Crossing," can be activated by officials at any given time.

The ruling by Judge Phillips was handed down in a hearing on a detector violation issued to retired Cape Charles, Virginia Police Chief Bill Lewis. A proponent of safety radar devices, Chief Lewis was testing three radar detectors on the dash of his vehicle at the time he was stopped and cited for violating Virginia's radar detector van. Virginia's law also includes an exemption for devices "used for a lawful purpose" and transmitting on licensed frequencies. In the rear of his car Lewis also had a safety radar transmitter which he was testing for possible interference from a nearby airport. Even though Chief Lewis told the trooper what the devices were and why he was using them, he was ticketed and told to "tell it to the judge" according to RADAR.

In court, Chief Lewis argued that the Virginia radar detector statute exempts any receiver of radio waves used for lawful purposes and received on a frequency lawfully licensed by sate or federal agencies. Chief Lewis produced evidence proving that the transmitter was broadcasting on a frequency band licensed by the Federal Communications Commission; the band being identical to that on which a K-band radar gun transmits. At no time during the course of the hearing did the Commonwealth of Virginia contradict this evidence. Judge Phillips then found Chief Lewis not guilty of violating the state's anti-detector statute.

Legislation is pending in the Virginia General Assembly to repeal the state's radar detector ban. If passed, Virginia motorists will join millions of other drivers across the nation who are free to receive the warning alerts and traffic-related messages being broadcast by a growing number of Safety Warning System transmitters. Currently the only other area in the United States that bans radar detectors in passenger vehicles is the District of Columbia. ■

BY EDWARD TEACH

The Pirate's Den

FOCUS ON FREE RADIO BROADCASTING

Close Encounters of the Weird and Wild

There continues to be plenty of pirate action going on, as usual, most of it taking place on or near 6955. Here's what we have in our pirate folder this time.

KGDR was heard by Jerry Coatsworth in Ontario on **6955 USB** from 0113 to 0130 sign-off, mentioning that they were using 100 watts and giving the Providence, Rhode Island address for reception reports.

Radio Three, was heard by Coatsworth on **6955 USB** from 0130 to 0200, with music by the Bee-Gees and Boy George. He also had this one on a different date on **9653 USB** from 2202 with an announcer using "disgusting language" so Jerry says he soon tuned away.

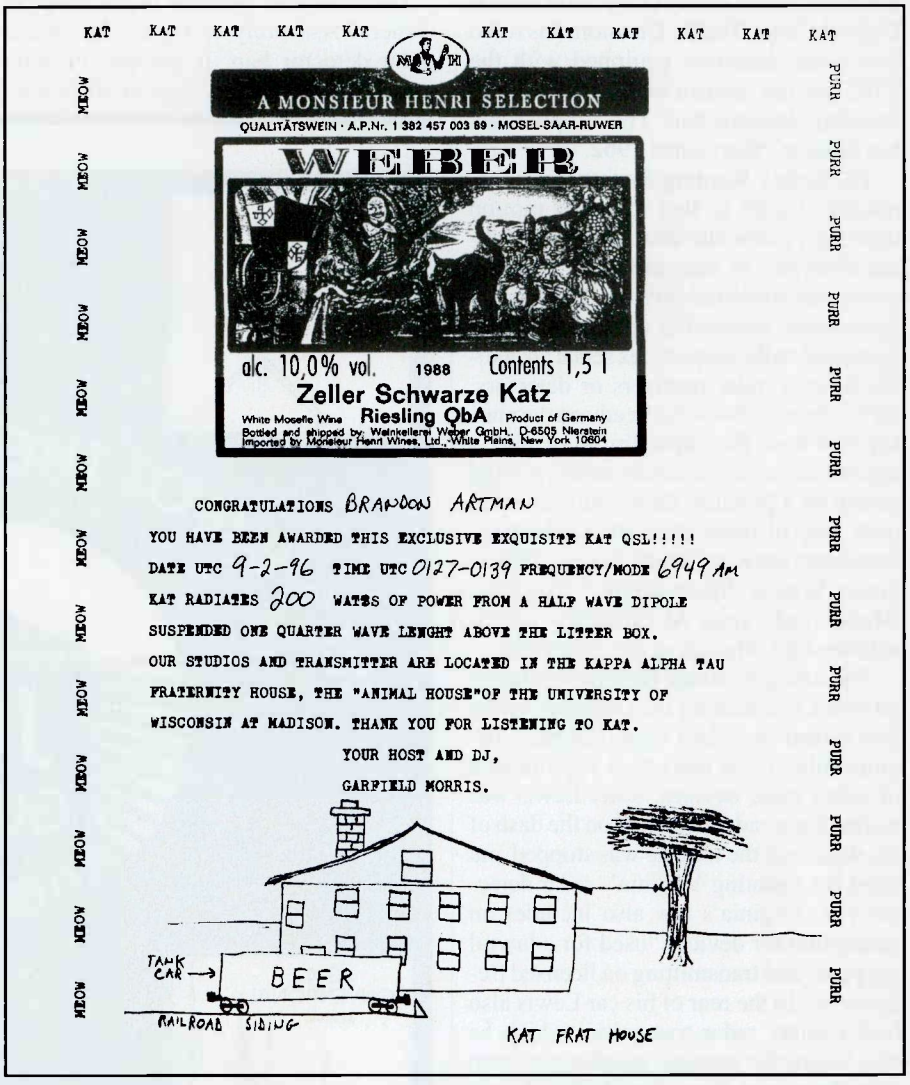
Pat Murphy in Virginia had **Up Your Radio Shortwave on 6955 USB** at 1410 to 1434 sign-off, featuring an interview with Bill Bennett, host "Woody B. Serious" with his top 10 list of "undeniable truths," a Phyllis Schafly speech and a "Hail to Fat Person" song. Unfortunately, says Pat, the audio kept cutting in and out throughout the broadcast.

Hitch Hikers Guide to the Galaxy Electromagnetic Emissions was another Murphy catch, at 1601 to 1615 on **6955**. The host "Arthur Dent," had an end of the universe skit, mentioned that earth was a computer, "42 is the answer to life, the universe and everything," "restaurant at the end of the universe" and so on. Gave the Blue Ridge Summit mail drop.

S.J. Fink (state unknown) heard **WREC** on **6955** at 1414 with a skit about Shimmer Floor wax dessert topping, Hatfields vs. McCoys, ID for "Radio East Coast," "Spud Beer," "The Homecoming Queen's got a gun." They announced both Blue Ridge and Wellsville addresses.

Pirate Radio Boston was heard by Fink on **6955** at 1724 with two males hosting a show that featured the song "Keep Your Head Toward the Sun" and a list of pirates which do not QSL (WJOR, Vox America, WKRK.) They closed at 1731.

Brandon Artman in Pennsylvania heard **KAT—Kitty-Kat Radio** (the initials stand for Kappa Alpha Tao—a fraternity house at the University of Wisconsin, Madison) on **6949** at 0030. The broadcast featured lots of IDs as well as songs about cats and education. They claim to be running 200 watts "from a half wave dipole suspended one-quarter wavelength above the litter box." QSLs via the Blue Ridge address.



This full-size QSL from KAT Radio was received by Brandon Artman.

Ralph H. Fellows II in California had **Anonymous Radio** on **6955 USB**, hosted by "John Doe" who played rock and gave a fake address (P.O. Box 123, Anytown, USA) and told his listeners "you didn't hear this" and not to report hearing him to any of the various pirate bulletins or magazines.

Radio Fusion Radio was picked up by Coatsworth on **6955 USB** from 0225 to 0236 with rap music and oldies tunes.

Jerry also found **Radio Tellus** on **6955 USB** at 0245 with a very clear ID followed by the musical notes from "Close Encounters of the Third Kind," after which the signal faded out. He heard them again from 0125 to 0140 broadcasting an old radio episode of "The Shadow."

Radio Free Speech was logged by

Coatsworth on **6955 USB** at 2246 to 2306 featuring a mailbag segment. S.J. Fink had this one at 1735 airing such items as The Dominatrix "Exercise," Butterball Wizzard, a Who parody, offered a QSL and bumper sticker for a "detailed signal report" "Chernobyl Farms Mutant Turkeys," Rowanda Beach Boys, Radio Porno School, a Dire Straits parody, alternative national anthem to sign off around 1800. Pat Murphy found this at 1340 to 1410 close.

Jack Sheldon in Michigan picked up **All Average Music Radio** on **6955** at 1434 with various singers and an ID that went something like "You're listening to All Average Music Radio," followed by other selections.

Jack also found **Mystery Radio** on **6955 USB** at 0402 with all kinds of sound effects and electronic or space music, apparently intended to be spooky, and one mention of itself as "the more music pirate station."

Pat Murphy also had **WDRR** on **6955 USB** from 1601 to 1615 sign off with "lean and beefy chunks," and what Pat terms "a strange and rambling commentary," Wild One Song, ID as "WDRR—Demented Rock-n-roll radio" and then lost to interference.

Happy Hanukkah Radio was another Murphy pick up, on **6955** at 1559 to 1620. This had a "high-voiced" man with a commentary about the history of Hanukkah, and festive Jewish music. Pat says it may have been a repeat of the show this station presented last year.

Coatsworth found **WMPR** on **6955** at 1436 just repeating their call letters over and over.

Murphy had **Radio Azteca** on **6955 USB** between 1815 and 1855 with host Bam Stoker hosting what Pat says sounded like a new show, featuring a mailbag program with a mention of Chris Smolinski, a record segment by a stand-up comic and another on the "Top Ten DXer Pick-up Lines." (*I'll bet those were good—and I assume they were about picking someone up in a bar or wherever as opposed to "picking up" a station!—Ed*)

Sheldon had the ever-popular **WLIS** on **6955 USB** at 0303 carrying interval signals from other pirate stations such as Azteca, Radio Blandex and others.

That covers things for this time, gang. Remember to send me your pirate loggings and copies of QSLs. If it's more convenient you can e-mail them to my attention at <Popularcom@aol.com.> Thanks!

See you again next month with more pirate radio goodies! ■

Popular Communications Reader Survey
March 1997

Congratulations to Philip Roberts, of Machias, ME. He wins a free one-year subscription to *Popular Communications*. Be sure you send in your Reader Service Card, circling the appropriate numbers corresponding with your survey answers in order to be eligible for our random monthly drawing. You could be our next winner!

We're still compiling the many hundreds of responses to our questions. And as we move along with our reader survey, each month we'll be giving you an inside look at our *Pop'Comm* family and how you view our radio hobby. Thanks for your participation!

In December we asked you what you'd like to see more coverage of in *Pop'Comm*. Several categories stand out; frequency schedules, DXing, antenna construction/theory, general and military/federal scanning and product spotlights were all high scoring items. By far most respondents indicated a desire for more frequencies. We'll be doing our best to provide both more station schedules/frequencies, and on the scanning side of the house, more VHF/UHF frequencies from regional areas will be coming in the next few months.

The majority of you reported that you've been loyal *Pop'Comm* readers for more than 10 years. That says a lot about your confidence in our magazine, and we sincerely appreciate it!

One of the most interesting responses was to our December question about how many hamfests you've attended during the past three years. By a whopping two-to-one margin most readers have *never* been to a hamfest, and only about two percent of you reported having been to the Dayton Hamvention. Nearly the same number of you who reported attending all local/regional hamfests also attended three hamfests during the past few years. In the coming months we'll be talking more about hamfests, how they work and what you can expect from dealers and manufacturers at these one-of-a-kind radio events.

Stay tuned, next month we'll have more survey results from our January issue, and of course another winner in our random drawing. Don't forget to send in your card today!

Here are this month's questions.

1. My friends rely on me for advice about radio, TV and other electronics subjects:

Frequently 30
Once in a while 31
Seldom 32

2. For my shortwave listening/DXing I use the following type of antenna:

End-fed random-length longwire ..33
End-fed random-length longwire with tuner 34
Dipole cut to specific HF band 35
Commercially-made trap dipole ...36
Homebrew Windom 37
Homebrew vertical 38
Wideband Dipole 39
Phased vertical array 40
Commercially-made sloper 41
Homebrew sloper 42
Other 43

3. Getting information and frequencies from the Internet is important to me.

Yes 44
No 45

4. In addition to reading *Pop'Comm*, I belong to/subscribe to the following other monitoring clubs and magazines:

More than six 46
Five 47
Four 48
Three 49
Two 50
One 51
None 52

5. If I were able to, I'd do the following with the CW (Morse Code) requirement for certain amateur licenses:

Keep it in its present form 53
Completely eliminate it 54
Eliminate it, replacing it with a hands-on operating procedures test 55
Lower the word-per-minute standards in each category 56
Have a single 10 wpm requirement for HF operation ...57
No opinion 58

BY BILL MAULDIN, WG4R
e-mail: 75750.1331@compuserve.com

Radio Resources

INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

Electronics and Speed Enforcement

Radio and criminal law enforcement have gone hand-in-hand for as long as most people can remember. Today, many people use a scanner primarily to monitor the local police calls. As electronics and consumer use expanded over the years, the manufacturers and electronics dealers have greatly expanded the variety of items offered to the general public and to law enforcement. Radar detectors, scanners, and CB radios continue to be big sellers.

In my early years in law enforcement, I can remember dragging the rubber tubes of the old Speed Watch across the highway and nailing them in place. When the hollow tubes were crossed by a motor vehicle, air pressure inside the tube activated a switch inside a mercury box at the end of the tube. The air-activated switch of the speed clocking device would start and stop a speed clocking watch. Using a known distance between the rubber tubes would give the traffic officer an accurate speed reading of the passing car on the Speed Watch display. The traffic officer would then quickly throw the Speed Watch quick-disconnect cable out of the patrol car window and chase down the violator. It worked quite well, especially at night when the motoring public could not see the rubber tubes as they lay in the roadway ahead. This was the dawn of electronic speed detection.

The countermeasure used by the motoring public was to flash their headlights to oncoming drivers, warning them of a speed clocking device ahead. This was also the dawn of electronic warnings related to a speed detection device in use on the highway.

Next, radar entered the picture. Early speed clocking radar units which were set up along side the road were not all that accurate, and again, headlight flashing usually slowed traffic to the point of police objectives. Early radar was on the X band. As radar improved, someone saw the chance to make a dollar, and the early model radar detector was invented. The initial radar detectors were not taken kindly by most traffic enforcement police. Many traffic officers of the early days felt strongly that the radar detectors were used by motorists so they could exceed the posted speed limit and not get caught. In many cases, this was true. Truckers talked openly about "smokey with a picture taker" on the CB radios that were also becoming popular. Most police officers these days, although concerned about speeding, seem to have less negative feelings about detectors.

The Cobra "Trapshooter" is a super-wideband radar/laser detector and also receives the new SWS messages. (Courtesy Cobra Electronics Corp.)

The Detection Evolution

Over the years, speed clocking radar added many improvements to the new radar units. In addition to X band, the K band and KA bands were added. Although the X band was thought of as having the greatest range, K band offered more accuracy and was also more difficult to detect, especially considering early radar detectors offered only X band warnings. The KA band, the latest to be added, offers several different frequencies of use within the band, and is the primary band of the new photo-radar stationary clocking units. With the marked increase in speeding today, you can expect to see KA band photo radar to expand greatly in the years just ahead. There are just not enough police officers or troopers to control the number of speeding violations. KA band radar is also planned for detecting and catching those who run red lights, taking a photo for proof.

There was a market for improved radar detectors as these new bands were added. Manufacturers responded. Escort was one of the first to produce a multi-band detector with good range. Bel, Whistler, Uniden, and others quickly followed with improved models. Range was increased, beeping sounds, warning lights, remote antennas, and most recently, a synthesized voice have been added to produce more sales. Yearly articles in automotive magazines rate the units on range, coverage, and overall performance.

The Laser Difference

Laser speed detection, often referred to as "laser radar", is now joining the inventory of the traffic enforcement officer. The innovation of this industry has truly been interesting to watch. Laser speed

guns work much the same as the standard radar units with a few exceptions. When you think of a normal traffic radar unit, think of it as a spotlight in darkness. The radar beam starts out from the unit, and as it gets further and further out, the beam becomes wider and weaker. When a moving object enters the radar beam, a signal is bounced off the moving object and back to the radar unit. Using an electronic doppler formula, the radar unit can calculate the speed of the object. This has advantages and disadvantages. If the object is not clocked "head on", a doppler angle error can occur. The true speed is not displayed on the radar. Generally speaking, this error shows a lower speed and is in the violators favor. Also, radar has a tendency to "lock onto" and clock the largest moving object in the field of view. This means that a small speeding car passing a larger truck will probably not be clocked in most cases.

Laser offers some distinct improvement advantages, and yet there are also clearly some disadvantages too. Laser speed detection units use a single beam of laser light. It works much the same as a the radar beam except it does not become wider with distance. Although range is very limited, the laser gun can be very selective in selecting the target. Take the situation mentioned above with the speeding car passing the larger truck. Using the aiming site on the laser speed detection gun, the officer can aim directly at the car and read the speed without having to be concerned about the truck, since it is not the selected target. It works quite well in that situation.

But what about laser's disadvantages? Laser guns are considerably more expensive than radar units. They can not be used in a moving configuration. You can not clock from a moving patrol car as you can certainly do with a moving radar gun. And, the officer and the violator have to be within sight of each other. Although many departments are testing and using laser speed detection units, it is doubtful that laser will replace radar as the primary speed detection device.

Police officers and the speed detection devices they use must be frequently certified by a state approved method in order for the speeding case to be valid in most states these days. Laser guns are no exception to this rule.

Keep in mind if you are using a combination radar and laser detector that the laser beam will have to be aimed at your detector for it to be picked up. If a traffic officer is clocking traffic ahead with a laser gun, you will have no warning until you are within line of sight of the laser, and it must be pointed at your detector in order to get a valid warning. Warnings often come *after* you have been clocked, because speed readings are not delayed as they can be in radar situations.

What About "Jammers?"

Readers of electronics magazines have always asked about the effectiveness of jammers. Initially, the radar jammers of the early days just transmitted an interference signal on the X band frequency. In many cases, when the signal was strong enough, it would jam and confuse the speed radar unit. But, in addition to emitting an unhealthy radiation signal, they would sometimes mix with the radar beam and give a false speed reading on the radar. I can remember stopping a trucker many years ago who had such a unit. It transmitted a mixed signal, most certainly, but when mixed with the signals of the radar gun we were using, it always showed his speed as 82 Mph. The posted limit was 70. You can just guess

Be careful out there! And remember to drive safely and obey the law.

what happened. These more powerful jammers are actually unlicensed transmitters and violate FCC rules. Long exposure to such radiation could cause health problems and perhaps cancer, according to some in the medical profession. Police officers who have used radar units from inside patrol cars for years during long careers are now showing signs of cancer, mixed with eye and hearing-related health problems. If you are considering purchasing such a device, I would like to offer these views: Most do not work as advertised. Many do not work at all. And consider the possible health risks of long exposure to such a device. Your money would be better spent on a high-quality radar detector and on a CB radio.

I reviewed some recent jamming tests on one of the new "laser jammers" with some interesting results. Laser is very difficult to jam. You must override the "power of light" in a head-on situation. The laser jammer we used did not have any effect until we were so close to the laser gun that we had been clocked and were within 30 feet of the gun. We did jam a laser gun at a slightly greater distance. However it took the laser jammer, both truck headlights on high beam, and the addition of four off-road driving lights turned on high to accomplish the feat. All were pointed directly at the laser gun. How high profile do you want to be if you are speeding? Keep this in mind. When your laser detector goes off, 98 percent of the time you are being clocked, and it's too late. It is that simple. If you are speeding, go ahead and pull over and get out your license.

Detector "Detectors" and the New SWS

Is there a "radar detector detector" in use? Yes, and it works quite well. To be "undetected" you have to purchase one of the latest "undetectable detectors". So far, there is nothing that will detect an undetectable radar detector—unless you have it on your dash in plain view.

With all of my years in traffic enforcement, I have to state my opinion on this controversial subject. Radar detectors do not generally encourage speeding. If anything, they make the user more aware of his speed and also have the tendency to keep the driver more alert. States that have outlawed radar detectors such as Virginia, Connecticut, and DC may have to re-think their position. The new radar/laser detectors incorporate the new SWS, Safety Warning System alert capability. This new motorist warning system approved and encouraged by the Department of Transportation will allow radar detectors to receive safety warning messages which will be transmitted to the new preprogrammed radar detectors. SWS messages are uniquely coded into five categories. Category 1 currently has 13 preprogrammed messages related to highway construction. Category 2 has 18 messages related to highway hazards. Category 3 has nine messages related to weather hazards. Category 4 has 17 messages related to travel information and convenience. This is the one that will tell you there is a "30 minute traffic delay ahead" or how far to the next rest stop, for example. Category 5 will offer you warnings about fast or slow moving vehicles that are close to you. One example of a Category 5 message is—"police in pursuit!" If you had been speeding and had banked on that "jammer" to keep you from being clocked, check your rear view mirror and remember this article.

Just when you think you have it all figured out and think you are safe to exceed the speed limit, you take a trip to Ohio or Florida and discover that your speed has just been checked by the trooper in the airplane. The airplane has radioed your speed to waiting trooper just ahead. Whoops! In addition to the radar detector, the laser detector, the CB, and the jammer, maybe you should have brought along the scanner and monitored the speed detection frequency used by the troopers in the airplane. (Whoops again! Mobile scanners are illegal in Florida unless you are a licensed radio amateur operator!) If it makes you a bit more cautious and aware, perhaps I should mention that in Florida, for example, the Florida Highway Patrol has 17 speed-clocking high wing Cessna airplanes, and they check your speed from 2,500 feet, where you'll never see them as you cross over the frequently painted white lines on the highway.

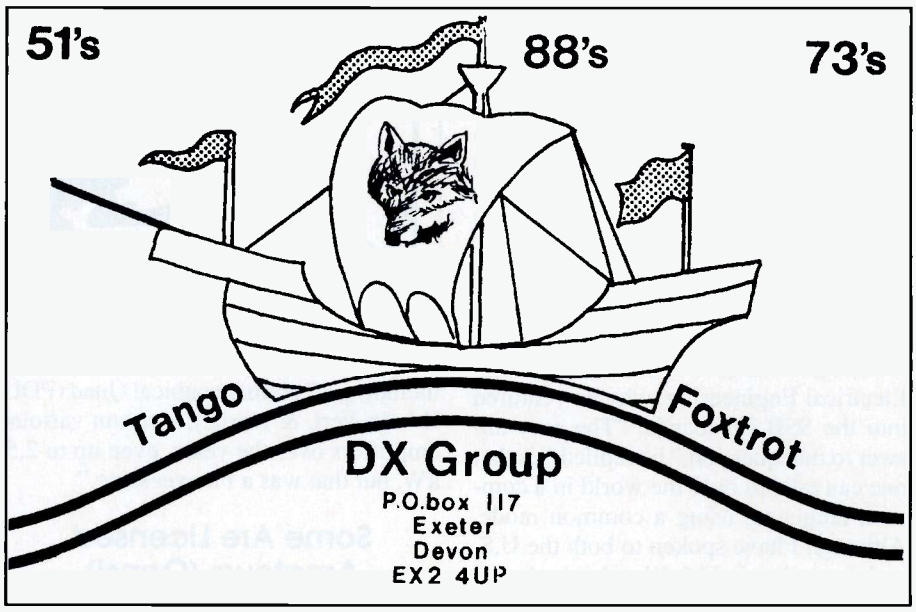
My advice? Drive safely and obey the law. Enjoy the electronics and "be careful out there!" ■

CB Scene

BY JOCK ELLIOTT, SSB-734

27 MHz COMMUNICATIONS ACTIVITIES

SSB's Dirty Little Secret, Part II



Last month, we started to examine a part of SSB/CB operation commonly referred to as Freebanding. We saw that the Freebanding is a worldwide phenomenon. It uses a segment of radio spectrum (and an operating style) between the CB and amateur bands. We also saw that, even though it is illegal to operate there, the Freeband is very popular. It's so popular in fact, it is one of the main reasons that it's so hard to maintain an active population of operators on the CB SSB setaside. At times, it seems like everyone has gone "upstairs". Now, with the preliminaries out of the way, it's time to meet a few Freebanders, see why they do it, what kind of equipment they run and what dangers they face.

What's The Big Attraction?

What is the big attraction in operating Freeband? In a word, space. There is a lot of it, at least three or four times more available space than on the legal CB band. The Freeband, which starts at 27.415 MHz (just above channel 40) runs to 27.995 MHz (just below the beginning of the 10 meter amateur band). That is about 60 conventional channels worth of additional radio space. However, because the dominant mode of operations is SSB, plus the fact that navigation of the band is by frequency—not channels, the actual space available is far in excess of 60 channels. Depending how you figure it, there are probably 200 or more usable frequencies (or channels, if you insist) available at any given time.

Contrast this with the legal CB band. In heavily populated areas, especially when the skip is in, it is often full to capacity—and beyond. With such extreme overcrowding, it can be impossible to get a word in edgewise, let alone carry on any meaningful conversation. Is it any wonder why so many SSB CBers see the Freeband as their way to escape the deplorably overcrowded conditions on the legal 40, when there is so much unused space available "Upstairs"?

"At times, it seems like everyone has gone 'upstairs'."

Variety: The Spice of the Freeband

Extra operating space is not the only attraction in the Freeband. The freedom afforded by that space, combined with some of the more advanced radio equipment employed, opens the door to a variety of methods and modes of communications. In addition to SSB voice, you can also find some fairly exotic modes in use. For example FM (Frequency Modulation), is occasionally heard. Packet, a digital mode similar to a computer BBS or Internet IRC, is becoming increasingly popular. Using packet networks, Freebanders can send e-mail style messages, share computer files and "chat" with other operators across town or around the world. Some of the more progressive operators are even starting to work with Slow Scan TV!

Then There's Distance

Last, but certainly not least, is distance. On any given day, whenever the skip is in, you can hear Freebanders talking to their counterparts across the country and, occasionally around the world. What red-blooded CB operator hasn't thrilled at the chance contact with some distant domestic, let alone an international, station? Who among us hasn't dreamed of carrying on a conversation with someone several states or continents away? Because of the efficiencies of SSB, the relatively uncongested space available, superb equipment and highly polished technique, Freebanders can do this on a regular basis.

Why They Do It—Freebanders Speak Out

In researching this article, I have corresponded with Freebanders across the United States and around the world. From Moscow to Memphis, from Holland to Hawaii, from Australia to Atlanta. Wherever they are, their experiences and outlooks are extremely similar. Here is just a sampling of what I found. Some of their names and locations have been changed.

First of all, don't get the idea that you need a monster station to participate in Freebanding. You don't. Many Freeband-

"Who among us hasn't dreamed of carrying on a conversation with someone several states or continents away?"

ers run 12 watt P.E.P stations and do just fine. Take for example Mike, a new SSBer from Miami. Even with the current lull in skip conditions, Mike boasts some fairly impressive contacts. They include Ranger 44 from Yuma AZ, 709 Garden State, New Jersey, 954 Penuelas, and Q Fajardo from Puerto Rico. He has also talked with many others from South and Central America and he has done it all using a Uniden Grant XL with a Modulator II antenna.

I asked Englebert in England, who is working on his Ph.D. in Electronics and Electrical Engineering, why he ventured into the SSB Freebands. "The easy answer to that question," he replied," is that one can talk all over the world in a common language, using a common mode. Although I have spoken to both the U.S. and Australia on FM, it's a heck of a lot easier to do it on SSB. I have been at it about 10 years, on and off, and have spoken with over 150 countries. I'm active on CB radio from 27.410 to 27.800 USB (LSB not much), especially active in USB at 27.555 to 27.615 MHz when propagation coming up and it is very good for making QSO in USB. I run a Cobra 148 GTL DX Mk III. (26.065—28.405 inclusive, low-low to high-high, 15 Watts all modes), standard mic, Zetagi B130P amplifier (150 W) and several antennas including a 2 element cubical Quad (PDL II both Vert. & Horiz.). I've run various amplifiers over the years, even up to 2.5 kW, but that was a bit excessive."

Some Are Licensed Amateurs (Oops!)

I have even heard from Freebanders who are licensed amateurs. Surprisingly, they say they enjoy or even prefer the Freeband to the amateur bands. Why? Well, as one gentleman put it, "I hold an advanced class license, but find that I'm going back to CB (Freeband). I find the people there to be more interested in other facets of life rather than how much power I run, antennas and contests." Another quips "I had a ham ticket long ago and found the hum-drum repeater and constant ID crap irritating. I'll keep my CB any day, thank you very much!"

Still another says "You know I'm a ham too, but truthfully I enjoy CB much more. It just seems more real." A number of others observed that it is easier to develop good conversations on the Freeband. Why? One common reason seems to be that on the amateur bands you are constantly interrupted by contesters trying to accumulate call signs, contacts and locations for points.

Illegal Does Not Translate Into Lawless

Just because Freebanding is illegal, don't assume that it is lawless. It is not! "Sure, there are a few bozos who have dirty signals." says Carl from California. "They will transmit above 28 MHz (in the 10 meter amateur band), or below 26.400 MHz, where there are legal broadcast 'backfeeds'. (Our local TV station sometimes uses 26.150 to provide broadcast audio to remotes in the field.)." However, as Ollie from the Ozarks puts it, "I think you'll find that most serious Freebanders are responsible and respectful radio operators. After all, you are all there to enjoy the same thing—radio."

If you have been shooting skip at all, you might have talked to Ollie (not his real name) somewhere between 27.365 and 27.685. He stands by on 27.615 LSB and scans .555/ .365/ .375/ and .615 for any incoming. His bragging rights include contacts in France (3), Germany (1), Australia (30+), Brazil (5, including 2 while mobile), Mexico (8), New

Zealand (6), England (12), Canada (50+), Netherlands (4), Chile (1), Ireland (5), Italy (5), Spain (3), Venezuela (4), Yugoslavia (2), and Mauritania N. Africa (1).

The Risks

Truth and consequences—common knowledge and the FCC, alright? So if the Freeband is so wonderful, why then isn't everybody there? Simple, it is illegal! When you operate in the Freeband you run the risk of attracting the attention of the FCC. That attention can translate into fines or other punishment, such as confiscation of your equipment.

So, what are the chances that the average Freebander will be caught and prosecuted? Pretty slim. I have only been able to find a few operators who have actually been contacted by the FCC—none of them recently. Only one says that the visit was prompted directly by their activity on the Freeband and he readily admits it was his own fault. He was absentmindedly using his amateur call sign there. The rest were accused of causing RFI and TVI. Most of these were "years" ago and the worst that happened to any of them was that they received stern warnings and, in one case, restricted hours of operation.

Is the Commission still actively interested in Freeband operation? You bet. As recently as May 13, 1996, the FCC issued a notice to radio manufacturers and importers "to clarify Commission's Rules regarding equipment intended to operate in various radio services in the high frequency radio spectrum." These are the radios that are extremely popular with Freeband operators. While the notice, and rumored investigation, is aimed primarily at suppliers, users can reasonably assume that the Commission is thinking about them as well.

In practice, however, it is a matter of practicality. Unnamed officials at the FCC admit, off the record, that they are not overly concerned with Freeband operation—as such. While they have in the past, and will no doubt in the future, run "sweeps" of the Freeband, the majority of their investigations, by far, are "complaint" driven; and do they ever get complaints! They are being inundated by complaints of radio interference to home electronic equipment. Further, they know that there are a number (they guess 20 percent) of CB operators, Freeband and otherwise, who are aggravating the problem with dirty, overpowered equipment. Operators who generate complaints, as well as their on-air companions, should expect a visit.

While this should in no way be interpreted as a "green light" to operate in the Freeband, it would seem to indicate that individual operators, who run clean stations and carefully choose the company they keep, have little to fear. Hans from Holland expresses that view for Freebanders here and abroad when he says "Yes, operating in the Freeband is illegal. But, as long as we don't bother anybody (cause interference like TVI) the authorities leave us alone."

The Real Danger

The biggest threat Freebanders face is NOT from the FCC. The FCC, after all, is after the same thing that Freebanders are—reasonably hassle-free communications for everybody! The less they hear about the Freeband, in the form of complaints, the less likely Freebanders are to hear from them, in the form of enforcement actions.

As its name implies, the Freeband is really free. Freedom is wonderful. Freedom is fragile. Freedom, not properly cared for, degenerates into anarchy. Freedom, such as that on the Freeband, not only attracts the adventuresome, but the troublesome as well. You know the type. Loud, rude, crude and obnoxious operators who are the bane of true radio enthusiasts everywhere. They are the operators who run their dirty mouths over dirty radios through dirty linears. They foul the airwaves for all of us, no matter what band we use. In the final analysis, the real danger Freebanders face is themselves and that they will not conduct themselves as true ladies and gentlemen—that they will cease being Sidebanders. In short, that they will fail to be good neighbors.

Send Us Your Comments

Well, that's it for now. I look forward to hearing from you. Please send your comments, questions and suggestions to me in care of the magazine. I can also be reached on the internet where my address is <edbarnat@global2000.net>. Better yet, if you can, catch me on the radio. Coming next month in CB Scene, Jock will be back with more letters and news from the world of CB! ■

73's, Ed.

The Old CB Shack

BY DON PATRICK

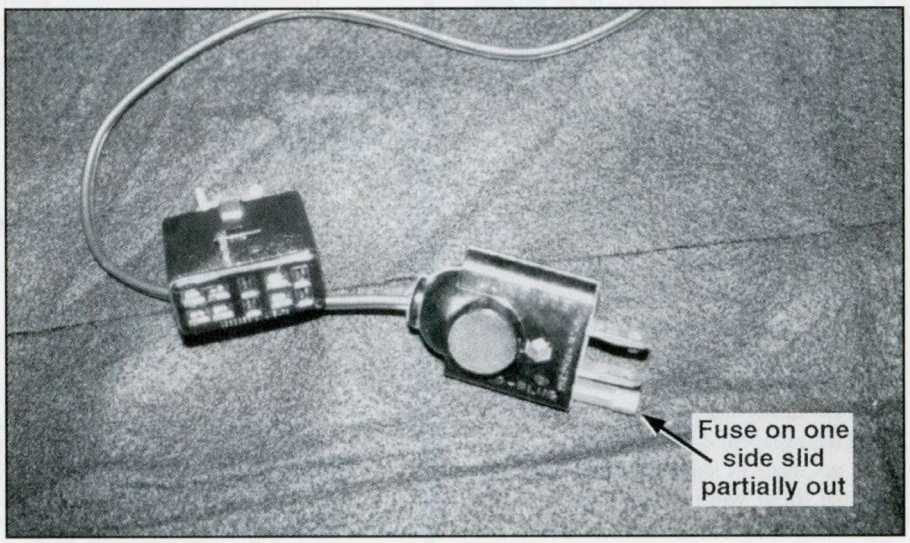
GIVING LIFE TO YESTERDAY'S RELICS

Continuing to Work on the Polycom CB

In the January issue, we left off at the point where we were about to apply power to the radio we are rebuilding. A number of readers have asked if we are going to a rebuild an old CB like "they" own. We probably won't as there are hundreds of models and brands and it would take many years to cover even a part of them. However, if you use this series as a guide, many of the old units can be rebuilt and restored to like new performance. The service information you get on a different brand will cover the variations in parts, voltages, and tuning, but the basics remain the same from one unit to another!

The Polycom series of tube units all used the same power cord. The set end of the cord used a Cinch brand female type 10 pin plug. It's model number S310CCT and is available at most electronic radio and TV supply houses for less than five dollars. The six-foot line cord was just standard lamp cord. The critical part is the plug that goes into the wall socket. It was made by ELMENCO and was a double fused plug. There was a fuse on each side of the line. This was in the days before wall outlets and plugs were polarized, and the hot side could be on either wire depending on how you turned the plug. I doubt that they are even made any longer. It is very important that you find one or make other arrangements for fusing the power cord, as this is the only protection you have for the house and/or radio. Without a fused cord, you can turn a simple parts failure into one that destroys the radio.

If a fused plug can't be found, you can use a polarized plug (three pin) and put an in-line fuse in series with the hot side of the cord. Be sure the wire on the fuse holder is rated for 110 volts or wrap the wire with scotch No. 33 tape after soldering it into place. Use heat shrink over the two solder connections and then tape from up on the lamp cord all the way to the plastic fuse holder. Do this on both sides of the fuse holder. Be sure to unplug the cord from the wall before checking or changing the fuse. If you don't, you could get a deadly shock! The original connector and fused plug are shown in the picture, with one of the two fuses partially removed. The jumper between pins can be bare wire (No. 18 or larger), but be sure they don't touch any other pin than the ones they are supposed to. The hot side of the lamp cord solders to pin No. 3, the neutral side to pin No. 4. Then you jumper pin No. 1 to No. 2, pin No. 7 to No. 9. Next connect pin No. 5 to No. 6 and lastly, jumper pin No. 8 to No. 10. Double check your wiring and solder jobs, and put the cover back into place.



The original connector and fused plug from our Polycom CB.

Look on the back of the set and you will see an 8 pin test socket J-4 (see drawing). This plug will be very useful in your tune-up procedure> The drawing shows the pins from an inside view. The keyway is between pins No. 1 and 8 and they are numbered on the inside of the unit. Note that pin No. 8 goes directly to ground, which will help you count them correctly. Connect your power cord to the set, BUT not the wall plug yet. Set the radio up on its end. If you set it on the other end, it will be unstable and try to tip over and when you grab to catch it, you most likely will also get a handful of high voltage too! Remember that the cover is still off of the high-voltage rectifier section, plus most of the tubes and other exposed connectors or terminals have from a –110 volts to a +300 volts open to the careless touch!

Let's Under-Fuse the Set

You need a voltmeter of 20,000 ohms/volt or better yet a VTVM, along with a watt meter, a signal generator, a frequency meter and a couple of tuning tools. The volt meter, watt meter and tuning tools are cheap to buy, but the other two meters are not. So after you have checked to see if the voltages are within normal range, that it makes noise and not too much smoke, it may be time to take the unit to someone else that does have the necessary equipment and training.

Before you plug the set into the wall outlet, I want you to under-fuse it. Normal for 117 volt use you should use a 3AG-1 amp fuse. But that is to handle the transmit drain and a bit more to keep the fuse from fatiguing. Instead of using a 1 amp fuse, put a 6/10 or 7/10 amp fuse in the holder. This will provide for quicker blowing of the fuse in case of excessive current. If it comes on and stays on with-

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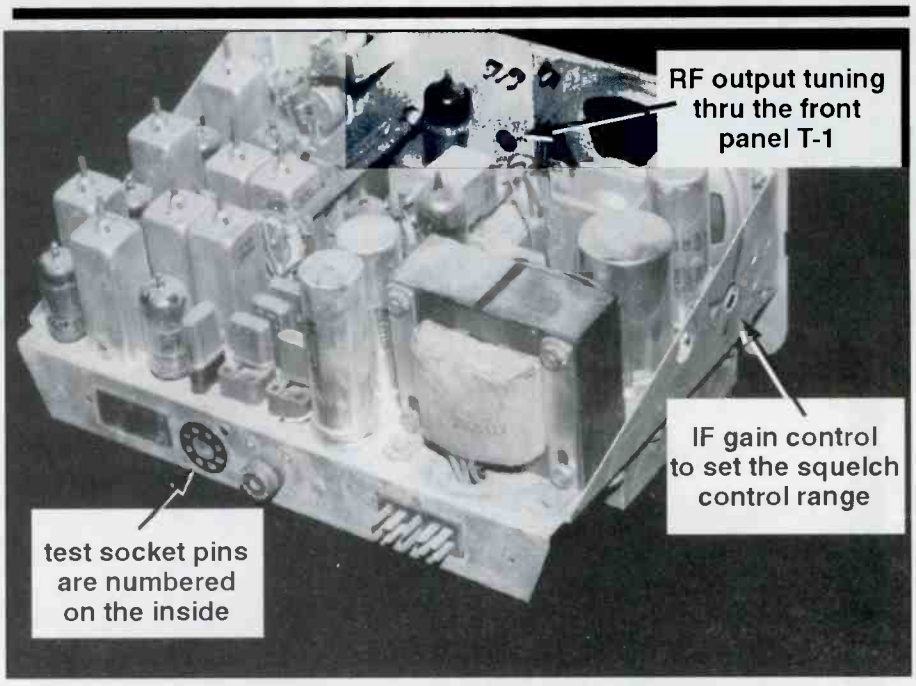
CIRCLE 172 ON READER SERVICE CARD



Locations of various items you'll be checking as you refurbish your Polycom.

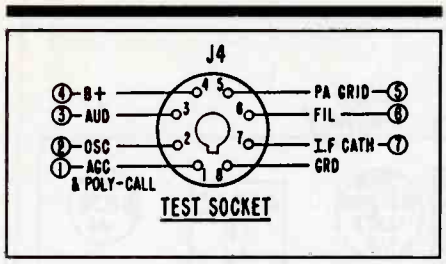
out any visible sign of trouble (such as smoke), turn it off and change the fuse back to a one amp rating and turn it back on and let the unit warm up for a minute. Turn the squelch control counterclockwise and the volume to about 11 o'clock and you should hear noise. If you don't, turn it back off and set your volt-meter to the ohms scale RX1. Touch the leads of the meter to both sides of the audio speaker and if the speaker is good enough to at least make a noise, it will "pop" as you touch the terminals.

If there is no "pop," you have a bad speaker. If there is noise caused by the meter, you have one of three things wrong most of the time. These include (1) a bad, incorrect, or incorrectly wired microphone, (2) a bad or dirty switching relay or (3) a defective audio circuit. Many radios provide the ground return for the speaker through the microphone (as the Poly does) or through a switching relay. Check your schematic to see which yours has. If your radio has the microphone return or relay return, a wire clip lead from the chassis to the speaker terminal will restore noise. If it's the audio circuit, it depends on your technical capabilities to find the problem or get outside assistance.

Let's assume that you have noise. Now place your meter back to the voltage measurement position, set for at least 300 volts DC. Connect the black ground lead of the meter to the metal chassis and the red positive lead to pin No. 4 on the test socket. You should get a reading of some 300 volts DC, plus or minus 15 percent. The power supply has a voltage doubler circuit, and among other things, a bad capacitor will cause it to be low. If you do not have the correct voltage, change your meter and set it to measure a negative voltage of around –100 volts. On most meters, this is done by connecting the red lead to chassis and using the black lead to read the voltage. Hook the meter black lead to pin No. 5 on the test socket. You should measure something around a –90 volts. This is the transmitter bias voltage and keeps the unit from transmitting while in the receive mode. If it's around a –90 volts or more, go on to the next step. If it's not, first unplug the mic and see if it comes to normal. A mis-wired mic or defective cord can cause this trouble. If it's still too low, you will have to trouble shoot the bias supply and/or the circuits fed by it.

Got the Right Crystals Installed?

We assume that you have a set of crystals installed and they are proper crystals. Just because a crystal is the same size and with the same size pins and marked for some channel, does not mean that it will work in your set or any other set other than the one it was cut for when manufactured. I'll not go into all the differences from one crystal to another, but while there are only a few sizes and pin types,



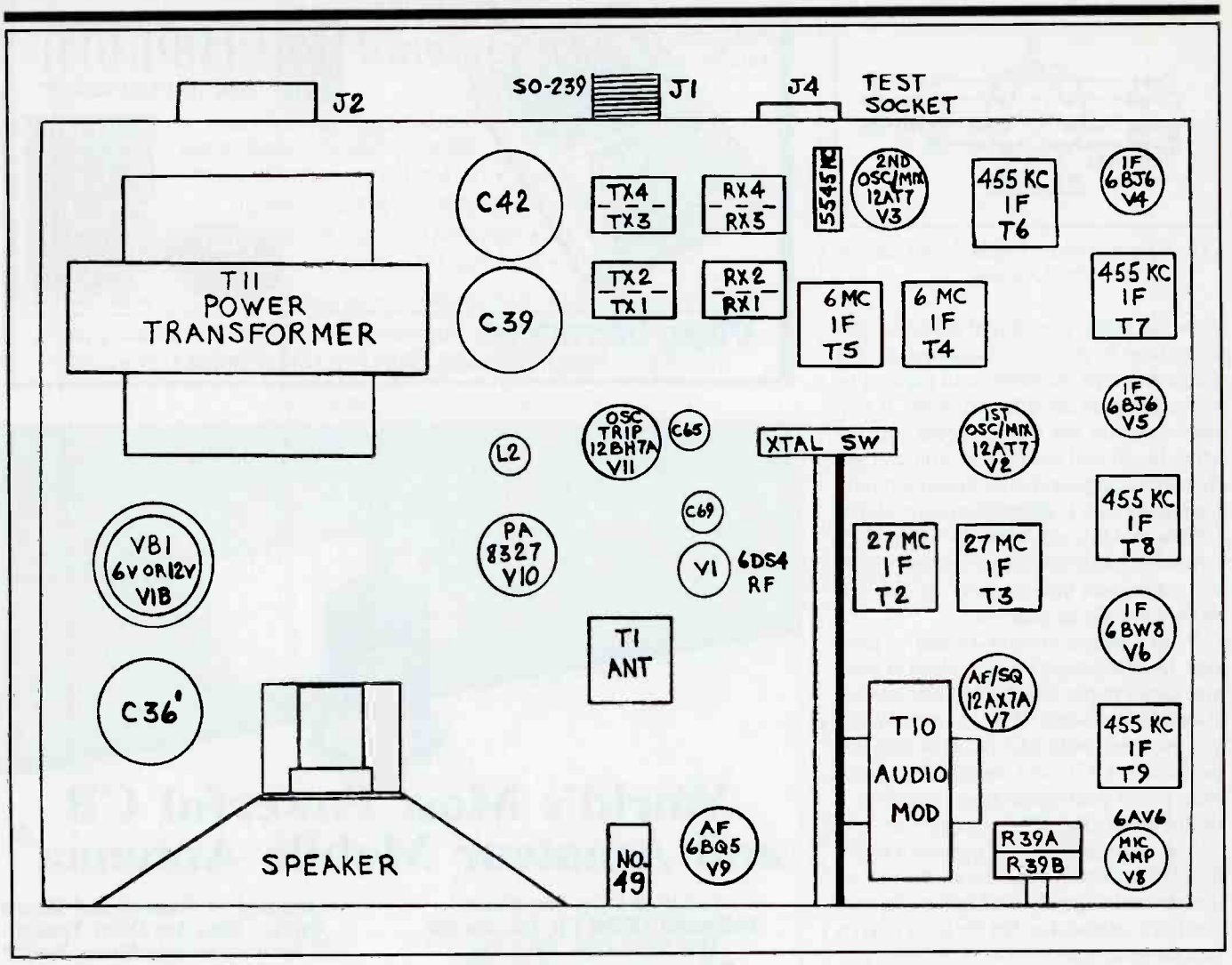
The 8-pin test socket located on the back of the Polycomm.

there are many (dozens) of different cuts regarding frequency (fundamental, 1/2 frequency, 3rd overtone) and parallel or series resonate circuits and more. If you need crystals for the Polycom, or any other brand and model CB, you can get them from any number of manufacturers. One of the best is International Crystal in Oklahoma City, at 1-800-725-1426. They have a very extensive data bank giving all the correlation data so your crystal will work correctly in your set.

With a proper receive crystal in your unit, hook the negative meter lead of your volt meter to pin No. 2 of the test socket. It should read some –5 to –8 volts. While you are there, adjust L1 for peak then detune about 1 1/2 turns counterclockwise. Now move your meter lead to pin No. 1 of the test socket, set to measure a –1 to –2 volts, connect a signal generator to the SO-239 (antenna connector on the rear of the set) and adjust to the highest channel you have crystals for. Set the level to give you no more than a –2 volt reading. If it gets too high during receive tuning, lower the generator output.

Now tune both the top and bottom slugs of T9, T8, T7, T6, T5 and T4 in that order for peak reading. If your set has been badly mis-tuned by some prior owner, it may be possible that you will have to inject tune the 455 KC transformers T9 through T6 by injecting a 455 KC signal at the grid of V3, pin No. 2. Then you would inject 6 MHz at the grid of V2, pin No. 2 and tune to T5 and T4. After that, you should feed an on-channel signal at the antenna jack and retune T9 through T4 for a peak reading. Now, with the same on-channel signal, tune the single slugs of T3 and T2. This completes the receiver portion of the tuning. If you don't have a great working receiver, the radio will have to be checked for the problem or problems. Special notes: Some Polycom

"Without a fused cord, you can turn a simple parts failure into one that destroys the radio."



An inside view of the Polycom.

units had a squelch range control which you could adjust by removing the squelch knob and using a small screwdriver through the shaft. Also, most Poly units had an IF gain control which can be reached through the chassis on the transformer end of the radio. There is an electrolytic can right behind it and then the speaker magnet.

Tuning the Transmitter

For this, you will need a frequency meter, a dummy load and your voltmeter. First, be sure that you have a proper crystal installed. Then check to see that you have a good No. 49 bulb installed in the socket just above the microphone plug on the front panel. This bulb will glow dimly when transmitting and change brightness with modulation. You can make the final adjustments matching to the antenna by adjusting for maximum brightness. Key the microphone and check your frequency. If it is off more than 1000 CPS, adjust the trimmer beside the crystal to set the frequency. Failure to adjust to less than 100 CPS off center indicates a bad crystal or a wrong one.

"Just because a crystal is the same size and with the same size pins and marked for some channel, does not mean that it will work in your set . . ."

Once the frequency is correct, hook your meter's negative lead to the test socket pin No. 5. In the receive position, it will read some –90 volts. But in transmit, it will read about a –20 to –25 volts. Adjust L3 for maximum while transmitting. Then adjust T1 through the front panel for maximum wattage or maximum brightness on the bulb I1 on the front panel, the No. 49 bulb. With the power turned off, re-install the power supply cover. This should complete the tune-up of your Polycom. If you have any problems such as low power, poor receive, low or distorted modulation or audio, the problem could be from anywhere and anything. But a good service tech could trace any problem quickly and restore the unit to specification, now that you have it this far along.

Got Any Questions?

If you send me a letter with your particular questions on any model CB, I will do my best to send you a prompt reply. Enclose an SASE for your answer. Mail them to Don Patrick, 3701 Old Jenny Lind, Fort Smith, AR 72901.

In the May issue, we will discuss what you can do to restore transistor type units to full performance. See you then.

Old Timer

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The MFJ-956 is a *high-Q* passive LC preselector that lets you boost your favorite stations while rejecting images, intermod and other phantom signals. Covers 1.5-30 MHz. Has preselector bypass and receiver grounded position. 2x3x4 in.

Mobile Scanner Ant.

Cellular look-a-like. Covers 25-1300 MHz. High-est gain on 406-512 and 108-174 MHz, 19 in. Magnet mount. MFJ-1824BB has BNC/UHF plug; MFJ-1824BM has Motorola plug. MFJ-1824BB/BM **$19.95**

MFJ 12/24 Hour LCD Clocks

MFJ-107B **$9.95**

MFJ-108B **$19.95**

MFJ-105B **$19.95**

MFJ-108B, dual clock displays 24 UTC and 12 hour local time *simultaneously*. **MFJ-107B**, single clock shows you 24 hour UTC time. ***3 star rated*** by *Passport to World Band Radio*!

MFJ-105B, accurate 24 hour UTC quartz *wall clock* with large 10 inch face.

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MFJ-1704 **$59.95**

MFJ-1702B **$21.95**

MFJ-1704 heavy duty antenna switch lets you select 4 antennas or ground them for static and lightning protection. Unused antennas automatically grounded. Replaceable lightning surge protection device. Good to 500 MHz. 60 dB isolation at 30 MHz.

MFJ-1702B for 2 antennas.

World Band Radio Kit

MFJ-8100K **$59.95***kit*

MFJ-8100W **$79.95***wired*

Build this *regenerative* shortwave receiver *kit* and listen to shortwave signals from all over the world with just a 10 foot wire antenna.

Has RF stage, vernier reduction drive, smooth regeneration, five bands.

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CIRCLE 120 ON READER SERVICE CARD

Pop'Comm's World Band Tuning Tips

March 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 pm EST, 6 pm CST, 4 pm PST.

UTC	Freq.	Station/Country	Notes
0000	4960	Radio Federaçion, Ecuador	SS/local
0000	5012	Radio Cristal, Dominican Republic	SS/EE
0000	5995	Voice of America	
0000	6020	R. Netherlands via Bonaire	
0000	7150	Radio Ukraine	
0000	9580	R. Yugoslavia	EE
0000	9705	R. Mexico Int'l	SS
0030	4980	Ecos del Torbes, Venezuela	SS
0030	5965	R. Havana Cuba	SS
0030	6065	R. Sweden	
0030	6120	Radio Vilnius, Lithuania (via Germany)	
0030	9540	Radio Exterior Espana, Spain	
0030	9990	Voice of Hope, Lebanon	AA
0050	11800	RAI, Italy	
0100	3290	Radio Centro, Ecuador	SS
0100	3324	Radio Maya de Barillas, Guatemala	
0100	4835	R. Tezulutlan, Guatemala	Quechua
0100	4875	Rdf. Roraima, Brazil	PP
0100	6020	Radio Gaucha, Brazil	PP
0100	6135	Swiss Radio Int'l	
0100	6190	Radio Budapest, Hungary	
0100	6803	Ondas del Rio Mayo, Peru	SS
0100	7250	V of Vietnam, via Russia	
0100	7305	Slovak Radio, Slovakia	
0100	7345	R. Prague, Czech Republic	EE
0100	9545	Deutsche Welle, Germany	
0100	9560	R. Norway	EE Sun
0100	9745	HCJB, Ecuador	
0100	9835	Radio Budapest, Hungary	
0100	9955	WRMI, Miami	EE/SS
0130	5960	R. Japan, via Canada	
0130	5981	AWR/Union Radio, Guatemala	SS
0130	7290	Radio Sweden	
0130	7448	Voice of Greece	GG/EE
0145	6140	Radio Tirana, Albania	
0200	3250	Radio Luz y Vida, Honduras	SS
0200	4790	Radio Atlantida, Peru	SS
0200	4885	Ondas del Meta, Colombia	SS
0200	4985	Radio Brazil Central, Brazil	PP
0200	5077	Caracol Colombia	SS
0200	5930	R. Prague, Czech Rep.	
0200	5950	Voice of Free China via USA	
0200	6000	Radio Havana Cuba	EE
0200	6045	Deutsche Welle, Germany	
0200	6095	R. Portugal	
0200	6150	Adventist World Radio, Costa Rica	SS
0200	6895	Radio Sensaçion, Peru	SS
0200	9475	R. Cairo, Egypt	
0200	9735	R. Naçional Paraguay	SS
0200	11710	RAE, Argentina	
0230	7160	Radio Tirana, Albania	
0230	9655	Radio Austria Int'l	
0245	7305	Vatican Radio	
0250	7200	Republic of Sudan Radio	AA
0300	3220	Channel Africa, South Africa	
0300	3255	BBC via South Africa	
0300	4819	La Voz Evangelica, Honduras	SS/EE
0300	4919	R. Quito, Ecuador	SS
0300	4940	Radio Amazonas, Venezuela	SS
0300	4955	Radio Naçional, Colombia	SS
0300	5895	Croatian Radio	
0300	7115	R. Sweden	
0300	7465	Radio Norway International	NN
0300	9665	Voice of Turkey	
0300	9700	Radio Bulgaria	
0330	4760	Trans World Radio, Swaziland	GG
0330	4930	R. Internaçional, Honduras	SS
0330	7520	R. Moldova Int'l, via Russia	
0400	3200	Trans World Radio, Swaziland	
0400	3390	BBC, via South Africa	
0400	3995	Deutsche Welle, Germany	GG
0400	4910	Zambia National Broadcasting Corp.	local
0400	4915	R. Cora, Peru	SS
0400	5975	BBC via Antigua	
0400	9590	BBC, England	
0400	9790	Radio France International	FF
0430	4770	R. Nigeria, Kaduna	sign on
0457	7185	Channel Africa	PP, sign on
0500	4777	RTV Gabonaise, Libreville, Gabon	FF
0500	4850	CRTV, Yaounde, Cameroon	FF/EE

UTC	Freq.	Station/Country	Notes
0500	4990	Radio Nigeria, Lagos	
0500	5286	Radio Moundou, Chad	FF
0500	6110	Radio Japan	EE
0500	6185	R. Educaçion, Mexico	SS/EE
0500	6250	Radio Naçional, Eq. Guinea	SS
0500	7480	R. Bulgaria	
0500	9675	Channel Africa, South Africa	
0530	4750	CRTV, Bertoua, Cameroon	FF
0600	4870	ORTB, Benin	FF
0600	5055	RFO, French Guyana	FF
0600	6155	RDP International, Portugal	PP
0600	6165	Swiss Radio Int'l	
0600	9425	Voice of Greece	
0600	9675	VOA via South Africa	
0630	5047	RTT, Togo	FF
0630	6015	R. Austria Int'l, via Canada	
0630	9645	Vatican Radio	
0700	5025	Radio Rebelde, Cuba	SS
0700	6070	CFRX relay CFRB, Canada	
0700	11615	HCJB, Ecuador	
0730	5985	Radio Vlaanderen Int'l, Belgium	
0800	3945	Radio Tampa, Japan	JJ
0800	6090	Radio Bandeirantes, Brazil	PP
0800	6100	R. New Zealand Int'l	
0800	9445	HCJB, Ecuador	EE
0900	6030	Radio Marti, USA	SS
1000	21605	UAE Radio, Dubai	
1030	4950	Radio Baha'i, Ecuador	SS/local
1100	3360	La Voz de Nahuala, Guatemala	SS
1100	4780	Radio Cultura Coatan, Guatemala	SS s/on
1100	6175	Faro del Caribe, Costa Rica	SS
1100	7270	Radio Malaysia, Sarawak	local
1100	9580	R. Australia	
1130	6120	R. Japan via Canada	
1130	7160	All India Radio	
1130	9650	R. Korea, S. Korea, via Canada	
1130	11650	FEBC/KFBS, No. Marianas	various
1200	4725	Voice of Myanmar (Burma)	BB
1200	6400	Radio Pyongyang, North Korea	KK
1200	7260	Radio Thailand	
1200	9510	R. Australia	
1200	12005	HCJB, Ecuador	
1200	13790	R. Bulgaria	
1200	13800	Radio Norway	
1200	15400	R. Finland Int'l	Finnish
1200	15445	FEBA, Seychelles	or 15480
1215	15295	R. Tashkent, Uzbek	
1230	9370	KSDA, Guam	CC
1230	11900	Radio Finland Int'l	
1230	12085	R. Ulaan Bataar, Mongolia	
1230	13610	R. Vlaanderen Int'l, Belgium	
1230	13740	Radio Sweden	
1230	15640	Radio Bulgaria	
1230	17630	Africa No. One, Gabon	
1300	7405	China Radio International	
1300	9590	R. Norway	NN
1300	9625	CBC Northern Service, Canada	
1300	11850	R. Thailand	NN
1300	17745	R. Romania Int'l	
1320	21520	RAI, Italy	sign on; Sun.
1330	9830	Radio Sweden	
1330	11650	R. Sweden	
1330	15060	BSKSA, Saudi Arabia	AA
1330	15340	Radio Denmark, via Norway	DD
1400	9355	Monitor Radio - KHBI, No. Marinas	
1400	11705	Radio Japan via Canada	
1400	11720	R. Norway	NN
1400	11800	Radio Australia	
1400	11895	R. Japan, via French Guiana	
1400	12077	Kol Israel	
1400	13590	Radio Pakistan	
1400	17780	RAI, Italy	II
1400	17830	Qatar Broadcasting Service	AA
1430	12080	Radio Australia	
1430	13710	All India Radio	
1430	21515	Radio Portugal Int'l	
1500	11785	Radio Republik Indonesia	II
1500	11890	Radio Oman	AA
1500	13635	Swiss Radio Int'l	
1500	13785	Radio Pyongyang, North Korea	
1500	17545	Reshet Bet, Israel	Hebrew
1600	21560	Deutsche Welle, Germany	GG
1630	15395	UAE Radio, Dubai	EE
1630	21700	R. Japan	JJ via Gabon
1700	9610	VOIRI, Iran	
1700	152o5	VOA via Morocco C203	
1700	15300	Radio France International	FF
1730	11970	R. Jordan	AA
1800	15160	Radio Algiers Int'l, Algeria	
1800	15244	Voix du Zaire	FF
1800	15265	Radiobras/Radio Naçional, Brazil	
1800	15450	RTT Tunisia	AA
1830	11645	Voice of Greece	
1830	11990	Radio Kuwait	
1900	15345	RAE, Argentina	
1900	15540	HCJB, Ecuador	
1900	17785	VOA via Morocco	
1930	15505	Radio Kuwait	AA
2000	12085	Radio Damascus, Syria	
2100	9550	R. Havana Cuba	
2100	9910	All India Radio	
2100	9935	RS Makedonias, Greece	Greek
2130	15415	R. Jamahiriya, Libya	AA
2145	11760	R. Havana Cuba	
2200	9200	Republic of Sudan Radio	AA
2200	9388	Kol Israel	Hebrew
2200	9570	R. Portugal	PP
2200	11585	Kol Israel	Hebrew
2200	11935	Radio Clube Paranaense, Brazil	PP
2200	17795	Radio Australia	
2230	5945	Radio Austria Int'l	
2230	6090	Radio Nigeria, Kaduna	Hausa
2230	7210	ORTB, Benin	FF
2230	9430	Radio Prague, Czech Republic	
2230	9505	R. Havana Cuba	
2230	9855	Radio Kuwait	AA
2230	11600	R. Prague, Czech Republic	
2300	5100	Radio Liberia	EE/FF
2300	9720	Radio Yugoslavia	
2300	11915	R. Gaucha, Brazil	PP
2330	7105	Radio Romania Int'l	
2330	7125	Voice of Russia	
2330	7215	RTVI, Cote D'Ivoire (Ivory Coast)	FF
2330	9485	Radio Denmark, via Norway	
2355	9925	R. Vlaanderen Int'l, Belgium	GG

Product Parade

BY NANCY BARRY

REVIEW OF NEW, INTERESTING AND USEFUL PRODUCTS

Cherokee Enters Amateur Market with Revolutionary 6-Meter Radio

The Wireless Marketing Corporation, with its new line of Cherokee communications equipment, has introduced its first entry into the expanding 6-meter amateur market with its model AH-50 handheld. Incorporating a unique product design and style, Wireless says it's the "smallest 6-meter HT in the world."

With its sealed NiCd battery pack that comes standard, the AH-50 is 5 1/2" tall, which is small enough to fit in a shirt pocket. Its advanced circuitry offers the user the ability to maximize battery life, along with giving a full five-digit readout of the frequency in use on the display. Doug Marrison, President of Wireless Marketing Corporation stated, "We are very excited about the opportunities that exist both now and in the future for the 6-meter band."

AH-50 features include CTCSS capability, selectable frequency offset, five watt power output, five memory locations for complete storage of repeater access information, auto-frequency scan and auto-memory scan, dual watch, key lock for removing access to the keypad, and battery life enhancement circuitry which dramatically extends the overall usable time on the radio.

Cherokee will also supply as options a complete set of accessories such as additional battery packs, antennas, carrying cases, and battery chargers which make this radio a complete communications package. The AH-50 has a suggested retail price of $349.95 and will be available in March from radio communications dealers around the country.

For more information contact Wireless Marketing at 947-839-0015.

New Receiver Control Software

Spectrum Systems has announced version 3.0 of FirstRate, their receiver control software aimed at the SWL market. The software targets program listeners as well as DXers with its heavy emphasis on database integration using a point-and-click approach to receiver tuning and control. A variety of modes offer features to enhance SWLing for a wide range of users—from stand-alone receiver operation with database frequency lookup for dedicated "dial spinners" to "push a button to tune a station" automation, and almost anything in between.

New to version 3.0 are user-customizable database layouts and screens, new fields, logging features, gray-line mapping, as well as LUF/MUF graphing for up to 20 user-customizable locations. Version 3.0 also ships with a single copy of TRS Consultants' ShortWave BroadCast Schedule database for up-to-date station frequency information.

FirstRate is available for the Drake R8 and R8A, the Japan Radio Corporation NRD-535, and the Lowe HF-150, and the AOR AR7030. The software is available for Windows 3.1, Windows 95, and Macintosh computers and is priced at $99, plus $5 shipping and handling. Limited-use demo versions of FirstRate are available from the Internet at <http://www.infi.net/~dharvey/>.

Orders or requests for additional information may be directed to Spectrum Systems, P.O. Box 1177, Saluda, VA 23149-1177; or by calling 1-804-561-2166 or 1-800-296-2178; or e-mail them at <Mark.Chalkley@ibm.net>.

New MFJ-212 MatchMaker™

The new MFJ-212 MatchMaker™ from MFJ Enterprises, Inc., will let you tune up your antenna tuner without transmitting a single milliwatt. It enables you to precisely tune your antenna tuner for a 1:1 SWR. There's no additional "tweaking" needed.

The MFJ-212 helps protect your transceiver and antenna tuner; and helps avoid dangerous overheating and arcing that is caused by high SWR and long tune-ups. The MatchMaker connects between your transceiver and antenna tuner, allowing

you to adjust your tuner for a null in receiver noise. Tuning noise is modulated so it will be easy to recognize. If you accidentally transmit, MFJ's RF Guard™ automatically bypasses your unit to prevent damage.

The MFJ-212 MatchMaker will work with all transceivers from 160 to 6 meters. It is powered with a 12 Vdc, 300 mA power supply or a 9 Volt alkaline battery.

The MatchMaker connects to the antenna "out" jack of your transceiver. Then your antenna tuner plugs into the MFJ-212's ANT jack.

For more information or to order, contact any MFJ dealer or MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762; or call 601-323-5869; fax 601-323-6551; or order from their toll-free number 1-800-647-1800.

BY TIM KRIDEL

Broadcast DXing

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

A Done Deal: Toronto Stations, CBC to Begin Digital Broadcasting in 1997

In a bold move that marks the debut of a new method of broadcasting and a new band, eight Toronto broadcasters and the Canadian Broadcasting Corp. have committed to begin digital audio broadcasting (DAB) in the L band by the end of 1997.

Master FM, a consortium of some of Canada's biggest broadcasting companies, including the CBC, CHUM Group, Rogers Broadcasting and Standard Broadcasting will put simulcasts of about 18 Toronto AM and FM stations on the air in the new broadcast band from 1452 to 1492 MHz. The goal, Master FM president Kirk Nesbitt told the industry newspaper Radio World, "is to construct a DAB system to accommodate as many of the Toronto broadcasters as possible."

The CBC also expects to start DAB broadcasts in Montreal by the end of 1997. The plan, according to a press release, will bring DAB broadcasts of the CBC's four English and French-language radio services to 75 percent of Canadians over the next five years. Guylaine Saucier, chair of the CBC Board of Directors, said the board's decision demonstrated its commitment to remain in the forefront of new communications technology.

The announcements follow the release last fall of the Digital Radio Broadcasting Plan, authorizing use of DAB and the L band and setting the stage for the eventual migration of all AM and FM stations in Canada to the new band. Under the plan, up to five stations are grouped together in a single transmitter "pod." In the case of Master FM, antennas would be located on the CN Tower, and with a power of a few hundred watts, coverage is expected to be about 25 miles, or much of metropolitan Toronto.

Sister stations WCPM and WSEH share this studio in Cumberland, KY.

Over the Top

With the third, revised allotment plan for the expanded AM band set at press time to go before the FCC commissioners for review, DXers can warm up by tuning in two new stations that have set up shop above 1600 kHz.

KWJC, based, at least according to the station, in Greenacres, WA, is running unlicensed on 1640 kHz with a reported 250 watts. In the open spaces of the top end, that's enough for it to be heard throughout much of the Northwest, including at the Sacramento QTH of Gary Jackson. Programming consists mainly of instrumental music, and is frequently simulcast on KWJC's 100-watt sister station, KWCK, operating on 105.2 MHz. Reception reports may be sent to P.O. Box 267, Greenacres, WA 99016-0267.

Another top-ender is WUSB, operating on 1630 kHz from the Stony Brook, Long Island, campus of the State University of New York. Although it runs only a few watts, its been heard by DXers across much of New England, including Mark Mandello, KA1KXT, in Trumbull, CT. Word is WUSB is actually a traveler-information station, KNNV688, that has gone from airing campus-related advisories to broadcasting original programming and even promos for WUSB-FM, the campus station.

But the new kids on the block will probably have to move once the expanded band starts filling up. That could come sometime late this year. A draft order, consisting of a revised allotment plan and

WCPM-AM runs 1 kW days and 115 watts nights; WSEH-FM runs 160 watts into a 1,823-foot antenna.

Seeking Permits to Construct New FM Stations

AZ	Red Mesa	89.7 MHz	4.5 kW
CA	Livingston	88.3 MHz	
CO	Burlington	99.3 MHz	
CO	Ft. Collins	88.9 MHz	4 kW
CO	Ignacio	90.1 MHz	3 kW
GA	Folkston	91.3 MHz	
GA	Gibson	94.3 MHz	
IN	Greensburg	89.1 MHz	
NV	Sun Valley	94.5 MHz	
SC	Forest Acres	94.3 MHsz	
TX	Markham	92.5 MHz	
TX	Pearsall	104.1 MHz	
UT	Roosevelt	94.3 MHz	
WI	Sister Bay	91.9 MHz	
WY	Albin	107.3 MHz	
WY	Gillette	90.9 MHz	450 watts
WY	Green River	101.5 MHz	

Permit Granted to Construct New AM Station

MI	Petoskey	750 kHz

Permits Granted to Construct New FM Stations

AL	Addison	105.7 MHz	6 kW
AL	Selma	91.1 MHz	
AZ	Phoenix	105.5 MHz	43 kW (KKER booster)
CO	Estes Park	102.1 MHz	6 kW
GA	Dahlonega	89.5 MHz	3 kW
IL	Mount Vernon	89.7 MHz	6.2 kW
KS	Ottawa	90.5 MHz	250 watts
LA	Lake Arthur	107.3 MHz	25 kW
MI	Pentwater	103.1 MHz	3 kW
MO	Kirksville	909.7 MHz	
MS	Natchez	91.1 MHz	
MT	Missoula	91.1 MHz	1 kW
NC	Nashville	99.7 MHz	6 kW
NY	Center Moriches	96.1 MHz	3 kW
OH	Athens	95.9 MHz	6 kW
TX	Linden	99.3 MHz	10 kW
TX	Olney	97.5 MHz	50 kW
TX	Palacios	99.7 MHz	50 kW
TX	Pecos	97.3 MHz	100 kW
WA	Mabton	98.7 MHz	6 kW
WA	Tumwater	99.3 MHz	1 kW (KAYO-FM booster)
WI	Madison	91.7 MHz	

New FM Call Letters Issued

KACK	Bismarck, ND
KAQX	Bonanza, OR
KDEP	Depoe Bay, OR
KFKX	Hastings, NE
KFMY	South Bend, WA
KKCQ-FM	Fosston, MN
KKLY	Pecos, TX
KNBR-FM	Haltom City, TX
KPIN	Pinedale, WY
KRRR	Cheyenne, WY
KUDU	Tok, AK
WAAJ	Benton, KY
WAII	Hattiesburg, MS
WAYK	Kalamazoo, MI
WGRW	Anniston, AL
WPNG	Pearson, GA
WTHA	Roswell, GA
WYAM-FM	Addison, AL

Pending AM Call Letter Change

New	Old	
WJNA	WYFX	Boynton Beach, FL

Changed AM Call Letters

New	Old	
KBNB	KHYM	Gilmer, TX
KCHT	KUTI	Selah, WA
KJAZ	KORV	Oroville, CA
KPXQ	KOOL	Phoenix, AZ
KRVM	KDUK	Eugene, OR
KTBL	KASY	Albuquerque, NM
KUPL	KBBT	Portland, OR
WAVN	WBLZ	Southaven, MS
WAYY	WEAQ	Eau Claire, WI
WDEO	WAMX	Saline, MI
WEAQ	WAYY	Chippewa Falls, WI
WHEW	WIZO	Franklin, TN
WHOZ	WBLX	Fairhope, AL
WNFT	WROR	Boston, MA
WSNR	WLLS	Hartford, KY
WTLQ	WDCQ	Pine Isl. Ctr., FL
WXFN	WLBC	Muncie, IN
WZZU	WGLI	Babylon, NY

Pending FM Call Letter Changes

New	Old	
KVGO	KNFX-FM	Spring Valley, MN
WCNK	WBKW	Key West, FL
WRFM	WUUU	Remsen, NY

Canceled

(New)	Hartford, MI	103.7 MHz 3 kW
KICA	Clovis, NM	980 kHz Canc. 110 watt nite ops.
KIEZ	Carmel Valley, CA	540 kHz Canc. power increase.
KXBK	Bryan, TX	89.9 MHz
WNHA	Concord, NH	1140 kHz 10 kW
WNYS	Canton, NY	750 kHz
WNWR	Philadelphia, PA	1540 kHz Canc. move to Bala Cynwyd & 500 watt nite ops.

Asked to Show Cause Why Station License Should Not Be Revoked

KEZJ	Twin Falls, ID	Silent since 12/16/93
KFPS	Salem, MO	Silent since 3/1/93
WAUB	Auburn, NY	Silent since 6/30/95

Sent Notice of Liability for Apparent Monetary Forfeiture

KIXA	Victorville, CA	$2,000 for unauth. transfer of control of sta. ops. to programmer.
WBZI	Richmond, VA	$10,000 for transm. of unsuitable material.
WVIC	E. Lansing, MI	$8.000 for transm. of unsuitable material.

Requesting Changes to AM Facilities

KABI	Abilene, KS	1560 kHz Seeks to add nite service.
KICY	Nome, AK	850 kHz Seeks increase to 50/10 kW.
KNOB	San Rafael, CA	1510 kHz Seeks increase to 8 kW.
KNOM	Nome, AK	780 kHz Seeks increase to 25/14 kW.
KTMG	Deer Trail, CO	1370 kHz Seeks drop to 700 watts.
WBIV	Natick, MA	1060 kHz Seeks increase to 40 kW.
WDGY	St. Paul, MN	630 kHz Seeks move to Hudson, WI 9 kW/130 watts.
WLBA	Gainesville, GA	1130 kHz Seeks move to Powder Spgs., 10.7/2.2 kW.
WREF	Ridgefield, CT	850 kHz Seeks increase to 10 kW/500 watts.
WWCS	Canonsburg, PA	540 kHz Seeks to change day power.
WWRL	Woodside, NY	1600 kHz Seeks incrrease days to 25 kW.
WYAM	Hartselle, AL	890 kHz Seeks increase to 2.5 kW.

Changed AM Facilities

KPLS	Orange, CA	830 kHz Now Orange/Huntington Beach, 50/23 kW.
KPXE	Liberty, TX	1050 kHz Moved to Brookshire.
WBUL	Fort Knox, KY	1470 kHz Moved to Shepherdsville.
WBTX	De Funiak Spgs., FL	1280 kHz Changed city of license and power.
WPIN	Deblin, VA	810 kHz Changed power.
WQXI	Atlanta, GA	7909 kHz Changed day power.

Requesting Changed FM Frequencies

KZCD	Lawton, OK	94.1 MHz
WJOI	Germantown, TN	107.5 MHz

Changed FM Call Letters

New	Old	
KBBT-FM	WDBX	Banks, OR
KKEQ	KKCQ-FM	Boston, MA
KLNA	KQSC	Dinnigan, CA
KMLO	KKFX	Lowry, SD
KRKR	KRGO	Roy, UT
KRVM-FM	KRVM	Eugene, OR
KSKX	KHII	Security, CO
KTBL	KASY	Albuquerque, NM
KTRN	KWDA	White Hall, AR
KTSS	KCDI	Oro Valley, AZ
KURR	KUTQ	Bountiful, UT
KVBC-FM	KRBO	Las Vegas, NV
KWPZ	KLYN	Lynden, WA
KWSJ	KXLK	Haysville, KS
KZCO	KEWE	Oroville, CA
WAKY-FM	WMQQ	Springfield, KY
WHKW	WKJK-FM	Salem, IN
WHOG-FM	WTSM	Ormond/Sea, FL
WHTE	WXNU	Valley Station, KY
WKHB	WLLS-FM	Hartford, KY
WKIX	WKIX-FM	Raleigh, NC
WKLB-FM	WBLZ	Boston, MA
WKYA	WWHK	Greenville, KY
WLIV-FM	WLMQ	Monterery, TN
WLTI	WXCD	Syracuse, NY
WLZS	WWBV	Beaver Springs, PA
WQUL	WFRX-FM	W. Frankfort, IL
WSHE	WDIZ	Orlando, FL
WTLK-FM	WPVJ	Ponte Vedra Bch., FL
WUBZ-FM	WPHB-FM	Philipsburg, PA
WXCR	WZRQ	Ballston Spa, NY
WYOY	WLIN	Gluckstadt, MS
WZPC	WMMU	Shelbyville, TN

action on the nine petitions for reconsideration that led to the scrapping of the second station list last year, was at press time set to go before the commissioners for review. About 88 stations are expected to be offered slots in the 10 new channels from 1605 to 1705 kHz.

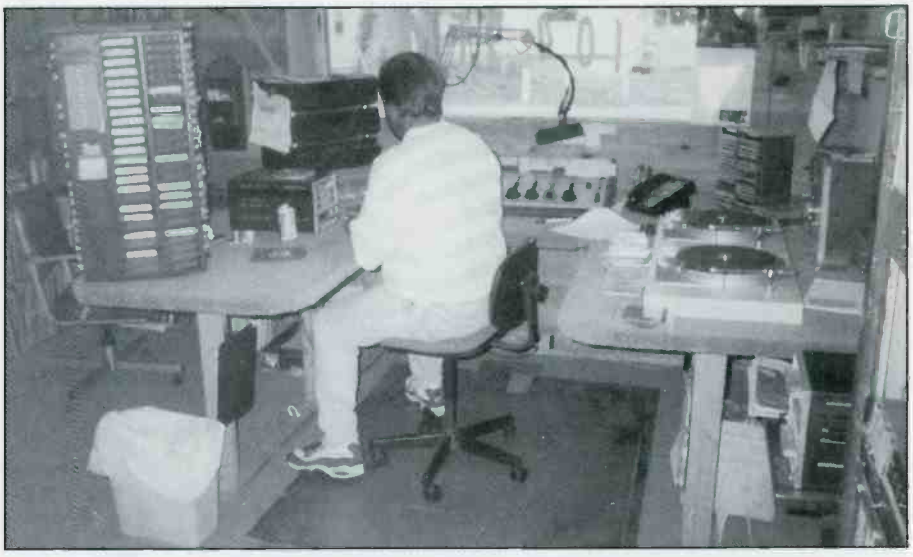
The Mouse That Roared

Walt Disney is no stranger to the entertainment business, and with its $19 billion purchase of Capital Cities/ABC last year, it extended its reach by adding 21 radio stations and a raft of radio networks serving more than 3,400 stations.

All that came together on Nov. 18 when ABC Radio rolled out Radio Disney, a new format aimed at the 12-and-under set. The 24-hour network debuted on Minneapolis' KQRS-AM (now KDIZ),

Atlanta's WKHX-AM, Birmingham, AL's WYDE-AM and Salt Lake City's KCNR-AM.

But not everyone is happy with Mickey & Co.'s foray into kids radio. Children's Broadcasting Corp., whose Radio Aahs format is syndicated to 32 stations, including expanded AM band pioneer WJDM, is raising questions about the fact that the new format comes only a year after ABC and CBC ended an agreement where ABC provided affiliate sales and marketing support. And instead of trying to build a better mousetrap, CBC is suing ABC and Disney in federal court, charging that ABC used confidential information to develop the format, according to a Chicago Tribune article sent in by Elmer Wallesen, of La Grange Park, Ill.



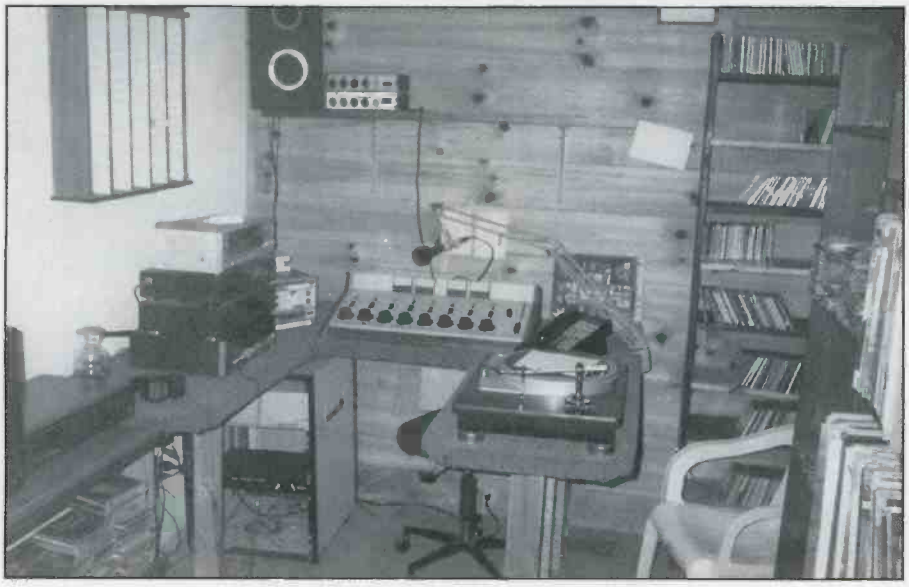
Studio of WSKV-FM, sister station of WBFC.

It Was a Very Good Year

CFRB, that gray lady of Canadian broadcast journalism, marked seven decades on the air on February 19, evolving from the broadcasting arm of Rogers Batteries to earn its current reputation as Canada's most-respected and most-listened-to radio station.

When CFRB first signed on in 1927, it ran approximately 15 kW from a homebrew transmitter located in Aurora, Ontario. In 1946, new transmitters and antennas were erected at the current site in Clarkson, running 50 kW into four 250-foot antennas, according to a station history sent in by Trevor Fletcher, of Calgary. The present transmitter, including a Continental Electronics 317C-2, went on-line on April 6, 1981. CFRB currently broadcasts in C-QUAM AM stereo.

CFRB programming is simulcast on shortwaver CFRX, which signed on in 1937 at its current 1 kW. The original antenna system, also located in Aurora, consisted of two 50-foot towers, running a directional pattern to the northwest. The current set-up, located in Clarkson, is a



Studio of WBFC-AM, Stanton, KY.

Pop'Comm P.O. *(from page 6)*

(restoration/electronics) column by Peter Bertini represents a real nice addition to the magazine. Add to that the "Old CB Shack" and you have really got me interested! I am sure you will get some flak from some readers for going technical, but we all need to know something about what goes on behind the front panel of our radio gear. Hopefully we will soon see some articles describing some articles describing the circuits used in modern radios too.

With respect to the article "Citizens Band Radio—Heading for 2001" I believe that the problems on 27 MHz lie with the people, not the radios. Changing to FM will not change people's operating practices.

Edward Engelken
Canyon Lake, TX

Michael Has Us Covered!

Dear Editor:

Hello! I really enjoy reading your magazine. I buy every issue and usually read it cover to cover. My favorite columns are "How I Got Started," "The Pirate's Den," "The Listening Post," "Broadcast DXing," and of course the reader's letters. I also enjoy the articles on radio history.

I collect radio station bumper stickers and QSL cards. I am sending a few that I have accumulated. Keep up all of your good work!

Michael Tucker
Cullman, AL

His Number One, Favorite Magazine

Dear Editor:

Congratulations for being the new editor of *Popular Communications* magazine which is well read worldwide. It is my number one favorite magazine.

My comment is why the column "How I Got Started" was eliminated in your magazine last October. That is the most interesting column of your magazine that attracts readers and SWLs around the world. It gives the opportunity to write their story on how they got involved in the world of communications. My suggestion: Would it be possible to return the column in the magazine because readers like me would really appreciate it very much. Good luck.

Jacob Lozada
Quezon City, Philippines

Dear Jacob:

Many thanks for your letter and comments. The "How I Got Started" was dropped from the October issue because of space limitations. We realize that readers like to see their story in *Pop'Comm* so we'll continue to run the "How I Got Started" every month. ■

single 50-foot vertical antenna, running an omnidirectional pattern. CFRX's original homebrew transmitter was finally replaced on December 31, 1983 with a modified Elcom-Bauer 701B. Reception reports for both stations are handled by the Ontario DX Association, P.O. Box 161, Station A, Willowdale, Ontario M2N 5S8.

In Brief

Massachusetts' Cape should have a public radio station of its own by the end of 1997, thanks to a federal grant and the determination of NPR and "Nightline" reporter Jay Allison. Cape and Islands Community Public Radio Inc., headed by Allison, has applied to the FCC for two unspecified frequencies, according to a Boston Globe article sent in by Bob Gilbert, of Portland, Maine.

Newmarket, Ontario's CXDX-FM has cut its power from 700 watts to 500 watts in order to maintain its coverage area as it raises the height of its antenna. Calgary, Alberta's CKUA-FM-1, meanwhile, has boosted its power from 16 kW to 100 kW to improve signal quality and extend its coverage area.

Taylor, Michigan's WCHB-AM received a nice present from the FCC on its 40th birthday—permission to double its daytime power to 50 kW and triple its nighttime power to 2.1 kW. Nashville's WNQM-AM also received FCC approval to boost its daytime power to 50 kW, and facilities changes are underway, according to a station press release. WNQM is the sister station of shortwaver WWCR.

The '70s are passe . . . again. Or at least that's what the management at Tulsa's KRAV apparently thinks. They've dropped all '70s music from their playlist to bring listeners "the best mix of the '80s and '90s," reports Luke Steele, of Vinita, Oklahoma. Luke, by the way, seeks both a manual for a National NC-60 (circa 1957) and news about the southern Mississippi radio market. You can reach him at <RSteele 323@aol.com>.

Thanks

A special thanks goes out to R. C. Watts, of Louisville, KY, for his photos this month of the WCPM, WSEH, WBFC and WSKV studios. Your shack photos, news clippings, bumper stickers and QSLs are always welcome, as are your questions and comments. Send 'em to "Broadcast DXing" in care of *Pop'Comm* at 76 North Broadway, Hicksville, NY 11801. Until next month, ■

How I Got Started

Morse Code Meals

The staff of *Popular Communications* invites readers to submit in about 150 words how they got started in the communications hobby. Entries should be typewritten, or otherwise easily readable. If possible, please try to include your photograph (no Polaroids, please).

Each month, we will select one entry and publish it here. Submit your entry only once and 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.

"I encourage joining the fellowship of "hams." It's educational and more dependable than cellular phones."

The person whose entry is selected will receive a one-year gift subscription (or renewal) to *Popular Communications* magazine. Address all entries to: How I Got Started, *Popular Communications*, 76 North Broadway, Hicksville, NY 11801-2909, or e-mail to <popularcom@aol.com>. If you decide to e-mail your entry, please let us know if you're sending a photo.

Our March Winner

This month we've chosen Susie Carlton, N5GKX, from Ft. Worth, Texas as our How I Got Started winner. Susie wrote in to tell us about her experiences in amateur radio and her hopes for the future of the communications hobby.

She wrote: My husband, Alan was radio-active when we met. My interest sparked during our tour of duty in the Air Force. Alan's Ground Radio tech-school found me involved with his electronics homework. We later found ourselves

Here's Susie and her shack. Her gear includes a Yaesu FT 980, a pair of 3-500Zs in a HL2200 2 kW amplifier, and one of the last Heath Kit HF Amplifier kits.

communicating across the table in Morse code, and finally at the federal building for amateur radio license testing.

FCC test offices were antiquated to say the least. Personnel were as cold as their chairs, and the headphones appeared to be on loan from Fred Flintstone!

I aced the theory part of the exam, but I started crying during the 13 WPM Morse code test. I embarrassed Alan, but he passed. (DARN!) I had to make a second trip to earn my General class.

"I had to make a second trip to earn my General class."

Volunteer Examining has since created more of a kitchen table atmosphere. I encourage joining the fellowship of "hams." It's educational and more dependable than cellular phones. Considering that our government dictates what frequencies hobbyists may legally monitor, I must endorse the importance of strength in numbers (We the People). I hope to continue enjoying my right to "Freedom of Speech" through amateur communications for as long as the freedom exists.

Look for both Susie and Alan on 40 meters at 7.253 MHz. Susie also wanted us to let SWLers know that both she and her husband QSL 100%. ■

BY GERRY L. DEXTER

The Listening Post

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Radio Canada International Saved!

For a few tense days it seemed like deja vous! The decision had been made to close down RCI completely at the end of March, but a last minute search for the necessary money apparently has paid off.

Canadian Minister of Foreign Affairs, Lloyd Axworthy, in news broadcasts heard on Radio Canada International in mid-December made the announcement stressing the need for Canada to have an effective worldwide voice, saying "RCI has been an important asset for Canada . . . it would have been a great loss to see it disappear at the very moment we are undertaking the development of the Canadian International Information Strategy to plan how we can best use new technologies to deliver our messages, transmit our values and support both our trade and development assistance programs abroad."

Initially the CBC said it couldn't continue to provide the $16 million per year it takes to run RCI, especially when the CBC is having to deal with heavy slashes in its own budget. The game of "on again," "off again" was played when, according to RCI "All 125 employees at Radio Canada International were issued layoff notices." But Heritage Minister Shelia Copps has told the House of Commons that the government was looking for the money to keep RCI afloat. RCI's one-year funding will be covered by the Department of Foreign Affairs and International Trade and the Department of Canadian Heritage. The balance, ac-

Radio Miami International
8500 SW 8th Street, Suite 252
Miami, Florida 33144 USA
Telephone (305) 267-1728
Fax (305) 267-9253

WRMI CERTIFICADO QSL CERTIFICATE

This QSL certificate verifies that Andrew Johns in Mansfield, TX heard WRMI on May 17'96 (UTC) at 0015- UTC on 9955 kHz. Thank you for your report, and we hope you will stay tuned to WRMI.

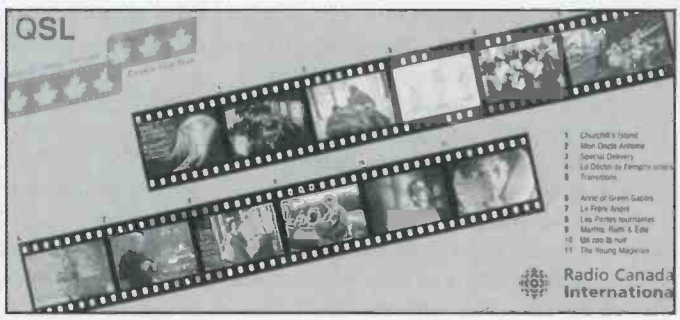
Studio and transmitter location: Miami, Florida, USA
Transmitter power: 50,000 watts
Antenna: Corner reflector
Azimuth: 160 degrees
Primary Target: ITU zones 10-16 (Mexico, Central and South America and the Caribbean)

Este certificado QSL verifica que _____ en _____ escuchó WRMI el _____ (UTC) a las _____ UTC en _____ kHz. Gracias por su informe, y esperamos que siga en sintonía con WRMI.

Ubicación de estudios y transmisor: Miami, Florida, EUA
Potencia del transmisor: 50,000 vatios
Antena: Corner reflector
Azimút: 160 grados
Blanco principal: Zonas UIT 10-16 (México, Centro- y Sudamérica y el Caribe)

Authorized Signature/Firma Autorizada

WRMI Shortwave from Miami issues this very nice, full size QSL certificate. (Courtesy of Andy Johns, Texas)



Two QSL cards from Radio Canada International's past. (Thanks to Arnold Fabbri, New York)

Martin Spina has logged over 100 stations in the three years he has been active at his New Jersey shack.

cording to the news release from the Canadian government "will come from the Canadian International Development Agency and the Department of National Defence." If RCI had closed, it would have ended 52 years of overseas shortwave broadcasting from Canada making it one of the few major countries without an international voice on shortwave.

We've been through this with RCI and the Canadian government before, of course. There was a close call a year ago, but RCI was saved thanks to a huge, worldwide outcry which produced thousands of letters, faxes and phone calls protesting the shutdown. That time the government found enough money to keep RCI going. In the year since then, nothing was done to fund the station on a more permanent basis.

The protests are being heard again, so let's all hope for long-term continuous funding for RCI! Remember, your voice counts. Contact the Canadian Prime Minister, The Right Honorable Jean Chretien, Ottawa, Canada K1A 0A6, or e-mail him at <pm@pm.gc.ca> and The Honorable Sheila Copps, Minister of Canadian Heritage, Ottawa, Canada K1A 0A6, or e-mail her at <min_copps@pch.gc.ca>.

In a strange sidebar, for what is probably the first time in the 14-year history of this column, we received no loggings of RCI this month!

Channel Africa In Trouble Again

Meantime, half a world away, the South African government's international station—**Channel Africa** is also reported to be in trouble, again, due to severe funding problems. The staff has been severely reduced, and no one seems to know where any future funding will come from. Like Canada, South Africa's inter-

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

national voice is a part of the national radio operation, in this case, the South African Broadcasting Corporation. This crisis will likely have been resolved for better or worse by the time you read this. We'll let you know what happens. Let's hope Channel Africa will survive! It's an important voice for Africa and the rest of the world.

Also from South Africa, but unrelated to the above, the predicted loss of **Radio Oranje** is now a reality. This domestic service which aired on 60 and 90 meter band channels is no longer on shortwave.

Nigerian News

On the plus side of things, Nigeria is working to get its international service in better shape. It recently reactivated **15120**—a channel it used years ago when it had a well-received overseas service which could be heard in North American daytimes. **The Voice of Nigeria** is again being heard on that frequency, from mid-mornings onward (an exact schedule is unavailable at the moment). Nigeria is said to have installed three new transmitters with two more due to go into service. The new transmitters will also improve coverage of some of the regional shortwave stations.

Several Cameroon Stations Back Again!

Cameroon has reactivated its outlet on **4850** from Yaounde. At one time there were a half dozen or so Cameroon regionals which eventually fell into disrepair and left the air. Now several of them are active again, including 4850. Check for this one around 0500 in English and French. If you live in the eastern part of North America you should also be able to hear them in mid to late afternoons, except during the summer months.

A couple of months ago we told you that the Argentine Antarctic station **Radio Naçional Archangel San Gabriel** was back on the air. Well, now they're gone again! It seems this one is active only during the time the Argentine Antarctic installation is staffed. When the staff goes back to Argentina for the winter, the station also goes off duty. It will return sometime in March, so you can start looking for them again pretty soon. They use **15476**. During their last period of activity the schedule only ran until around 2000 which made them more difficult to log. In earlier years the schedule ran until around 2330.

Watch for the appearance of a new station from the Dominican Republic. **Radio Monumental International** is due to come on the air at some point down the road, running 1 kilowatt. They are likely to use 60 meters but 49 meters is also a possibility. No exact frequency or air date is known yet.

The US religious broadcaster **WVHA** is said to be in severe financial trouble and barely able to continue broadcasting. WVHA is the former WCSN, which was established and formerly owned by Herald Broadcasting/Christian Science Monitor. It seems better than even money that WVHA will be gone (or close to it) by the time you read this.

Italy is in the process of upgrading their overseas service. When finished, **RAI** will be operating out of a new broadcast center and its signals will reach out to the world over new 500 kw transmitters and new, rotatable antennas.

New Country On SW

There is a new "country" on the air. The North American Shortwave Association recently added Abkhazia to its country list. Abkhazia is part of the former Soviet Republic of Georgia (Georgian SSR). Abkhazia broke away from Georgia in 1992 and, in 1994, its legislature adopted a new constitution making Abkhazia an independent republic. Once there was proof that **Abkhaz Radio** actually transmits from within that country (it operates from the capital Sukhumi with 5 kilowatts on **9495**, scheduled from 0330 to 0900) the NASWA Country List Committee added Abkhazia to the list.

Incidentally, if you'd like to have a copy of the NASWA Country List you can get one by sending $2 to the NASWA Company Store, 705 Gregory Drive, Orsham, PA 19044. The NASWA list has become the standard for most serious shortwave broadcast DXers, at least in North America.

A reminder that the 10th annual SWL Fest will be held in Kulpsville, PA on **March 13–15**. The site, as it has for the past nine years, will be the Holiday Inn, right on the Sunnytown Pike, Kulpsville, (exit 31 of the PA Turnpike Northeast Extension-Lansdale Exchange)—about 40 minutes west of the Philadelphia airport. The weekend always features a number of very useful seminars on SWLing, scanning and other radio hobby subjects, a fun-filled banquet and other events. You can get more information by calling **(215) 672-4398** (evenings).

Here's the usual reminder that your log reports and other input are needed and always welcome! Loggings should be double-spaced (at a minimum), listed by country and should include your last name and state abbreviation after each item. We also seek spare QSL cards, photos of shortwave broadcasters, photos of you and your shack, general news of shortwave station activities, station schedules and anything else you think would be of interest or that you want to pass along just to get rid of!

Here are this month's logs. All times are UTC which is five hours ahead of EST, i. e. 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 5 p.m. MST, 4 p.m. PST. Abbreviations such as SS, PP, FF, AA indicate the language of the broadcast (Spanish, Portuguese, French, Arabic, etc.) If no language notation is indicated, the broadcast was in, or is assumed to have been in English.

ALBANIA—Radio Tirana, **6140** at 0246 with classical music and ID. (Jeffery, NY) **6270**, parallel **7270** and **9740** at 1930 with IS, national and international news, Albanian folk music. (Rausch, NJ) **7160** at 0247 on Albanian culture. (Miller, WA)

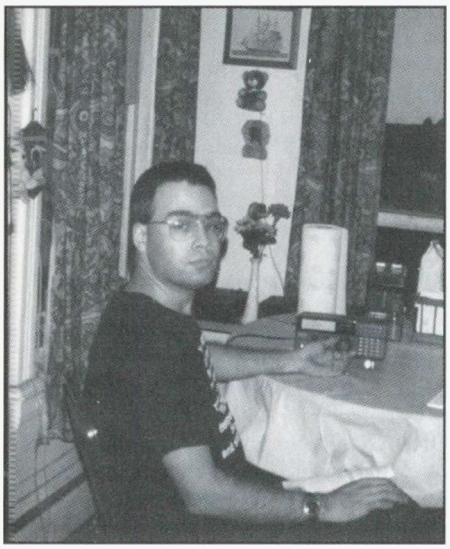
ANGOLA—Radio Naçional, **9535** at 1754 in unidentified language with talk by a woman, ID. Co-channel interference from Radio France Int'l from 1759. (Jeffery, NY)

ANTIGUA—Deutsche Welle relay on **11795** in GG at 2209. (Barton, AZ)

BBC relay to the Americas on **17840** at 1635. (Jeffery, NY)

ARGENTINA—RAE, **15345** at 2240 in GG with talk by a woman. (Jeffery, NY)

ASCENSION ISLAND—BBC to Africa, 6005 at 0307 with news. Also **17830** at 2014. (Jeffery, NY)



Another three year veteran is Barry Ephraim in Massachusetts who uses a Radio Shack DX-394 and a 75 foot longwire.

AUSTRALIA—Radio Australia, **5995** at 1330. (Northrup, MO) 5995 and **6060** at 1419 with Australian musicians. (Miller, WA) **6020** at 0850. (Hornstein, MI) **9860** at 1110 with news and sports. (Turnwald, FL) **11855** at 2200 with news. (Banner, FL) **17860//17795** at 2230 with "Network Asia." (Yohnicki, ON)

AUSTRIA—Radio Austria Int'l, **6015** (via Canada) at 0501 with news. (Miller, WA) **6155** at 0643 in GG. (Foss, AK) **13730** at 1330 with news, ID. (Northrup, MO)

BELGIUM—Radio Vlaanderen Int'l, **9925** at 0840 with "Caberet" type song. (Foss, AK)

BENIN—ORTB, **4870** at 2228 in FF with romantic music. (Ephraim, MA)

BOTSWANA—Radio Botswana, **9640** at 0345 with commentary and music ID at 0400. (Rausch, NJ) VOA relay, **9785** at 0311 with "Daybreak Africa" and weather forecasts for African capitals. (Foss, AK)

BRAZIL—Radio Naçional Amazonia, **11780** in PP at 0224. (Miller, WA)

Radio Gaucha, Porto Alegre, **11915** at 2342 in PP with Brazilian pops. (Miller, WA)

Radio Naçional, Macapa and Radio Anhanguera, Goiania simultaneously on **4915** at 2312 in PP with Brazilian pops and commercials. (Miller, WA)

Radio Brazil Central, Goiania, **4985** at 2315 with man in PP, Brazilian pops. (Miller, WA)

Radiodifusora Roraima, **4875** in PP at 0235 with talk, music. (Jeffery, NY)

Radio Cancao Nova, **9675** at 0224 in PP with instrumental music, ID, talk. (Jeffery, NY)

Radio Integracao, **4765** at 0219 in PP with talk by man, ID. (Jeffery, NY)

Radio Universo, **9565** at 0210 in PP with talk. (Jeffery, NY)

Radio Clube do Para, Belem, **4885** in PP at 0155 with ID, excited talk. (Pedraza, OH)

Radio Naçionaldo Brazil, **15445** at 1220 with news in EE. (Pedraza, OH)

BULGARIA—Radio Bulgaria, **9073** heard at 2223 with news. (Ephraim, MA) **9485** at 0008 with news. (Paszkiewicz, WI) 0500 sign on with IDs, EE times and frequencies, news. (Horton. AR)

CANADA—CBC Northern Quebec Service, **9625** at 0215 with "That Time of Night." (Jeffery. NY) CKZU, Vancouver, **6160** at 0159 with local traffic, "The World at Six." (Foss, AK)

CHILE—Radio Esperanza, **6089.98**, at 0933 with "sleepy time" music in SS with man talking between every two numbers, canned IDs. (Quaglieri, NY)

CHINA—China Radio Int'l, **9690** (via Spain) and **11695** at 0340. (Turnwald, FL) **9710** via Mali at 0550. (Pedraza, OH) **9720** at 0330. (Bannar, FL)

COLOMBIA—Caracol Colombia, Bogota, **5075** at 2321 with Latin music, news, commercials in SS. (Miller, WA) 0400 with soccer. (Pedraza, OH)

Ecos del Atrato, Quibdo, **5019** at 0115 in SS with talk about soccer. (Pedraza, OH)

COSTA RICA—Radio Reloj, **4832** at 0600 in SS with many IDs, music. (Silvi, OH) 0538 with vocals, ID, call letters, time checks. (Paszkiewicz, WI) 0523 with music, ID, talk. (Horton, AR) 0626 with big band Latin sound. (Foss, AK)

RFPI, **7385** at 0415. (Turnwald, FL) 1103 in EE. (Jeffery, NY)

Adventist World Radio, **5030** at 0441 in SS. (Foss, AK)

CROATIA—Croatian radio, **13830** at 1300 with news in EE and Croatian. (Northrup, MO) 1328 with song in Croatian, disco type music. (Ephraim, MA)

CUBA—Radio Rebelde, **5026** variable at 0505 in SS with music and talk, Ids. (Yohnicki, ON)

Radio Havana, **6000** at 0130 with top ten countdown of Cuban hits (UTC Mondays). Announced parallel **9820** and **9830 (USB)** but not heard. (Silvi, OH) 0315 with news of Cuba, ID, "Viewpoint" program. (Jeffery, NY) **9820** at 0417 with shortwave program. (Horton, AR)

DENMARK—Radio Denmark via Norway, **5905** at 2338 to 2355 with bi-monthly English language broadcast *(to have been discontinued by the time you read this, Ed.)*. Listed **7465** was inaudible. (Silvi, OH)

DOMINICAN REPUBLIC—Radio Cristal, **5012V** with daily EE program at 0040 to 0100 featuring Dominican Republic tourism promotion, talk about media developments, mailbag. Have heard my letter read on this show. (Rausch, NJ)

ECUADOR—**HCJB**, 9745 at 0211 with religious program. (Foss, AK) **11960** at 1330 in SS and **12005** at 1325 in EE. (Northrup, MO)

Radio Quito, **4919** at 0651 in SS. (Foss, AK) 0237 with music and man announcer in SS. (Jeffery, NY)

La Voz de Upano, **5020** at 0218 in SS with talk, ID.(Jeffery, NY)

Radio Popular, Cuenca, **4800** at 1108 in SS with vocals, man announcer, ID. (Jeffery, NY)

EGYPT—Radio Cairo, **9899v** at 0000 in EE with Arabic music, news. (Pedraza, OH) **9900**

at 2152 in EE with music program, ID, off at 2200. (Bannar, FL)

ENGLAND—BBC, **5990** at 1421 and **6100** via Antigua at 0234. (Miller) **7150** at 0524 with news. (Foss, AK) **12095** at 1335. (Northrup, MO) **17715** via Greenville at 2125. (Jeffery, NY)

EQUATORIAL GUINEA—Radio Naçional, **5004** at 0540 with hilife music. The signal was strong enough to cause QRM to WWV. (Paszkiewicz, WI)

FINLAND—Radio Finland Int'l, **11755** at 0845 with news and interviews in Finnish. (Foss, AK) **15400** at 1340 with "Compass North." (Pedraza, OH)

FRANCE—Radio France Int'l, **13625** at 1325 in FF and **13640** at 1255 in FF. (Northrup, MO)

FRENCH GUIANA—RFO, **5055** in FF at 0400 with music and news; some interference. (Yohnicki, ON)

GABON—Radio France Int'l via Gabon, **4890** at 0530 in FF to Africa. (Silvi, OH)

RTV Gabonaise, Libreville, **4777** at 2111 with West African music, hyper man announcer in FF. (Quaglieri, NY) 2202 in FF, lots of classical music. (Silvi, OH)

Africa Number One, **9580** at 2200 in FF. (Ziegner, MA) **17630** at 1400 in FF with news, ID, music. (Yohnicki, ON)

GERMANY—Deutsche Welle, **6075** in GG at 0327. (Foss, AK) **6185** *(via Antigua, Ed.)* at 0501 with news. (Horton, AR) **11785** at 2008 with news. (Miller, WA) **13780** at 1325 in GG. (Northrup, MO)

GREECE—Voice of Greece, **7448** at 0330 with news in EE. (Wallesen, IL)

GUAM—Trans World Radio/KTWR, **11580** with ID and EE sign off at 1629. (Barton, AZ)

Adventist World Radio, **9370** at 1545 in Vietnamese to 1558 when EE ID and address. (Rausch, NJ)

GUATEMALA—Radio Mam, **4825** in SS at 2325 with marimbas, saludos and sign off announcement at 0000 "TGMN, Radio Mam, cuatro mil ochenta viente cinco kilohertxz banda internaçional de sesenta metros. Desde Cabrican de Quetzaltenango Guatemala en la America Central." (Rausch, NJ)

Radio Tezulutlan, **4836** at 0200 in presumed Quechua, announcements and typical music. (Pedraza, OH) **4835** at 0250 in SS with talk, mention of Guatemala, music. (Jeffery, NY)

Radio Cultural, **5955** at 0430 with music, IDs and talk in SS.(Horton, AR)

Radio Buenas Nuevas, **4799.8** at 0130 in SS. (Hornstein, MI)

HONDURAS—Radio Internacional, **4930** at 0210 in SS with sports talk show. (Pedraza, OH) 0410 with music, IDs. (Horton, AR)

HUNGARY—Radio Budapest, **5905** at 0225 with DX program. (Paszkiewicz, WI) **6195** at 0337 with "Hungary Today." (Foss, AK)

INDIA—All India Radio, **11620** at 1612 with woman announcer in Hindi, music. (Miller, WA) **13700** at 0152 with man in unidentified language, stringed music. (Foss, AK)

ISRAEL—Reshet Bet, **9388** at 2355 with music, commercials and news in Hebrew. (Ephraim, MA)

ITALY—RAI, **9675** at 2240 with discussion in II. (Ziegner, MA)

IRRS—Italian Radio Relay Service, **7125 USB** at 0854 with UN Radio "Scope" program, light pops, ID at 0900. (Quaglieri, NY)

IVORY COAST—Radio Cote D'Ivoire, **7215** at 2250 in FF with blues and news. (Ephraim, MA) *(it's hard to tell the difference sometimes! Ed.)* 2257 with African pops in FF. (Miller, WA)

JAPAN—Radio Tampa, **3925** at 0604 in JJ. (Foss, AK)

Radio Japan, **6120** (via Canada) at 1112. (Turnwald, FL) **9610** with news recap at 1129. (Barton, AZ) **11705** at 1430 on the art of Japanese barbering. (Wallesen, IL)

JORDAN—Radio Jordan, **13630** at 1800 in AA with music, talk. Many mentions of "Amman" at 1830. (Moser, IL)

KAZAKSTAN—Kazak Radio, **7143** at 0000, 0100, 0200 in Kazak, with world news, music. (Ziegner, MA)

KENYA—Kenya Broadcasting Corp., **4935** at 1946 with wildly enthusiastic DJ with pop countdown. News at 2000. Best heard in years. (Quaglieri, NY)

MEXICO—Radio Mil, **6010** at 0430 with music, IDs, all in SS. (Horton, AR)

MONGOLIA—Radio Ulaanbaatar, presumed, on **4850** at 0929 with male-female duo in CC punctuated by martial music. **9745** at 1945 in EE with Mongolian folk music and mailbag program, ID schedule and address before 2000 sign off. (Rausch, NJ)

MOROCCO—Voice of America relay, **17895** at 1627 with "Nightline Africa." (Jeffery, NY)

NETHERLANDS—Radio Netherlands, **5995** (via Bonaire) at 0501 with news. (Miller, WA) **9845** (via Bonaire) at 2335 with news, weather, "Newsline." (Pedraza, OH) **9895** at 0837 with news in Dutch. (Foss, AK)

NICARAGUA—Radio Miskut, **5770** in SS with ballads, announcements, ID to anthem and off at 2344. (Paszkiewicz, WI)

NIGER—La Voix du Sahel, presumed, **5021.44** with exotic African music, chatty male announcer in unidentified language. 2201 news and back to music at 2204. (Quaglieri, NY)

NIGERIA—Radio Nigeria, Kaduna, **4770** at 0500 with station ID preceded by about two minutes of drums. (Hornstein, MI) 0502 news. (Ephraim, MA) 0600. (Silvi, OH)

NEW ZEALAND—Radio New Zealand Int'l, **6100** at 0800 with weather and "Just a Minute" game show. (Pedraza, OH) **15115** at 2248 with a feature on the workings of the New Zealand legislature. (Jeffery, NY)

NORTH KOREA—Radio Pyongyang, **7115** heard at 2300 with ID, news, features. **11705** at 2315 with propaganda talk, music. (Pedraza, OH) 2256–2347 with news, music, IS, ID. (Bannar, FL)

Korean Central Broadcasting Station, **6100** at 0727 in KK. **9665** at 0205 with an impassioned speech. (Foss, AK)

NORWAY—Radio Norway Int'l, **7465** (weak) //**5905** (very strong) at 2300 with

weekly EE broadcast. The Fredrikstad transmitter site (**7465** in this case) was scheduled to have closed by now. (Silvi, OH) *(Radio Norway will continue transmitting from its other site. Ed)*

PAKISTAN—Radio Pakistan, on new **9656** at 1220 in Hindi with sub-continental music, ID by woman at 1230 and news. (Rausch, NJ)

PAPUA NEW GUINEA—NBC Port Moresby, **4890** at 0757 with soft rock, ID by woman at 0800 and local news. (Foss, AK)

PARAGUAY—Radio Naçional, **9735** in SS heard at 0227 with talk by man and woman. (Jeffery, NY)

PERU—Radio Tarma, **4775** in SS at 2219 with music. (Ephraim, MA) 0224 in SS. (Jeffery, NY)

Radio Atahualpa, **4820** at 0324 in SS with talk. (Jeffery, NY)

Radio La Oroya, **4905** at 0238 in SS with music and woman announcer. (Jeffery, NY)

Radio Atlantida, **4790** at 0229 in SS with ID and talk by a man. (Jeffery, NY)

Radio Horizonte, Chachapoys, **5020** at 1045 in SS with lively music, man announcer, IDs. (Jeffery, NY)

PHILIPPINES—Voice of America relay, **7150** in Asian language with discussion of US politics. (Barton, AZ)

PORTUGAL—Radio Portugal, **9570** at 0430; also parallel **6150** now in this time slot. (Paszkiewicz, WI) **15200** at 1800 in PP, seemingly news and live reports. (Moser, IL)

ROMANIA—Radio Romania Int'l, **15250** in FF heard at 1854 with sports coverage, ID. (Jeffery, NY)

RUSSIA—Golos Rossii, **7300** in RR at 0445. (Barton, AZ)

Voice of Russia, **4920** at 1942 with children's stories; //**5940**. (Quaglieri, NY) **5930** at 0452 with a Russian folk song. Also **7330** at 0531 with "Music At Your Request." (Foss, AK) **6150** at 0449 with IS, 1812 Overture.(Miller, WA) **7125** heard at 2300 with "Folk Box." (Ziegner, MA)

SINGAPORE—BBC relay, **6080** at 1354 with sports. (Barton, AZ)

SLOVAKIA—Radio Slovakia Int'l, **9440** at 0210 in FF with ID, talk by man and woman. (Jeffery, NY)

Adventist World Radio, **6055** at 2144 with "Your Story," AWR addresses, ID, IS and off at 2156. (Jeffery, NY)

SOLOMON ISLANDS—SIBC, **5020** at 0657 with Colgate commercial, ID, news at 0700. (Foss, AK)

SOUTH AFRICA—Channel Africa, **9585** at 0405 with news, frequency list and ID. (Horton, AR)

SOUTH KOREA—Radio Korea Int'l, **7285** at 1250 with SWL program. (Barton, AZ)

SPAIN—Radio Exterior de Espana, **9540** at 0059 with news, weather, press review, "Window on Spain," SS lesson. (Pedraza, OH) **12035** at 1325 in SS. (Northrup, MO)

ST. HELENA—Radio St. Helena special transmission, **11092.5 USB** heard at 1900. (Davis, ME) (This is a "one time" special which this station conducts once every year or two. Editor)

SURINAM—Radio Apinte, **4991** at 0248 in unidentified language with talk. Very poor signal. (Jeffery, NY)

SWEDEN—Radio Sweden at 2345 on **7115**. (Miller, WA)

SWITZERLAND—Swiss Radio Int'l on **6165** at 0720 and **9905** at 0400. (Turnwald, FL) **12075** at 1345 in FF and **13685** at 1330 in GG. (Northrup, MO)

TAIWAN—Voice of Free China, **7130** at 1117 with talk about baseball in Taiwan. (Miller, WA) 1443 in CC. (Barton, AZ) Via WYFR on **15600** with news at 2208. (Jeffery, NY)

THAILAND—VOA relay, **9680** at 1620 in CC with pop/rap, IS, EE ID at 1700 close. (Rausch, NJ)

TURKEY—Voice of Turkey, **9445** at 0410 in TT. (Turnwald, FL) **11725** at 2147 in TT. (Ephraim, MA)

TUNISIA—RTV Tunisienne, **11730** at 0852 in AA with phone interview. (Foss, AK)

UNITED ARAB EMIRATES—UAE Radio, Dubai, **15395** at 0751 in AA. (Foss, AK) 1330 with EE news, Lessons from the Holy Koran. (Pedraza, OH)

UZBEKISTAN—Radio Tashkent, **7190** at 0200 in probable Uzbek. News, Uzbek banking crisis. (Ziegner, MA)

VATICAN—Vatican Radio, **7360** at 0430 in FF to Africa with African-type music. Also **9500** at 0828 in unidentified language. (Foss, AK) **9600** at 2248 with features about abortion and crime. (Jeffery, NY)

VENEZUELA—Ecos del Torbes, **4980** at 0245 in SS with music. (Jeffery, NY)

Radio Tachira, **4830** in SS at 0244 with talks, music, ID. (Jeffery, NY)

YUGOSLAVIA—Radio Yugoslavia, **7115** at 0125 music, ID, frequencies. (Pedraza, OH) 2358 with IS, news in EE. (Miller, WA) **9500** at 2213 in presumed Serbian with talk, ID, music. (Jeffery, NY)

ZANZIBAR (TANZANIA) Radio Tanzania, Zanzibar, **11734** at 1912 with talk in Swahili, mention of Zanzibar, flute music. (Paszkiewicz, WI)

That's it! A mighty cheer for the following who did the good thing this month: Al Quaglieri, Albany, NY; Lee Silvi, Mentor, OH; Rick Barton, Phoenix, AZ; Miguel A. Pedraza, Jr., Springfield, OH; Don Davis, Pittsfield, ME; Barry S. Ephraim, Worcester, MA; Howard Moser, Lincolnshire, IL; Marty Foss, Talkeetna, AK; Hugh A. Hornstein, Muskegon, MI; Elmer W. Wallesen, LaGrange Park, IL; Ed Rausch, Cedar Grove, NJ; David Bannar, Ormond Beach, FL; Dave Jeffery, Niagara Falls, NY; Tom Turnwood, Brandenton, FL; Larry Horton, Bentonville, AR; Tricia Ziegner, Westfield, MA; Sheryl Paszkiewicz, Manitowoc, WI; Michael Yohnicki, London, ON; Mark Northrup, Gladstone, MO and Michael J. Miller, Issaquah, WA. Thanks to each of you for some great logs.

Until next month, good listening! ■

BY STEVEN ADAMS

Product Spotlight

POP'COMM REVIEWS PRODUCTS OF INTEREST

Uniden's BearTracker BCT-10

Billed as the "World's Smallest, Mobile Highway Information System," the BearTracker BCT-10 packs potent performance in a small, easy-to-use package. The BearTracker comes in a durable, hard plastic case and is designed to be operated in a vehicle, with readouts and controls mounted in a logical manner for a driver to see and use. For this review I used the BCT-10 indoors as well to compare it to my other scanners. I found it to be a worthy receiver.

The BCT-10 operates from 12 Vdc negative ground only, so an inexpensive 115 Vac to 12 Vdc adapter must be used to power it indoors. These adapters are available at most electronics retailers as well as RadioShack (part number 273-1652).

The Uniden BCT-10 scanner. (Courtesy Uniden America Corporation)

Uniden BCT-10

Suggested Retail Price:	$299.00
Frequency Coverage:	(preprogrammed) 37.020–46.020, 138.345–172.020 and 423.000–508.4875 MHz
For Info. Contact:	Uniden America Corp.
Customer Svc.:	1-800-297-1023
Web Site:	www.uniden.com

Features

The BCT-10 scanner has police, highway patrol and NOAA weather frequencies pre-programmed at the factory. It has several operating modes that allow you to receive all or some of these frequencies. You can select a particular U.S. state or Canadian province to scan or you can select all frequencies. When a particular state or province is selected, there is an alarm feature which triggers a visual and audio alarm to indicate that highway patrol mobile extenders are in use nearby. The audio portion of this alarm can be muted. The alarm feature does not work when all frequencies are selected.

You can also select highway patrol frequencies only or local police frequencies as well as highway patrol by pressing the mode key. Small LEDs indicate the current operating mode.

Accessories

Included with the BCT-10 are:

✔ Comprehensive owner's manual/operating guide written in English and Spanish, with easy to read and understand sections on each aspect of use and performance.

✔ Windshield mounting bracket with hardware.

✔ Visor clip mounting bracket which slips over the unit and has a strong spring clip for secure attachment to visors.

✔ BCT-10 rubber duck type antenna.

✔ Cigarette adapter power cord to power the unit from your vehicle's battery.

✔ Flexible mobile antenna.

✔ Straight (fused) power cord for connecting to your vehicle's fusebox.

Ease of Use

The BearTracker BCT-10 is designed to be clipped to your vehicle's visor, plugged into the cigarette lighter receptacle and turned on for immediate use. You can do exactly that. It is as simple-to-operate as any scanning receiver I've seen. The owner's manual/operating guide has step-by-step instructions for mounting the BCT-10, mounting the mobile flexible antenna and for using the various modes, features and functions of the unit. The owner's manual/operating guide has excellent illustrations and is written in lay terms that should enable anyone to fully appreciate and use all the features and functions.

Performance

In order to fairly judge the BearTracker's performance, I used my venerable RadioShack PRO-2004 and Bearcat

". . . the BearTracker BCT-10 packs potent performance in a small, easy-to-use package."

XLT200 scanners as comparison yardsticks. I used an antenna splitter so I could simultaneously monitor the BearTracker and one of my other scanners from the same antenna. And I also used different antennas under varying conditions to test the full range of the BearTracker.

The BearTracker BCT-10 performed admirably in all frequency ranges when compared to my base station PRO-2004 and handheld Bearcat XLT200. The BCT-10 and my other scanners would find the same frequency, start scanning again and find the same frequency again. The BCT-10's built-in two second delay allowed both sides of most conversations to be heard.

Police frequencies in my area cover the spectrum, including the 42, 155 and 460 MHz bands. The BCT-10 easily shifted between bands, finding everything my other scanners found. The BCT-10 has an alarm feature that indicates highway patrol activity nearby.

Mobile extenders make highway patrol vehicles a mini broadcast station by allowing the officer to transmit and receive from the radio he or she is carrying, back to equipment mounted in the vehicle which then retransmits over the normal radio frequency. Mobile extender frequencies in my state (California) are 154.905 MHz. When this frequency is detected by the BCT-10, indicating highway patrol activity nearby, the alarm function is activated. There is also a handy signal strength meter indicating the proximity of the mobile extender activity. The owner's manual/operating guide explains this in detail with excellent illustrations.

The BCT-10 comes with two antennas; a five inch "rubber duck" type antenna with a 90 degree BNC connector and a flexible mobile antenna, also with a BNC connector. As expected, I found the flexible mobile antenna supplied with the BCT-10 to be a better performer than the rubber duck. The duck worked well, but missed some of the weaker signals and generally lacked the sensitivity of the longer antenna. The flexible mobile antenna is approximately 10 feet long and uses shielded coax type cable. It has two small, clear suction cups attached for mounting to glass. You can route this antenna around the windshield or interior of a vehicle and adjust it for maximum performance. I found this antenna to be quite useful and functional. It also performed well with my other scanners.

"Local NOAA (National Oceanographic and Atmospheric Administration) weather conditions and forecasts are a push of a button away."

I found the BCT-10 to be reasonably free of electrical interference. Signals in the 39–46 MHz range were somewhat affected by ambient noise from the vehicle's electrical system and close proximity to electrical devices indoors, but all other bands worked well. The solution to this is to adjust the squelch level, reducing the sensitivity of the receiver. Weaker signals may be lost however. Unfortunately many state highway patrol agencies use the 39–46 MHz band. This interference is not unique to the BCT-10, as I have experienced this same interference with other scanners using other antennas and in different vehicles.

The BCT-10 uses the industry-standard BNC connector which makes adding accessory antennas and coaxial cables easy. Troublesome or unwanted frequencies or open carriers (static with no signal) can be locked out by pushing the lockout key. Frequencies can be restored by simply holding down the lockout key until two beeps are heard.

A frequency of interest can be monitored continuously by simply pushing the hold button. To resume scanning, simply push the hold button again.

Local NOAA (National Oceanographic and Atmospheric Administration) weather conditions and forecasts are a push of a button away. Cycling the mode button will select weather (WX), highway patrol (HP) or local police and highway patrol (LP). The local weather reception for my area was clear and completely readable. Distant weather conditions can be checked by simply locking out your local weather frequency.

The installed speaker provides crisp, clear audio that can be heard over most wind and road noise. There is an external speaker jack that accepts standard 1/8 inch plugs. The BCT-10 has enough power to drive an external speaker for adequate volume.

The BCT-10 Warranty

The BearTracker BCT-10 comes with a one-year limited warranty covering defects in materials and craftsmanship. Details are in the owner's manual. There is even a toll-free customer service number available (800-297-1023) for assistance.

Bearcat Scanner Club

The Bearcat scanner club can be found at <http://www.bearcat1.com/bearcat/> or it can be accessed from the Uniden Homepage at <http://www.uniden.com>. We are not endorsing this scanner club, but merely bringing it to your attention as part of Uniden's service and affiliations.

Impressions

I like it! The BCT-10 performs the tasks it was designed for quite well. It has limitations, such as no 800 MHz capability and no means to program frequencies in, however many people only want to scan police and highway patrol—the BearTracker does that quite well. The BearTracker BCT-10 could easily be someone's first or only scanner. You can literally take it out of the box, slip on the rubber duck antenna, plug it in to your vehicle's cigarette lighter and have an "instant scanner" with no programming necessary and no knowledge of scanning. Many of the frequencies that people monitor are already pre-programmed.

Having no frequency readout to identify agencies takes a little getting used to, but after a time, you find yourself listening closely to the broadcasts and looking for familiar street names or highway numbers to identify the agency. I didn't find this to be particularly troublesome.

I consider myself an advanced scanner enthusiast, used to programming frequencies in and searching for new ones, yet there were enough modes, features and functions available with the BCT-10 to keep me interested. For the traveler, trucker, novice or experienced scanner enthusiast, the BearTracker BCT-10 provides real time information on police and highway patrol activity and weather conditions in a rugged and easy-to-use package. The comprehensive owner's manual/operating guide provides clear, easy-to-understand explanations and instructions with excellent illustrations. ■

AR8000

All Mode Wide-Band World Band Radio Receiver

AOR®

The Ultimate Handheld Receiver! "WELCOME TO THE WORLD OF THE AR8000" . It incorporates the latest PLL technology and offers a multitude of features including true carrier re-insertion SSB (CW) demodulation with 50Hz frequency steps. 4 level alpha numeric LCD indicates the frequency, signal strength, band scope and more. Selectable squelch system, auto-mode, auto-band-plan, serial communication port are all standard. Internal ferrite antenna offers high performance reception below 2MHz..

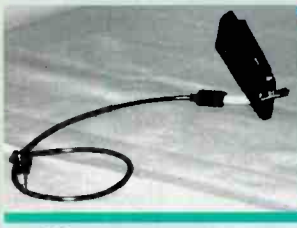
When frequencies are entered, ALPHANUMERIC comments may be stored along with frequency, mode & attenuator status simplifying the job of recalling and identifying memory channels. There are a variety of scan/search commands to link banks, scan by mode, programmable delay scan, priority, auto memory store, step offset and a programmable power save circuit to increase the duration of operation from the NiCads. Keypad illumination extends to the side panel keys and may be switched in a number of ways. Illumination "Permanently On" for mobile operation is possible, a specially selected heavy duty regulator has been fitted to ensure the receiver will continue to operate reliably even with the illumination permanently On.

Main Features

- Frequency Coverage 500 kHz - 1900 MHz • All mode reception AM, NFM, WFM, USB, LSB & CW
- True carrier reinsertion and specific SSB filter with non-offset frequency readout • 1000 memory channels
- 20 search banks • Priority channel • Frequency pass • Rotary tuning dial • Step sizes programmable between 50 Hz & 999.995 kHz in 50 Hz increments • Scan & search speed up to 30 increments per second • Signal strength meter
- Band scope • Backlit LCD, Keypad & Side panel • Battery save facility • Separate controls for volume, squelch & dial
- Attenuator • Keypad beep on/off • Keypad lock • Top panel 3.5mm earphone socket • Monitor switch • Password protected banks • Programmable scan & search including free, delay, audio, level & mode • Select scan list • Computer control
- EEprom memory backup (no battery required). • Two users modes: Beginner and Expert

Supplied with: NiCads, AC Charger, Hand strap, Belt Clip, Semi-flexible antenna, DC lead with cigar plug, Comprehensive operating manual with over 50 LCD illustrations.

Options: SC8000 Soft Case, AR8000INF interface, SAC8000 (Scout Adaptor Cable), Desk stand, DS8000 (Speech Inversion descrambling chip), MA500 antenna, ScanCat GOLD Software, RCSS8000 Software, RCS1-SoftControl 2.0, LA320 active loop antenna, QS200 Mobile bracket



SAC8000 Adapter Cable

Once the SAC8000 is installed, the AR8000 can easily be connected to the OptoElectronics Scout™. Any frequency captured by the Scout™ instantly tunes the AR8000 receiver.

Purchase an AR8000 and buy a SAC8000 for just $9.95...save $20!

AR8000 Heavy Duty, tough leather carry case. A-300

Perfect for tough environments to protect your valuable investment.

The Hugger

"At your fingertips" convenience for handhelds and cellular phones. Quick, easy "no holes" mounting using your car air vents. Flexible gripper arms hug your radio yet allows quick, easy release.

WATSON WSC1

It can be changed from a handheld holster to a waist-belt holster or an adjustable sized body holster, to fit any handheld, portable telephone or even tools.

AR7000 • COMING SOON TO A DEALER NEAR YOU!

100kHz - 2GHz, DSP Receiver

AOR®

PENDING FCC TYPE ACCEPTANCE: This device has not been approved by the F.C.C. this device in not, and may not be, offered for sale, or lease, or sold or leased.

SSE PSU101

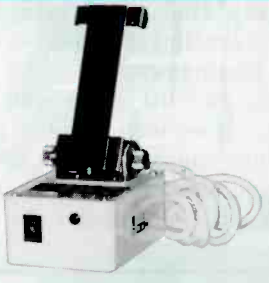
Adjustable Desk Charger/ Power Supply

12VDC Version

This quality, custom-designed combination desk charger and regulated power supply unit is perfect for convenient 'Base Station' use of your handheld scanner at home or office!!

- Securely holds scanner in proper position
- Charges radio's internal NiCad w/out overcharging
- Powers radio from standard 117VAC house current

For: FIARMATE HP1000E/200E/HP2000
AOR AR1000XLT/AR1500/AR2000
YUPITERU MVT7000/MVT7100
UNIDEN BEARCAT BC50XL/BC55XLT/ BC70XLT/BC100XLT/ BC200XLT/BC205XLT
ALINCO DJX1
ICOM ICR1 Handheld
REALISTIC-TANDY-RADIO SHACK PRO35/PRO38/PRO41



SSE

SSE PSU101TA

Desk Charger/Power Supply

9VDC Version

- 9 volt version for popular REALISTIC (RADIO SHACK) handheld scanners and others that require a 9 volt DC supply
- All the same quality & features of the PSU101 12 volt version above!

For: REALISTIC- TANDY- RADIO SHACK PRO34/PRO37/PRO43 and others.

WINDOWS™ Control for Scanners

ScannerWEAR™ SoftControl 2.0
WINDOWS 95' COMPATIBLE

- Memory banks include 100 channels per bank with frequency, description and mode.
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- Scan multiple groups, banks, or search ranges in the same session.
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- Import PerCon Database and comma-delimited ASCII.
- NEW database scan by service code, create memory banks from service codes.
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- NEW config window with support for com ports 1-8, IRQ calls on all ports, user modifiable dwell setting for all radios.
- NEW slave- master scanning with CIV protocol, scan on your receiver and all hits are transferred to the slave receiver for monitoring.
- NEW minimize window allows viewing of freq status while in any other WINDOWS or DOS application.

NEW from LOWE!!!
The Professional Earphone
LEP300

This earphone is designed to fit comfortably to one ear, the band behind the ear holding it securely in place. This design permits very low fatigue levels over long periods of use. The frequency response is optimized for communications use.

Impedance: 8Ohms
Response: 400Hz to 9kHz
Sensitivity: 85dB
Power Rating: 250mW Max.

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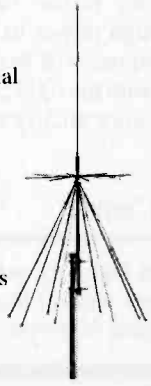
1300 DISCONE

If you've been looking for a superior wide band omnidirectional antenna covering 25-1300MHz, the 1300 is the ultimate wideband omni- directional antenna for hours for listening pleasure.

Receiving: 25-1300MHz
Transmit: 50, 144, 222, 430, 900, 1200MHz
Connector: Low Loss "N" type
Max. Pwr.: 200 watts
VSWR: 1.5"1 on bands listed above
Mast Dia.: .98" -2" **Length:** 5'6" **Weight:** 2.2lbs



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SCANCAT GOLD DOS OR WINDOWS VERSION!

SCANCAT presently supports:

- AOR3000/3000(A) & AOR2500, AOR-3030 HF receiver, AOR-AR8000 (Newest handheld) • Drake R-8 • MOST Icom Radios
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Software allows complete control of all functions supported by these radios through the standard manufacturer's interface.
***SCANCAT* allows you to:**

1. Enter any two frequencies and scan between them with ANY increment, time delay or pause.
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Now Available! Scancat Gold for Windows...Same great features and support you've come to expect ! Super windows graphic and commands for the smoothest possible operation. Now you decide...DOS or Windows 95 or 3.1

ΔΔ MONITORING ACARS with the new LOWE "AIRMASTER" ΔΔ

The monitoring of air band communications is a hobby that has become more and more popular over the last 10 years. In common with the rest of the communications field, there are far reaching changes in process in this area to cater to the requirements of air traffic control in the next century. ACARS is a very specialized data mode, and only decoders that have been specially designed for it will function. Until now, the only decoders that will work have been fairly expensive devices, as they use dedicated hardware to handle the decoding.

The new Lowe Electronics Airmaster uses a small demodulator that plugs into the Com port on the back of a PC and takes its power from it. All the decoding of the data stream is handled by software running on the PC, which also enables some analysis of the messages to take place before they are displayed on the screen. Items such as the registration number of the aircraft, its flight number and the type of message are shown separately from the message text. Because the decoding requires a considerable amount of processing power, you will need at least a 386 PC to enable Airmaster to operate.

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The Ham Column

BY KIRK KLEINSCHMIDT, NTØZ

GETTING STARTED AS A RADIO AMATEUR

QRP: Ham Radio's Destiny?

Is high-power (QRO) operating becoming politically incorrect? And if it is, should you join the ranks of die-hard QRPers (low-power afiçionados) today so you'll be an old hand when the FCC reduces the maximum amateur power output level to 25 watts?

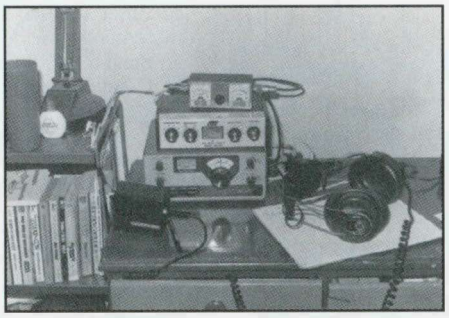
Sound impossible? Maybe, but examined over time, the evidence seems to be mounting. At a ham club meeting the other day, some ham friends and I were discussing the latest FCC mandate that hams who run more than 50 watts output must measure their station's RF field density at various distances from the antenna.

This rule, mandated by Congress, may not have been intended to apply to hams. Now the ARRL is leading an effort to change the rule or exempt ham operators. But until things are squared away, the rule remains in effect. And because most hams run 100 watts output or more, most of us are affected. Add to this the problem of an increasing number of threats to our amateur bands (especially at UHF and microwave frequencies), restrictive antenna covenants, RF-safety crusaders, lawsuit-happy neighbors from hell, zoning boards, the dramatic increase in wireless data and satellite data/phone systems—you name it! It's not inconceivable that some future FCC may significantly reduce amateur power output levels from its lofty 1500 watt PEP to something more futuristically conservative.

Anyway, today's crop of avid QRPers aren't waiting around—they're running "flea power" right now, all day long, surfing the bands among the medium and high-power players. If you're like minded—or if you simply want to prepare for a possible QRP amateur future, this month's column will point you toward a variety of resources.

Just What is QRP?

QRP, as you've probably guessed, means low-power operating. How low? Well, most hams run about 100 watts of output power, which is about 20 times greater than the 5 watt CW output (10 watts PEP) that commonly defines "QRP power levels." (QRP evolved from the CW procedural sign meaning "I am reducing power," and QRP? "Shall I reduce power?") But it doesn't stop there. Some dedicated QRPers run 1 watt, 500 mW, 10 mW, or even 1 mW of output. "Microwatters," crazed individuals who run less than 1 mW of output power, are a breed unto themselves! But make no mistake about it—they're out there!



Here's a blast from the past. During my freshman year in college (1980), thanks to excellent propagation, I worked lots of DX from central Minnesota with my trusty HW-8 QRP transceiver and an antenna that was fairly stealthy. Located in the basement level of a new brick 16-plex, I clipped a wire onto the bottom of a corner downspout, working it with the tuner against a short ground rod. During cooperative solar cycles, 1 watt and a crummy antenna worked just fine!

Worldwide, QRPers likely number in the tens of thousands, and you're more than welcome to join the ranks. Your comrades in spirit like nothing better than the challenge of working fellow hams while running just enough power to get through. Your 1 watt signal will hardly dominate the band, but with the right conditions, you can easily work all 50 states and a lot of DX.

Working 'em

Remember: A 1 watt signal is only a little more than 3 S-units weaker than a *100 watt* signal. So, if your 100 watt signal is S-9, your 1 watt signal will be about S-6. And that's plenty of signal! You'll listen more and call CQ less. Persistence pays off, as does using the right approach. Beginning QRPers often call only the loudest stations. That's not necessary, although it's a good idea to have a good copy on the stations you do call.

Which bands to use? When the sunspot cycle is high (in, say, two to four years!) 10 and 15 meters are awesome, and stations with only a modest dipole or vertical antenna can work the world. If you don't believe me, try it for yourself!

Twenty meters, of course, is the all-time bread-and-butter band with lots of high-power competition. Forty is an excellent band for stateside QRPing, and can even deliver a fair amount of DX in evening and overnight hours (much easier from either coast) and the same goes for 30 meters, which, because it's uncrowded, is "QRP-friendly." Eighty meters is another good stateside QRP band; but it's not as popular as 40 meters because propagation is usually not as good (except for close-in contacts). Eighty also has DX potential, almost exclusively for those who live near one coast or another.

Getting the Gear

Finding a rig for QRP work is pretty easy. There are many QRP-only rigs available, new and used. Look for Heathkit's long-popular "HW" series and Ten-Tec's Argonaut line-up. MFJ makes several single-band QRP CW transceivers, and if you're into kit building, check out Wilderness Radio's Sierra and the kits from S&S Engineering, Oak Hills Research and Ten-Tec. There are *many* others. Collectively, the ham magazines have published *hundreds* of home-brew "QRP stuff" in the past 10 years, so if you want to delve into "homemade radio," QRP is a good place to start.

If you don't want to invest in a dedicated QRP rig, it's relatively easy to reduce the power output of most modern solid-state rigs. The drive control can usually be used to reduce the RF output

to within acceptable QRP limits. Your rig's instruction manual will probably have more information.

Whether you're running 1.5 or 1500 watts, use the best antenna available. If you don't have a beam antenna, a dipole or loop will do just fine. Whatever the antenna, make sure it's in good shape electrically, and use good-quality feed line. Many serious QRPers use open-wire line because of its low-loss characteristics.

QRP Clubs and Awards Galore!

Many clubs exist to serve the interests of QRPers, and new ones seem to sprout weekly! One of the oldest and most prominent is the QRP Amateur Radio Club International (QRP ARCI). For information about QRP ARCI and a sample copy of its publication, *QRP Quarterly*, write to Mike Bryce, WB8VGE. P.O. Box 508, Massillon, OH 44648-0508. Other clubs include the Michigan QRP Club, the Colorado QRP Club and the G-QRP Club, based in England.

Awards are very popular among QRP clubs and QRPers. QRP ARCI issues QRP versions of many popular awards (as does the ARRL) and several exclusive awards such as the 1000-mile-per-watt award. Contests are also popular among low-power enthusiasts. About a dozen QRP-only contests are held throughout the year, and many mainstream contests such as Sweepstakes, ARRL International DX, CQ Worldwide, and others have QRP classifications.

There are also many books on the subject. You need look no further than the ARRL Publications Catalog (or your favorite amateur radio products dealer)—it's loaded with books on QRP operating and QRP gear/construction. Check out *QRP Power*, *QRP Classics*, *Doug DeMaw's QRP Notebook*, and *Your QRP Operating Companion*, for starters.

QRP on the Web

When it comes to QRP information and resources, the internet is second to none. The following to URLs will send you to hundreds of QRP-related pages: <http://qrp.cc.nd.edu/qrp-l/> and <http://www.fix.net/~jparker/website1.html>.

Whether you're a veteran QRPer or you're trying it for the first time, why not share your thoughts (and a photo of you at your QRP station)? Write to me at the ARRL, Department PCN, 225 Main Street, Newington, CT 06111. In the meantime, even if the FCC *doesn't* mandate reduced ham power levels, the QRPers will be listening for *your* flea-power amateur signal. ■

QRP Hardware/Kit Sources

Ten-Tec
1185 Dolly Parton Pkwy.
Sevierville, TN 37862
615-453-7172

624 Kits
171 Springlake Drive
Spartanburg, NC 29302

MFJ Enterprises
P.O. Box 494
Mississippi State, MS 39762
601-323-5869

Oak Hills Research
20879 Madison Street
Big Rapids, MI 49307
616-796-6633

Wilderness Radio
P.O. Box 734
Los Altos, CA 94023
415-494-3806

Scanning The Globe

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

The Rule of Antenna Height

One of the most important rules in VHF and UHF listening is that the higher your antenna, the more you will hear. While things such as antenna gain and cable length may have a factor in the formula, it is best to get it up as high as practical. Towers aren't cheap, but they do an excellent job in getting the antenna up high—and safely. An inexpensive option would be to erect a mast, guying it sufficiently for adequate height, that is if you are putting only one or two antennas on it.

Most scanner antennas are erected on rooftops and that's a good place for them. However, if you live on the outskirts of a city and you want to listen primarily to services in that city, you may want to put up a directional yagi antenna pointed at the city to hear the bulk of the action. The yagi (rhymes with "foggy") antenna is a directional antenna that points at its target; they also are known as beam antennas. You might even want to consider mounting a yagi antenna on a TV-type antenna rotor so you can rotate the antenna, pointing it at various cities if they are within range of your listening post. If the signals you want to hear are all around you, forget the yagis and stick with the usual omni-directional scanner antennas.

Another consideration is whether the bulk of your monitoring is on one band. If most of your listening is on VHF high band (138–174 MHz), you may want to scrap the all-band scanner antenna and buy an antenna designed for that band. You could trot off to your local radio shop and see what professional antennas they have in stock, but you will pay "professional prices" for the privilege. You'll make out much better heading off to the local ham radio shop and checking out a ham antenna. For instance, a 2-meter VHF ham antenna designed for 144–148 MHz will work fine in the 138–174 MHz band and a 440–450 MHz ham antenna will be perfect for 450–512 MHz monitoring. And you'll be paying ham prices, too, not "professional" prices.

If your antenna is mounted on a five-foot mast, consider raising it on a 10-foot mast, or adding a 10-foot mast to the 15-foot mast to get it up a bit higher. It may just make a difference in the signals you are trying to hear. But don't use cheap coaxial cable because all what you would gain in antenna height will be lost in a lossy cable as the signal is lost even before it reaches the radio. Spending a little bit more for better cable will pay off with better signals.

Antenna Checkup

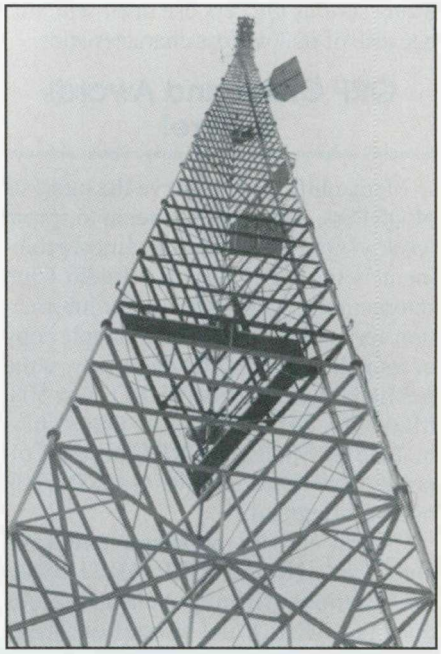
In most areas of the country, it's starting to thaw out about now. Spring isn't far away. And that means it's a good time to check out your antenna farm before the active months of spring, summer and fall come along with lots of radio activity.

Exposed connectors and damaged elements won't help your listening when you need to be tuned in. If there are connectors on the end of your coaxial cable where they attach to your antenna, they should be covered to keep out rain. Commercially available sealer is excellent stuff—it wraps around your connector like putty to keep the elements away. Most radio stores stock this item for a few dollars. In the absence of such a sealer, try at least to wrap a good (not cheap) electrical tape around the connector. It won't be as good, but it will help some. By keeping out the elements, you will enhance not only your listening, but also the life of your antenna system as you ward off corrosion.

You also should inspect your antennas for damage. Some antennas seem to attract overweight birds and the elements either bend under their weight or break off entirely, especially during winter months. Wind also can cause stress on antennas and their mounts. Ensure that your antenna is still securely attached to its mast or tower by giving it a little shake. If needed, tighten the mounts.

If you have a tower or a ground-up mast for your antenna farm, visually inspect it in case winter and the effects of ice or wind caused damage. Be sure the tower still is tightly bolted between sections and the ground base is in good condition. If guy wires are attached, be sure everything is snug.

If you take these precautions now, your antenna farm should give you lots of listening pleasure throughout the active scanning months in warmer weather, not to mention for years to come with the same regular preventative maintenance.



Get your antenna as high as possible. If you don't have a tower like this in your backyard, even raising your antenna an extra 5–10 feet can make a tremendous difference.

FBI Ops

Tuning in federal government frequencies is a favorite scanning target for many. I know I have spent many hours listening to feds. Often I receive requests for specific FBI frequencies, especially the new FBI frequencies. I'd love to comply, but as the FBI has implemented a digitally-encrypted system nationwide, new frequencies popped up all over the VHF high band segment for federal government users.

At one time, FBI radio systems generally were restricted to the upper end of the 163 MHz segment, as well as the lower and middle portions of the 167 MHz segment. When digital encryption was implemented, it wasn't uncommon to find testing pop up in areas such as 170

If the bulk of your listening is in one band—in this case probably public safety EMS near 155 MHz, for example—consider getting an omnidirectional ham 2-meter (144–148 MHz) antenna mounted as high as possible. It'll give you good coverage of the VHF high band.

MHz. Now, you can find the FBI on discreet frequencies in ranges such as 162, 163, 165, 167, 168, 172 and 173 MHz. If there is an available frequency in the 162–174 MHz federal band, it's possible the FBI might pop up there.

The FBI also used to have a vast system of UHF links in the 406–420 MHz band to tie together repeaters on VHF. It seems as though they have gradually phased out those transmitters in favor of other technology.

Their use of available frequencies ranges widely from one area to another it seems, so it is impractical to list certain frequencies that would be in use anywhere in the United States. It should be noted, however, that no matter where you live, it is possible to hear FBI communications on 167.5625, which is a nationwide mutual-aid type of channel for FBI units. It typically is referred to as channel 4 in most regional systems. While a lot of FBI communications are digitally encrypted these days, there still is some clear voice if you look around. And if you have a CTCSS decoder, if a 167.9 Hz tone shows up on a VHF high band frequency, there is a very good chance that it is the FBI that you are hearing.

On Your Tows

Tow trucks can be fun to monitor, especially during bad weather conditions. However, if you punch into your scanners all the frequencies allocated to the automobile emergency radio service (which is for tow trucks and auto clubs), you may be missing half the action!

Here are the frequencies reserved for privately operated tow trucks: 150.815, 150.830, 150.845, 150.860, 150.875, 150.890, 157.470, 157.485, 157.500 and 157.515. In addition, the following frequencies can be used by auto clubs providing emergency road service for members: 150.905, 150.920, 150.935, 150.950, 150.965, 452.525, 452.550, 452.575 and 452.600. The four UHF frequencies are simplex only—without repeaters—meaning the base stations and mobiles operate on the same frequency, unlike most wide-area UHF radio services. Tow operators also are eligible for automobile emergency frequencies in the 851–866 and 935–940 MHz bands. However, the place you'll find most tow trucks aren't generally on automobile emergency radio service frequencies. Most use business band frequencies because it's easier for radio shops to set up their customers this way. Because any profit-making enterprise can use business radio service frequencies, tow truck operators are included in this group. While some tow trucks may use frequencies in

the VHF low band range between 30 and 50 MHz, as well as those frequencies available for businesses in the 151 and 154 MHz ranges, many operate on wide-area repeater systems in the 461–465 MHz band. In larger metro areas, you will find tow trucks using the 470–512 MHz T band, the 851–856 repeater band, the 856–866 MHz trunked band, or the 935–940 MHz trunked band.

A towing firm may require wide-area coverage that a repeater offers, however, the automobile emergency radio service does not allow repeaters on UHF. Because the business radio service does allow repeaters on UHF, that may prove a viable alternative for a tow operator. Also, it may prove cheaper for a tow operator to operate on a community repeater on UHF that is owned by a radio shop and which is rented to various firms that all use the same repeater. It certainly is a lot more expensive for a firm to put its own repeater on the air, so community repeaters with monthly user fees usually prove more palatable to the checkbook. It is the same reason you may see newspapers using community repeaters for news and circulation activities, instead of putting their own repeaters on the air on the two available frequencies at 452.975 and 453.000 MHz.

There are a handful of frequencies available to tow operators for low-power (two-watt) operation. These frequencies—452.5125, 452.5375, 452.5625, 452.5875 and 452.6125—technically could be used for on-scene use, but might be more practically employed for mobile repeater use. For instance, the tow truck driver would carry a UHF handheld while outside his truck and transmit to the truck on UHF while a repeater in the truck retransmits the signal onto the VHF channel with much more power output, allowing the driver to maintain contact with his or her dispatcher while outside the tow truck. As a general rule, these frequencies just aren't used, but don't be surprised to find something pop up!

Write On

What questions do you have about scanning the VHF and UHF bands? How about sending in a list of your favorite frequencies? And while you are at it, let's see a picture of your listening post. Write to: Chuck Gysi, N2DUP, Scanning the Globe, Popular Communications, 76 N. Broadway, Hicksville, N.Y. 11801-2909, fax to (516) 681-2926, or e-mail to <SCAN911@aol.com>. ■

NEWS FLASH!

Uniden Announces TrunkTracker BC235 XLT Scanner

Uniden America Corporation has announced breakthrough technology in scanning systems with their new TrunkTracker BC235 XLT scanner, the world's first scanner capable of identifying selected trunk control channels and tracking channel changes. Uniden's 300-channel, programmable handheld scanner provides users with uninterrupted monitoring capabilities.

One of the biggest obstacles in the scanner industry has been the increasing use of trunking radio systems in business and public service throughout the U.S. making it nearly impossible to track a conversation as it moves within a trunked system from repeater to repeater. "Uniden's breakthrough technology takes scanning radios to a whole new level," Tony Mirabelli, Uniden's vice president of marketing said. "Instead of having to initiate a new search each time conversation breaks and switches channels, TrunkTracker seamlessly follows the conversation from channel to channel."

Uniden applied years of experience in developing and manufacturing scanners to identifying the technologies necessary to make a substantial difference in the scanner market. "This full-featured scanner with its unique trunk tracking capabilities has raised the standard for scanners in the industry," Mirabelli said.

TrunkTracker will be available in retail outlets in March with a suggested retail price of $429.95. The TrunkTracker technology will also come in a base unit scanners at the BC895 XLT. It will be available in June with a price of $499.95. Additional features of this product include:

- **Twelve bands, 10 banks**—includes 12 bands with aircraft and 800 MHz plus service scan, as well as 10 banks of 30 channels useful for grouping similar frequencies and selectively scanning these groups.
- **Preprogrammed Service Search**—Provides users capability to goggle through police, fire, emergency, aircraft, marine and weather frequencies.
- **Trunk Scan and Scan List**—Makes it possible to scan for activity on one trunk group or creating a list of multiple groups to scan.
- **Trunk Search**—Allows users to search for and monitor all groups within a trunked system.
- **Trunk Lockout**—Enables users more selective monitoring giving them the option to lockout selected groups from the trunking system.
- **Trunk Delay**—Applies a five second delay to trunking groups so that both sides of a conversation can be heard even if the trunking frequencies change between replies.
- **CRX120 Battery Charger**—Allows users to keep the spare battery charged at all times.
- **Ten Priority Channels**—Enables users to keep track of activity on top priority channels while monitoring other transmissions.
- **Manual Channel Access**—Lets users go directly to any channel without stepping through other channels.

- **Memory Backup**—Retains entered frequencies more than three days in the event of power loss.
- **Programmable Search**—Allows users to find new frequencies in any of the scanner's bands.
- **Channel Lockout Key**—Enables users to skip over channels they don't currently want to hear.
- **Battery Packs**—Includes two rechargeable NiCd packs.

Uniden America Corporation, the North American subsidiary of Uniden Corporation, Japan, manufactures and markets wireless consumer electronics products, including cordless and cellular phones, internet appliances, pagers, business telecommunications systems, satellite receivers and other personal communications devices. Based in Fort Worth, TX, Uniden America sells its products through dealers and distributors throughout North, Central and South America.

BY RICHARD "RD" BAKER
<utelistener@msn.com>

Communications Confidential

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

More Maritime Changes

Globe Wireless (formerly KFS World Communications) based in Half Moon Bay, CA, is a maritime communications service provider. Already operating through an extensive network of HF coastal stations all over the world known as Global Radio Network, Globe has recently added additional coastal stations to its network. Perth Radio, Australia, call sign VIP, is in full operation now. Central Radio & Telegraph Co., known as "Rogers City Radio," call sign WLC, on the Great Lakes, has recently made an agreement with Globe Wireless to join the Global Radio Network, according to a release by Globe Wireless. Rogers City Radio is located in the Northeast corner of the lower peninsula of Michigan and offers coverage of the US and Canadian Great Lakes and St. Lawrence Seaway areas. Existing radio equipment reportedly is to be used by WLC for Globe Wireless services, so their existing sitor frequencies should be in use.

Telkom SA, the South African telephone company, and Barbados External Telecom (BET), the Barbados telephone company, have also recently signed an agreement with Globe Wireless. Cape Town Radio, call sign ZSC, and Barbados Radio, call sign 8PO, will also join the Global Radio Network. Cape Town Radio is located near the Cape of Good Hope at the southern end of the African continent and offers coverage of the Indian and the South Atlantic Oceans. Barbados Radio, located in the Eastern Caribbean, will offer coverage of both the Caribbean Sea and the central Atlantic Ocean. ZSC should now in be operation and 8PO will up and running soon, if not already, according to Globe Wireless releases. These join coast stations Awanui Radio/ZLA (New Zealand); Bahrain Radio/A9M (Arabian Gulf); Chatham Radio/WCC (pending FCC approval); Götenberg Radio/SAB (Sweden); Hawaii Radio/KEJ (Kahalelani, Hi, USA); Palo Alto Radio/KFS (San Francisco); San Francisco Radio/KPH (pending FCC approval); Slidell Radio/WNU (New Orleans); and St. John's Radio/VCT (Newfoundland, Canada). KEJ was originally known as Kahalelani Radio while VCT came in as Grand Banks Radio and has also been listed as Tors Cove Radio.

Globe Wireless also is very "SWL friendly" and encourages reception reports from utility listeners. They send out a nice QSL card for correct reception reports which should contain the following information:

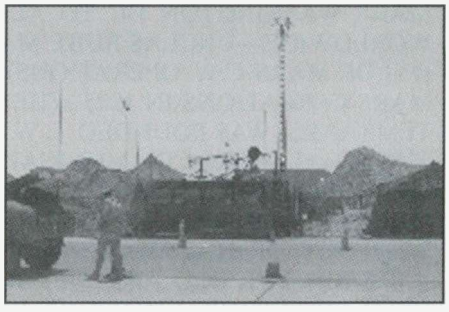
Date and Time (UTC) of your reception, Call Sign (QRA) of the Globe Wireless network station heard; Either the actual frequency (QRG), or ITU channel number; Mode of transmission heard (SITOR, CW, etc.); Signal strength (QSA) and quality; Any interference (QRM) heard on frequency, or on adjacent channels; Did you hear traffic or idle signals? If traffic, whom were they working?; Model number of receiver and type of antenna used; and Location (QTH) of your receiving station.

Send your reception reports for all Global Radio Network stations to: Globe Wireless, Attn.: Engineering Department, One Meyn Road, Half Moon Bay, CA 94019 USA .

Globe Wireless SITOR transmitters can be easily recognized. They broadcast a unique "sitor free signal" pattern, followed by the station's call sign, when the frequency is not in use. A new user of the Globe Radio Network recently observed is Crowley Maritime with their extensive fleet of tugs.

More News

The U.S. Air Force returned to Entebbe, Uganda in central Africa to support humanitarian efforts in Rwanda, according to a release by the *Air Force News Service*. The 615th TALCE (Tanker Airlift Control Element, when pronounced sounds like "tall-see") from Travis Air Force Base, CA, has set up base there. A 'TALCE' is "a deployed Air Mobility Command (AMC) unit established at fixed, en route, and deployed locations where AMC operational support is nonexistent or insufficient. It provides continuing on-site management of AMC airfield operations including command and control, communications, aerial port services, maintenance, security, weather and intelligence—those critical elements needed to ensure a safe and highly efficient air base for all tanker and airlift operations", according to AMC officials. AFNS reports Entebbe could become a cargo hub for the operation. Larger Air Force cargo planes, such as the C-17 Globemaster IIIs, C-5 Galaxy, or C-141 Starlifter could land there and unload their cargo, which would then be transferred to the C-130 Hercules for delivery throughout the theater. Deployed TALCE's generally use mission static callwords to ID by. Discrete HF frequencies are used, but the comms should stand out as a callword working REACH or IFOR call signed aircraft. "PROMENADE," is the callword used by the Brindisi TALCE for IFOR (International Forces) Bosnia.



Exterior of a Tanker Airlift Control Element (TALCE), this one near the airfield at Prince Sultan Air Base, Saudi Arabia. (U.S. Air Force Photo by Staff Sgt. Angela Stafford)

Also according to AFNS, a new Antarctic LC-130 Hercules was recently christened at Christchurch, New Zealand. In honor of the U.S. Antarctic program's host city, the aircraft will be named "City of Christchurch." The newly manufactured Hercules aircraft will be flown by the 109th Mobility Air Wing of the New

CQ DE VCS—PLEASE NOTE, THIS IS OUR FINAL BROADCAST ON THIS FREQUENCY—AS OF 2400 GMT, TONIGHT, HALIFAX COASTGUARD RADIO/VCS WILL NO LONGER PROVIDE SERVICES ON HF CW, HF RT, OR SITOR. OUR SATELLITE TELEX NUMBER IS 1921540—WE THANK YOU FOR YOUR PATRONAGE OVER THE YEARS—THE RADOP OPERATORS OF VCS HALIFAX RADIO WISH YOU A SAFE VOYAGE, AND TO ALL A GOOD NIGHT—73 AND 88 DE V C S AR VA

CQ DE NAV MARS FINAL COMMEMORATIVE CW BROADCAST TO FOLLOW AT 25, 20, AND 15 WPM. R 300001Z SEPT 96 FM CHNAVMARCOR-MARS WASHINGTON DC TO ALL MARS MEMBERS AND STATIONS WORLDWIDE—UNCLAS SUBJ: MARS SPECIAL CW BROADCAST (ENDING OF MARS C.W. OPERATIONS) 1. FROM THE VERY BEGINNING OF MARS OPERATIONS IN 1925 WHEN THE ARMY AMATEUR RADIO SYSTEM (AARS) WAS FOUNDED, C.W. HAS PLAYED AN INTEGRAL PART IN THE TOTAL MARS COMMUNICATIONS SYSTEM. ALTHOUGH IT HAS A LONG PROUD AND DISTINGUISHED SERVICE ITS IMPORTANCE TO MILITARY COMMUNICATIONS HAS BEEN REPLACED OVER THE YEARS WITH NEW DIGITAL MODE TECHNOLOGY.

WE BID OUR OLD AND FAITHFUL FRIEND FAREWELL WITH VERY DEEP AND STRING EMOTIONS, BUT KNOWING WELL THAT THE TIME FOR PARTING HAS COME. WE SHALL MISS YOU, OLD FRIEND, BUT NEVER FORGET THE LEGACY YOU HAVE LEFT US AS WE PREPARE TO MOVE FORWARD INTO THE TWENTY FIRST CENTURY. LIKE AN OLD SOLDER, AIRMAN, SAILOR AND MARINE, THE TIME HAS COME FOR YOUR RETIREMENT FROM MARS SERVICE. WE SALUTE YOU AS YOU STEP OUT SMARTLY TO THE RHYTHMIC BEAT OF THE DRUMS INTO A WELL-DESERVED RETIREMENT FROM MARS SERVICE WITH THE HIGHEST OF HONORS. CHIEF NAVY MARINE CORPS MARS.—NNNN DE NAV

Wendell Benson (NY) copied the final HF CW broadcast from VCS (top) and the farewell CW MARS broadcast (bottom), within 5 minutes of each other."

York Air National Guard, at Niagara Falls, NY (call sign SKIER xx), from here to the ice. The ANG has been gradually assuming the air transport mission from the U.S. Naval Support Force Antarctica providing logistic support to the U.S. Antarctic Program operated by the National Science Foundation's Office of Polar Programs. These ski equipped-aircraft fly DEW Radar & Operation DEEP FREEZE (the annual Antarctic summer re-supply of McMurdo Station, Antarctica) support missions. They can be heard working "MAC Center" (McMurdo) on 8998.0 and 13251.0 USB, as well as on the USAF Global High Frequency System (GHFS). Those in the northern hemisphere should remember the seasons are reversed there, and as we head into spring, Antarctica is preparing for winter.

By this time sellers of hobby related books should have several updated Klingenfuss Publications offerings; the combined broadcast/utility book *Shortwave Frequency List, the 1997 Guide To Utility Radio Stations*, and the *1997 Super Frequency List* on CD-ROM.

In last months column was a picture courtesy the U.S. Coast Guard Navigation Center internet web site. Due to space restrictions I didn't get the URL on with the picture. This site is at: <http://www.navcen.uscg.mil/marcomms/cgcomms/cgimages/)>, they have a lot more of NMF there.

Reader Mail

Wendell Benson (NY), caught final CW transmissions sent Sept. 30th, 1996, from VCS, Halifax CG Radio and five minutes after it's conclusion, the final MARS (**M**ilitary **A**ffiliated **R**adio **S**ystem) CW transmission. Wendell notes the elimination at VCS affected their HF CW frequencies 4285, 6491.5, 8440, 12874, 16948.5, and I think 22619.5 kHz had still been in use. Indeed, as of 2400 UTC Sept. 30, 1996 all HF services from Halifax Coast Guard Radio/VCS ceased forever. This included radiotelegraphy, radiotelephony and radiotelex. VCS did remain a MF/VHF radiotelephone-only station, not counting 500 kHz CW.

Robert Ward, who works at VCS and who is the station's official handler of QSL requests, wrote that 500 kHz CW ended at VCS at 1400 UTC on the morning of November 19th, 1996. He had just finished working night shift and had waited until the final CW transmission was sent. Robert was the last operator to receive an actual CW message, which was from the Canadian Forces Auxiliary Vessel Quest, CZDO. But the final QSO in CW by VCS was with the Norwegian-registered vessel Algarrobo, LATF4, who had called just a couple of minutes before the final message to all stations was sent. VCS had never worked that vessel before, and so it was the vessel's first and last QSO with VCS. In addition to the closure of CW, VCS 'moved' from where it had been located at the Ketch Harbour station that same morning. They are now co-located with the Vessel Traffic Services center at the Shannon Hill site in Dartmouth, Nova Scotia. Robert reports what is left at VCS is MF SSB on 2182 kHz, 2514/2118 kHz, 2582/2206 kHz, 2103.5 kHz, and broadcast frequency 2749 kHz; and VHF FM R/T. A further loss to maritime utility fans occurred when VCS lost their HF capability on September 30th, so did CGF, Ice Halifax, as they were using VCS's transmitters. CGF use to be heard working icebreakers in season on 6504.0 USB. Ice Halifax no longer has any radio equipment whatsoever.

Perry F. Crabill (VA) has been logging beacons since 1990. His log currently stands at an impressive 1,234 stations with his 'best catches' being Easter Island and Hao Atoll in the Pacific using a Drake R-8 receiver, an inverted 100 foot inverted "L" antenna, and a RSM model 105C three-foot LW loop.

Al Hemmalin (RI) is another beacon fan. After two days of recent activity he had 242 repeat calls, five new calls and two unidentified. Al reports he usually has at least 300 calls a month except for July which has the poorest propagation and most atmospherics. Al uses a Drake R-8A receiver with a LF Engineering L-400B active antenna.

UTE Logging's SSB/CW/RTTY (BAUDOT)/ARQ/etc All Times in UTC

200: HXF, NDB Hartford, WI at 0400. (BU)
201: APF, NDB Naples FL at 1955. (WP)
206: VNC, NDB Venice FL at 1950. (WP)
208: YSK, NDB Sanikilauq, NWT, Canada at 0636, 1,094 miles. (AH)
209: HOE, NDB Homerville GA at 1440. (WP)
212: UCF, NDB Cienfuegos, Cuba at 0840, 1,443 miles. (AH)

Abbreviations Used for Intercepts

AM	Amplitude Modulation mode
ann	Announcement
BC	Broadcast
CW	Morse Code mode
EE	English language
FF	French language
GG	German language
ID	Identification
LSB	Lower Side Band mode
OM	Male Operator
pp	Phone Patch
RR	Russian language
SS	Spanish language
tfc	Traffic
USB	Upper Side Band mode
w/	With
wkg	Working
wx	Weather
YL	Female Operator
4FG	4-Figure coded groups (i.e. 2951)
5FG	5-Figure coded groups (i.e. 29517)
5LG	5-Letter coded groups (i.e. IGRXJ)
//	Parallel

219: AY, NDB Waycross, GA at 0557. (PC)
221: FX, NDB Ft Lauderdale (executive) FL at 1447. (WP)
230: AND, NDB Anderson, SC, at 0615. (PC)
239: SH, NDB Shreveport, LA at 1024. (WP)
230.6:: UTQ, NDB Hinesville GA heard at 2010. (WP)
272: RU; NDB San Marcus, Tx at 0351, 1,685 miles. (AH)
280: MID, NDB Merida (Yucatan) Mexico at 0346. (WP)
300: ABL, NDB Ambalema, Columbia at 0655, 2,562 miles. (AH)
318: HFY, NDB Indianapolis, IN heard at 0410. (BU)
323: HHW, NDB Hugo, OK at 1034. (PC)
330: CZM, NDB Cozumel (inter'l) Mexico at 0355. (WP)
346: LI, NDB Boston, MA at 2324. (PC)
348: UHA, NDB Jose Marti (inter'l) Havana at 0407. (WP)
356: PI, NDB Peoria IL at 1500. (WP)
369: ZDX, NDB St Johns, Antigua at 0601, 1,776 miles. (AH)
402: SJE, San Jose de Guaviare, Columbia at 0750, 1200 Hz DSB, dit after ID. (PC)
405: UTX, NDB Jupiter FL (Sikorsky-United) at 2025. (WP)
410: BA, NDB Columbus IN at 0343. (WP)
414: IEB, NDB Lebanon, MO at 0752. (PC)
417: EOG, NDB Greensboro AL (muni) at 0230. (WP)
240: GAS, NDB Gallopolis OH at 0020. (WP)
423: AU, NDB Auburn AL at 0430. (WP)
424: RVJ, NDB Reidsville, Ga at 0651, 888 miles. (AH)
426: FTP, NDB Ft Payne AL (Isbell Field) at 0115. (WP)
428: COG, NDB Orange VA (county) heard at 0215. (WP)
432: IZN, NDB Lincolnton, SC at 0415. (BU)
515: OS, NDB Columbus, Oh at 0659, 630 miles. (AH)
521: TVX, NDB Greencastle, IN heard at 0420. (BU)
2932: Tokyo Radio wkg Singapore 4 w/radio check in USB heard at 1308. Moved down here from 6655, adv this freq primary, 6655 secondary. (DS)
3208: P: Russian Navy Kaliningrad, RUS at 2130 in CW w/channel marker. (AB)
3365: JMJ, Tokyo Radio, Japan in 120/576 Fax at 1043 w/wx map. (EW)
3485: New York Radio at 0200 w/aviation wx in USB //6604//10051. (BU)
4043: FDI8, French Air Force, Nice, F at 2157 in CW w/VVV de FDI8. (AB)
4232: FUF, French Navy, Fort de France, at 0130 in 75 baud RTTY w/RY's. (BU)
4271: CHF, Halifax, Canada, at 0140 in 75 baud RTTY w/wx. (BU)
4279.5: Unid station sends "V 8L6S 8L6S DE 2RC8" in CW at 1114. Strong. (DS)
4283: XSV, Tianjin Radio, PRC, sends "CQ CQ CQ DE XSV XSV XSV QRU IMI QSX 4 8 AND 12 MHZ BK K" in CW at 1306. (DS)
4295: SXA34: Greek Navy, Piraeus, GRC at 2239 in CW w/VVV de SXA34. (AB)
4328: JOS, Nagasaki Radio, Japan, sends "CQ CQ CQ DE JOS JOS JOS QSX 4 MHz K" in CW at 1321, fast. (DS)
4331: 4XZ: Israeli Navy, Haifa, ISR at 2243 in CW w/VVV mkr. (AB)
4343: WLO, Mobile Radio, at 0140 in FEC w/traffic list. (BU)
4350: TBB5, Turkish Navy, Ankara, TUR at 2331 in CW clg TBDJ (collective callsign for all Turkish warships) (AB)
4570: HZN46, Jeddah Meteo, Saudi Arabia at 0145 in 100 baud RTTY w/wx. (BU)
4577: Unid CW station sends "V ABZY ABZY ABZY DE 6PXJ 6PXJ" at 1110, w/a rate of 4 times per minute. Still strong at 1327, nil hrd on 6785 where this same station hrd the night before. (DS)
4665: Various MOSSAD transmissions over 2 days, at 0345 YL w/'Sierra Yankee November Romeo 161800', later at 2245 'SYN 7Z9180500', next day at 2245 'SYN 9180500'. (SM)
4666: Tokyo Radio wkg Japan Air 50 in USB at 1125, advises of ATC clearance to climb & maintain flt lvl 370. (DS)
4770: Korean spy numbers station, strong carrier noted up in AM at 1344, then at 1400 into Radio Pyongyang interval signal for about a minute, then instrumental music until 1406, fol by YL ann message #1570 w/a group count of 77. Then passed 5FG msg in 3/2F format. Was //5870. (DS)
5026: NIGHTWATCH 01: 0620 USB clg unid callword on 'Z140", no joy, QRM from broadcast station. (Ed.)
5100: Melbourne Meteo, AUS, AXM32, in 120/576 Fax at 0940 w/wx map. (EW)
5142.6: NMB: USCG Group Charleston at 0014 clg Y9V, B4U comes up, adv re tfc Y9V passed earlier (app in the 'green'), confirms 7,000 on the fuel. NMV: USCG Grp Mayport, Fl at 0517 wkg "cutter" req they advise when

their boarding team is back on board & they are enrt to SAR, adv AirSta Miami has a Falcon on-scene. Both in USB. (Ed.)
5320: Unid at 2200 in CW w/Id 197, 5FG's, ended w/000 000. Short zero's. (AB)
5339: Unusual MOSSAD transmission heard at 1900, YL repeating 'Tango Mike Sierra 2 2'. (SM)
5395: Various stns heard heard at 0253 in USB w/SS comms between "Monterey," "Mazatlan" & various others. Mexican Police/Army?? (DW)
5405: JMJ2, Tokyo Meteo, J, at 0856 in 120/576 Fax w/good quality wx chart. (DW)
5425: FOXTROT at 0035 in USB wkg I/B re intercepting CANYON (?) 401/403 -were to conduct Level 1 query on track, next air contact was at 3138N 6255W, altitude 24500, course 180. FOXTROT assumed control 102/103 Homplate at 0040, finally ID'd track as P-3 w/wings clean. (TB) (USN Link-11 coordination net -Ed.)
5493: SJM 6212 at 0609 in USB wkg Brazzaville, departed JNB 0238, ETA Lagos 0751, passed ARAKI 0557 est STM 0647 F350 (747F reg N741SJ). (TO)
5517: KLM 568 at 0043 wkg Tripoli, was told to contact Benghazi Control on 126.5, then Tripoli clg Cairo w/no reply. Tripoli ATC at 2345 wkg several a/c here, also, Tripoli calling Nairobi & Addis Ababa w/no reply. Not listed in any of the normal sources. All in USB. (TB) (great snag. This is probably AFIRDARA, formerly listed on 5519-Ed.)
5529: IBERIA 3103 at 0037 in USB wkg Santo Domingo in SS. (TB)
5538: GULF OPS at 0039 in USB wkg unid flt enrt Muscat from Bahrain. (TB)
5541: GDR 1 wkg Stockholm Radio at 0235 in USB, pp to Polar Air Cargo Dispatch regarding Ramstein Wx (probably Boeing 747-100F a/c). (KW)
5604: EL AL 811 at 0350 in USB wkg Rainbow Radio, CAN w/phone patch to El Al, Tel Aviv, who then patched him to Maintenance for talk in Hebrew. (TB)
5643: Brisbane Control, AUS at 0731 in USB advising Air Force1 w/U.S. President on board, to descend to 25000 ft. (EW)
5673: Beijing Volmet in USB at 1257, was YL computer generated voice. (DS)
5696: At 0055 63ALPHA reports to CAMSLANT that they had acquired the target & he was over the boat and it's course of 360 degrees at 30 knots. 63A gave him posn & adv boat was now dead in the water. At 0215 63A was 12NM from KILO 6 & asked PANTHER to notify local authorities that it looked like the boat was heading to KILO 6. 63A adv boat still DIW & they thought that they had been spotted by someone on the shore with a searchlight. At 0310, 63A reported that he was on the ground at KILO 6, boat was abandoned in the harbor, subjects had fled the area, local authorities & 63A's DELTA team was chasing them. At 0325 63A reported that the DELTA team was back on board with one of the members having been hit by a rock and possibly suffering a broken collarbone. Req 37C ck area for the bales possibly dumped, but that whatever he did, he shouldn't land due to 'hostiles'. (TB) CG 6040 & ComSta New Orleans at 2200, w/posn report as 25,47N 81,55W & flt ops normal. (KW) SHARK 03, USCGC Harriet Lane (WMEC-903) at 0206 wkg 32C w/posn. At 0833, Culdrose Op's, Royal Navy Air Station Culdrose, UK wkg unid a/c w/ck's. (Ed.) All in USB mode.
5700.4: Magic Carpet Sierra at 0200 in USB "supporting" data comms w/A5C. Also heard in the net: HABITAT (now NAS Whidbey Is.) M8, E8M, and E8J. (JJ)
6282.5: ELRL9: M/V Bornes at 2357 in ARQ, a 88,950 DWT Liberian-flagged oil tanker, w/ships status report via CUL after sending selcall KPCV (3560 for CUL, Lisbon Radio, Portugal). (Ed.)
6339: Unid rptg IGJ41, KIGJ42, NIGJ43 in 100 baud RTTY at 0150. (BU) (this is Italian Navy Augusta w/CARB, -Channel Availability Reception System, availability list, should read: IGJ41 / IGJ42 / IGJ43, normally on 6335.5 Ed.)
6348: LOR, Argentine Navy in 100 baud RTTY at 0150. (BU)
6415: 7TF4, Boufarik Radio, Algeria at 0026 w/CW marker. (WP)
6637: IFO97 at 0506 wkg Houston LDOC, departed ?PB 0455/57, ETA YQX 0754, pax 92, fuel 53.7. Fine Air 434 at 0543 wkg Miami LDOC, dep BOG 0455/0515, ETA MIA 0834, dep. fuel 58.5, selcal DK-GJ. Both USB. (TO)
6640: New York Arinc (NA-CC-LDOC) at 2233 in USB wkg DHL541 w/pp to "Sunshine Flt ctl" re 10,000 lb oil drilling bit & proper loading. At 2238, wkg United 952 w/selcal ck AG-JS (767 N654UA); at 2312 w/American 56 on the ground at Miami for selcal ck AH-KQ (MD-11 reg. N1755). All in USB. (Ed.)
6642.7: `RFLIGE', French Navy, Cayenne, French Guiana at 0200 in ARQ-E 192/136 w/ "Controle de Voie". (PS)
6655: Honolulu in USB at 1309 wkg Korean Air 018, United 852, and Korean Air 020. At 1310 Tokyo (booming) selcal'ed Japan Air 838, but no joy. At 1311, Honolulu back again wkg Japan Air 60. (DS)
6660: YL repeating 'CIO2', new frequency. (SM) (for those new to these stations they are widely believed to be Israeli Intelligence (MOSSAD), this b/cast is also known as the Phonetic Alphabet numbers station, they feature a YL/EE & a three letter phonetic callsign plus a "1" or "2". 1 = No message follows, 2 = Message follows; CIO w/2 means msg follows -Ed.)
6679: Tokyo Volmet in USB at 2012. (DS)
6692: Yuzhno-Sakhalinsk: ATCC, Russian Far East at 0546 in USB wkg Khabarovsk ATCC & "Sov Gavan" (Sovetskaya Gavan) in RR w/flight info on unid a/c. (DW)
6750: Foxtrot Tango at 0243 in USB wkg Kilo/Gulf w/reports of poor ping pong. (TB)
6785: SS 5FG at 0400 in AM. (WBS)
6815.6: Cutter Hamilton (sounded like) posn 17.19N 65.19W (sounded like) wkg comms, both voice & ANDVT w/various unids, later hrd: SHARK 39 clg SHARK 67. No joy. (JJ)

(6815.5 was used as a USCG net -"FOXTROT CHARLIE", during operation Able Manner (Haiti Op's) in late 1994, early 1995. USCGC Hamilton is (WHEC-715), SHARK 39 probably is USCGC Key Biscayne (WPB-1339), and SHARK 67 should be USCGC Point Knoll (WPB-82367) -Ed.)

6825: SS 5FG at 0300 in AM. (WBS)

6853: At 2030 YL/GG repeating 'Golf Kilo' from 2030-2035 followed by 5FG's for 571 & 846. (SM)

6970: YL/EE w/1-0 count & 316 from 0900 to 0910, after 10 tones, 'count 215' & into 3/2F groups. (SM)

6985: SS 5FG at 0400 in AM. (WBS)

7480: SS 5FG at 0400 in AM. (WBS)

7659: HBD20: Swiss Embassy, Berne at 0820 in ARQ w/5LG's to unid location. (Ed.)

7765: AFE, "Cape Radio", at 1956 in USB w/ "Lift off!" followed by shuttle progress reports for STS-80. (PS) (this was probably range safety net, but has also been used for BRD, Booster Recovery Director -Ed.)

7858: At 2130 YL/GG repeating 'Golf Kilo' and tones, at 2135 YL w/5FG's for 740. (SM)

7880: DDK3, Hamburg Meteo at 0812 in 120/576 Fax w/wx chart. (DW)

7890: SS 5FG at 0300 in AM. (WBS)

8027.6: 7 ALPHA at 1755 wkg 9 GULF in USB who had just gotten off the phone w/DEA. 7A had stopped a vessel off of Fort Myers, Florida, passed names of crew & date of birth's to 9G who said that he would run the names and get back to 7A. At 2025 9G said still no info, & that once 7A was in range of shore that they should use the cellular phone & call Lee County officials as that would probably be faster. Have hrd CAMSLANT Chesapeake here in the past. (TB)

8187: SS/f W/5LG's at 0210 in AM, poor audio. (PS)

8188: Swedish Rhapsody being played on music box at 0900, at 0905 YL/GG w/5FG's for 58802, 10486, & 63852. (SM)

8267: C6KP, T/SS Island Breeze heard at 2320 in USB, a 38,175 DWT cruiseship, clg/wkg WOM for R/T tfc, this is the former Festival. (Ed.)

8383: SWWQ, M/T Argonaftis at 2226 in ARQ, a 157,696 DWT tanker w/msg ck. (Ed.)

8392: UWBS, Ukrainian fishing trawler/ freezer RKTS Nikolay Filchenkov at 0651 in 50/170 RTTY w/RYRY/DE to URL, Sevastopol rdo., no joy here. (Ed.)

8395: WBN5981, 'Monitor' (tug) at 0619 in ARQ w/tlx to "Disp JAX" (WPE?) re departed San Juan sea buoy, login 59810 WBN5981, Crowley tugs must be a recent addition to Globe Wireless. (Ed.)

8433: WOO, AT&T Coast Station NJ at 0225 in FEC w/wx. (BU)

8446: UFM3, Nevelsk Radio, CIS in CW at 1001 w/mkr. (EW)

8453: HWN, French Navy, Paris at 0230 in 75 baud RTTY w/RY's. (BU)

8515: 5AT, Tripoli, Libya at 0028 w/CW marker. (WP)

8636: HLW, Seoul Radio, S. Korea sends "CQ CQ CQ DE HLW HLW HLW QSX 8 MHz K" in CW at 1335. (DS)

8743: HAS, Bangkok Radio, Thailand in USB at 1230, gives EE wx info at 1235. (EW)

8752.5: CNT: Chilean Navy, Magallanes at 0120 in 100/425 RTTY w/"MIKD MIKD MIKD DE CNT". (Ed.)

8828: Tokyo Volmet, YL, heard at 1243; Honolulu Volmet (OM) at 1101, both USB mode. (DS)

8840: Bombay Radio, India in USB heard at 1257, Bombay Control clg Air India fl to Bangalore. (EW)

8843: Honolulu: (CEP-1/2 MWARA) at 0225 in USB wkg Air Trans 610 w/0224 posn, adv contact SFO on 5574; at 0226 wkg Delta 1562 w/0226 posn, req for FL 340, contact SFO on 5574. (Ed.)

8855: Transbrasil flt. 794 heard at 0537 in USB wkg Manaus w/ARP F350 & selcal ck JK-DS. (TO)

8861: Russian Volmet channel, YL/RR hrd signing off w/"Khabarovsk Mityor" at 1219 in USB. (DS)

8924: West Indian 424 at 2330 in USB wkg BWIA Operations reporting that they're having problems getting in contact w/Piarco ATC. Ops reported that Piarco had lost complete power. (TB).

8933: Charin 808 wkg Cedar Rapids hrd at 0208 in USB, departed SBSV 0120 eta SBGR 0323. (KW)

8939: Varig 855 at 0533 in USB wkg VARIG LDOC, Belem, w/ARP at F310, ETA GRU, also GRU actual wx report. (TO)

8983: USCG CAMSLANT Chesapeake at 2030 in USB w/hurricane info to C5B. (BU)

9003: Royal Jordanian 054 at 2030 in USB w/call to Alia Ops—no reply (TB)

9007: QE 898 wkg Trenton Military at 2203 in USB, req wx for Greenwood & Halifax ETA 2230. (KW)

9023: SAM 417 at 2122 in USB wkg Andrews VIP w/pp to Andrews meteo. (Ed)

10075: Gulfstream Air 800P wkg Houston Radio at 2209 in USB, pp to Island Air & SELCAL check "BG-QR." (KW)

10262: YL/EE w/3/2FG's in AM at 1129, "repeat count 215, count 215" at 1130. (DS)

10551.3: GFL23, Bracknell meteo, England at 2010 in 75 baud RTTY w/wx. (BU)

10780: CLEARANCE-1 at 1735 in USB wkg "Fisher" (Cape Radio) for rdo ck, was in support of STS-80. (Ed)

10798.3: French Forces Fort De France, Martinique, RFLI in ARQ-E3 at 1103 idle in 192/425. (EW)

11080: YKP28, SANA Damascus, Syria at 1545 in 50 baud RTTY w/nx in AA. (BU)

11111.2: Unid, Possibly Middle East or North Africa at 0447 in USB, Arabic comms between 3 stations, weak but readable. (PS)

11175: Teal 19 wkg Ascension at 0056 in USB, phone patch to Miami Monitor, passed coded wx observation #2 report. (KW) (TEAL xx call signs are WC-130E/H aircraft from 53rd Weather Reconnaissance Squadron (AFRES), Keesler AFB, Ms; Miami Monitor is National Hurricane Center (NHC), Corral Gables, Fl. -Ed.)

11181: Hickam wkg McClellan at 0130 in

Stations, ITU NBDP Channels and Frequencies Used by Globe Radio Network

ITU Channel No.	Shore Xmit	Ship Xmit	Call Sign
401	4210.5	4172.5	WNU/A9M
402	4211.0	4173.0	ZLA
403	4210.5	4172.5	WNU
404	4212.0	4174.0	WLC
406	4213.0	4175.0	VIP
416	4217.5	4180.0	VCT
408	4214.0	4176.0	ZSC
418	4218.5	4181.0	SAB
N/A	4300.4	4154.5	KEJ
602	6315.0	6263.5	ZLA/WLC
603	6315.5	6264.0	KFS
625	6326.0	6275.0	KEJ
626	6326.5	6275.5	SAB
627	6327.0	6276.0	WNU
632	6329.5	6283.5	VCT
802	8417.0	8377.0	ZLA
803	8417.5	8377.5	KFS
806	8419.0	8379.0	VIP
819	8425.5	8385.5	WNU
825	8428.5	8388.5	ZSC
830	8431.0	8391.0	KEJ
837	8434.5	8394.5	SAB
838	8435.0	8395.0	VCT
1202	12580.0	12477.5	ZLA
1203	12580.5	12478.0	KFS
1206	12582.0	12479.5	VIP
1210	12584.0	12481.5	VIP
1219	12588.5	12486.0	WNU
1231	12594.0	12492.0	A9M
1244	12601.0	12498.5	ZSC
1257	12607.5	12505.0	WNU
1263	12610.5	12508.0	VCT
1265	12611.5	12509.0	KEJ
1291	12624.0	12522.0	SAB
1347	12652.0	12555.0	SAB
1602	16807.5	16684.0	ZLA
1606	16809.5	16686.0	VIP
1610	16811.5	16688.0	VIP/A9M
1619	16816.0	16692.5	ZSC
1620	16816.5	16693.0	A9M
1647	16829.5	16706.5	KFS
1657	16834.5	16711.5	WNU
1673	16842.5	16719.5	KEJ
1676	16844.0	16721.0	SAB
2203	22377.5	22285.5	KFS
2246	22399.0	22307.0	A9M
2264	22408.0	22316.0	ZSC
8PO	ALL N/A		

Please note the channels are not yet known for 8PO

USB, passed data traffic to each other. (KW)

11214: Andrews VIP wkg CASEY 01 (KC-135 CINCSTRAT) on F-064 for a signal ck. and current pos.: 55N 80W, heading: SW at1640 in USB. (JJ) Bandsaw Hotel ART (E-3WACS) at 1625 in USB (ART = Aerial Radar Technician) wkg Trenton Military w/pp RAYMOND 24 (Tinker AFB) 'Radar Maint', after, Bandsaw Hotel MCC (Mission Crew Commander/Coordinator) wkg same re mission options. (Ed.)

11217: Bayonne Global, Military Traffic Management Center, Command Emergency Comms Center, Bayonne, NJ at 1704 in USB wkg RAIDER 48 w/att pp to Dobbins AFB CP, QSY 15016. (Ed.)

11244: UMBRELLA at 1511 in USB wkg Thule w/request for primary/secondary frequencies for NIGHTWATCH (TB)

11281: United 190 wkg Honolulu heard at 0142 in USB, posn report & Selcal ck "AF-DH". (KW)

11327.9: OZU25, MFA Copenhagen, Denmark in TWINPLEX at 1214 w/5LG's, 200/400. (EW)

11342: San Francisco ARinc (CEP-CC-LDOC) at 2123 in USB selcall'ing & clg Polar Tiger 89, no joy. (Ed.)

11460: SAM 26000 (VC-137B) wkg. Andrews VIP on F-295 for Hickam AFB wx at 0200z at 2315 in USB. (JJ)

11480: SHAZAM wkg ROADRUNNER w/ARP at 1700 in AM! (PS)

11518: `RFFA', MOD Paris, F at 1742 in ARQ-M2 200/340 relaying tfc for `RFFVAY' French AF, Bosnia to `RFFBBYM' French Army, Bosnia Herzegovina, Communications Division (NATO). Circuit FDX. (PS)

11634: Ascension GHFS: Ascension Island at 0238 in USB att to work U9J, no joy, QSY 8964. (Ed.)

12193: KUL MFA w/crypto tfc rptd on 10584 in 75 baud RTTY at 1410. (BU) (Russian Brotherhood/SOUD station on link 00142 w/tfc to KUL -Ed.)

12196: WFO MFA w/crypto tfc to MIG in 75 baud RTTY at 1445, MIG answers on 13382 in CW, WFO sometimes on 14736. (BU) (thought to be the Brotherhood regional relay station at Havana, WFO reportedly is Managua -Ed.)

12314: YL/EE w/'Mike Delta' repeating from 0900-0905, then 'attention, 241, 28 groups, 296, 79 groups, then into 5FG's. (SM) (believed to be a German BND-German intelligence service', numbers station, usually in USB -Ed.)

12700: Guangzhou Radio, China, XSQ, in CW at 1052 w/mkr. (EW)

12747: Mossad, YL repeats "CIO2" in phonetics in USB at 1448. (DS)

12748: IRM, unid in CW at 0001 w/marker fol by "free radio medical advice service and amvers service on 8/12/16/22 Mhz common k. (WP) (CIRM, Rome, Italy who provide free medical advice to seamen -Ed.)

12830.7: XFM, Manzanillo Radio, Mexico at 0020 w/CW marker; at 2350 w/what apps to be hand sent wx. (WP)

12864: Kaohshiung Radio, Taiwan, XSW in CW at 1153 w/mkr. (EW)

12923: HLW2, Seoul, S. Korea at 0015 w/CW marker. (WP)

13008: JOR, Nagasaki Radio, Japan at 0013 w/CW marker. (WP)

13054: Kaliningrad Radio, CIS, UIW in 50/170 RTTY at 1013 msgs in RR. (EW)

13067.5: UAI3, unid (prob Russian) at 0006 w/CW CQ marker. (WP) (Nakhodka Radio, Russia -Ed.)

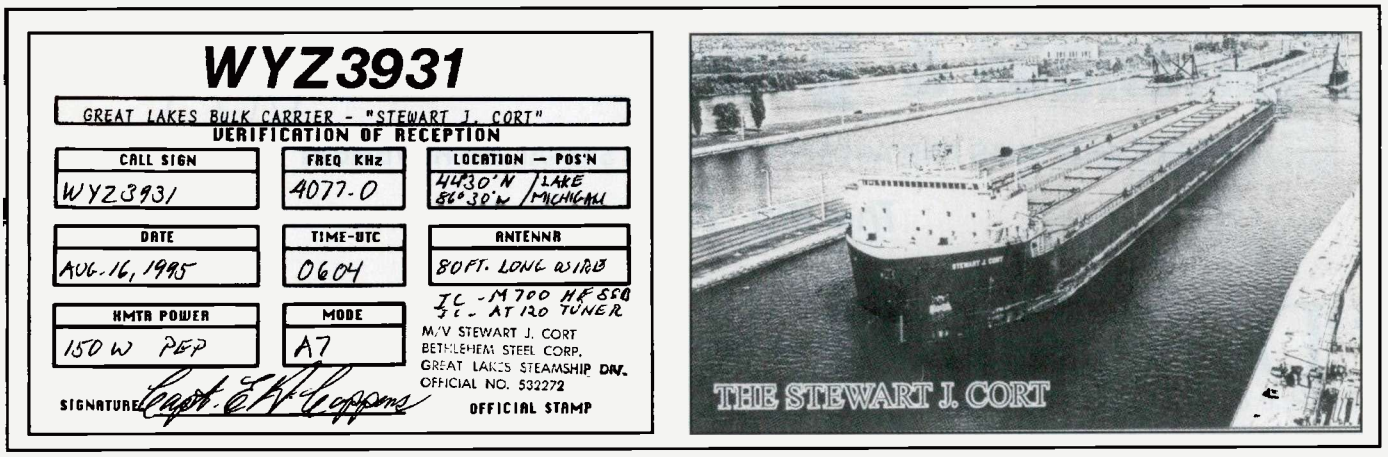
13264: Shannon Volmet, Ireland in USB w/forecast for Santa Maria, Lisbon hrd at 1239. (EW)

13306: New York: (NAT-A MWARA) at1803 in USB wkg Air Italia 6584 w/posnrep, 1802 33N/40W, FL370, est 33N/50W 1913, 33N/60W next. (Ed.)

13366: 5YD, Kenya 1900 in 50 baud RTTY w/aero tfc. (BU)

13375: Lincolnshire Poacher at 1901 in USB, YL/5FG. (Ed.)

13376.5: Spanish Guardia Civil, unid location, at 1818 in ARQ w/weak SS tfc. (Ed.)



Ship heard working WLC with wx observations. Vessel was in Lake Michigan. PFC is from Steve McDonald, Canada.

13463: Unid w/5LG's in ARQ at 1330. (BU)
13570.9: DFN57L1, PIAB Bonn, Germany in 96/425 FEC-A at 1010 w/German nx. (EW)
13927: DANDA 69, C-141B of 62nd AW, at 2239 in USB wkg AFF2CP, USAF MARS, w/pp's, QTH: over Utah at 39,000 feet, enrt to McChord AFB from Florida. Crew placed two phone calls using MCI's free phone calls for military personnel due to Veterans Day. (DW)
13972.2: CLP65, Cuban Embassy, Managua heard at 2119 in RTTY (75/200) w/SS chatter re: msgs to be sent. At 2159, active with RTTY (100/200) with diplo tfc to MFA Havana. (DW)
14467.3: DDH8, Hamburg meteo, Germany w/RY's at 1325 in 50 baud RTTY. (BU)
14469: Presumed 'Lincolnshire Poacher" numbers b/cast in USB at 1138, YL/EE (British accent) w/5FG's, ea 2x. (DS)
14498: CSY66, Azores w/50 baud RTTY aero tfc at 1320. (BU)
14573: 5AQ70, Libya w/50 baud RTTY JANA nx in AA at 1500. (BU)
14622: At 1900 YL/GG repeating 'Whiskey Lima' along w/multi tones, at 1905 5FG's for 026. (SM)
14680: V5G, MFA Bucharest, ROU at 1455 in ROU-FEC 164.5/400 w/Rumanian tfc, encrypted text. (Ed.)
14727: BPA MFA w/crypto tfc rptd on 10424 in 74 baud RTTY at 1515. (BU) (B'hood link 00116 normally w/tfc to BPA in 75 baud -Ed.)
14890: Every day at 0900 OM/RR w/a 'control' transmission, this day OM sent '615 615 615 73344 73344', this was repeated at 0920 on 11270, call up is always for 615. (SM) (this is known as the 'Russian Man' numbers station -Ed.)
16020: MFA Havana w/SS nx in 50 baud RTTY at 1900. (BU)
16032: Unid at 1625 in FEC-A 96/210, 5LG's, off w/"BT GR141 IN N". Difficult sync. & moderate QRN from RTTY station 1 khz down. (PS)
16088.1: `RFVI', French Navy, Reunion at 1752 to1900 in ARQ-E3 100/300 w/ "Controle de Voie" & relaying tfc for `PARIS' MOD. Circuit CRI. (PS)
16228: YBU MFA w/crypto tfc rptd on 18805 in 75 baud RTTY at 1400. (BU) (B'hood link 00148 to YBU-Ed.)
16335: FZS63, St Denis Meteo, Reunion at 0937 w/wx info 75/425. (EW)
16448: `KRN' Loc Unk 1736 RTTY 75/535 suspected Russian Diplo/Intel station with 1 message of 140 5LG's for recipient 'KRN' +20db signal. (PS) (B'hood link 00135 to BAR -Ed.)
17180: HWN, French Navy, Paris at 1315 in 75 baud RTTY w/RY's. (BU)
17181: YLQ, Riga Radio, LVA at 1115 w/msgs to ships in RR RTTY 50/170. (EW)
18265: CNM78, Morocco, w/MAP nx/AA in 50 baud RTTY at 1600, signal had spurs up/dn 10 kHz. (BU)
18388.5: 5AF, Tripoli aero, Libya w/RY in 50 baud RTTY at 1300. (BU)
18760: P6Z, MFA Paris, F at 1500 in FEC-A 192/400 op chat, DE P6Z. (Ed.)
20034.1: CLP, MFA Havana, Cuba at 1050 w/circulars in SS 75/400 RTTY. (EW)
20048: "S", Russian Navy, Arkhangelsk, RUS at 1009 in CW w/channel marker. (AB)
20140: YBU MFA w/crypto tfc rptd on 17480 in 75 baud RTTY at 2230. (BU) (B'hood link 00148 to YBU -Ed.)
20556.5: RFGW, MFA Paris, F in FEC-A at1226 w/5LG's & idling192/425. (EW)
20560: 5AQ88, JANA Tripoli, Libya, w/nx/EE, 50 baud RTTY at 1645. (BU)
22461.3: FUJ, Noumea Radio, New Caledonia at 0554 in 75/850 RTTY w/RY line count. (EW)
22575.5: PKX, Jakarta Radio, Indonesia in CW at 0641 w/mkr. (EW)
26150: Unid, Holland, at 2147, pagers, also on 26250 & 26850. (AB)

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Thanks to all for some great logs! ■

BY JOE CARR, K4IPV

Antennas & Things

SIMPLE ANTENNAS AND ACCESSORIES FOR SIGNAL IMPROVEMENT

The Big "D" Antenna

"Doublet" antennas form a class of two-pole radiators, of which the half wavelength horizontal dipole is probably the most famous member. These antennas offer a good compromise between performance and cost, and are low in cost to boot. Some of them even offer gain, so are doubly-good doublets.

Most people are well aware of the structure of the half wavelength horizontal dipole (**Figure 1**). The dipole is half wavelength long (dimension "B" in **Figure 1**), and is fed in the center. As a result, the two halves of the antenna ("A" in **Figure 1**) are each quarter wavelength, or if you prefer, A = B/2.

The length of these elements is dependent on the frequency of operation. The frequency is usually specified as the *center* of the band of interest. For example, if you are interested in the 31 meter shortwave band (9.5–10 MHz), then select 9.75 MHz as the best compromise (unless, of course, you favor one end of the other). The textbook length in feet would be B = 492/FMHz, but that is not practical because of end effects and the velocity factor of the wire used to make the antenna. As a result, a modified version B = 468/FMHz is normally used. Of course, we can also write A = 234/FMHz to obtain the correct length of each half.

"These antennas offer a good compromise between performance and cost . . ."

The dipole has a "figure-8" radiation and reception pattern, with the main lobes (i.e. greatest sensitivity) perpendicular to the wire in the horizontal direction. There are nulls—minimum sensitivity, off the ends of the wire.

Antenna gains are measured by comparing them with a known source. A theoretical construct called an isotropic radiator is used by antenna engineers. The 0 dB (or dBi when isotropic) point is the radiation of the isotropic source. All other antennas are measured with respect to this 0 dBi source. A dipole provides about 2.1 dBi gain. In some cases, antennas are measured against dipoles, in which 0 dBd = 2.1 dBi.

The Big-D Doublet

The dipole is not the only form of doublet antenna, however, despite its great popularity. **Figure 2** shows a model called the **collinear array**. It consists of three half wavelength sections ("A" in **Figure 2**), separated by quarter wavelength phase reversal stubs ("B" in **Figure 2**). The phase reversal stubs are supported (and spaced) by standard 3 to 4 inch end insulators (don't use the longer forms). The entire antenna, including phase reversal stubs, can be made of wire. The feedline is 52 ohm coax, and is connected to the center of the middle element through a 4:1 BALUN transformer.

The Big-D antenna provides about 3 dBd, or 5 dBi. It has the advantage of being useful on both the high frequency shortwave bands (HF) as well as the VHF/UHF scanner bands. When used in the HF spectrum, it's probably a good idea to build the antenna from No. 14 antenna wire.

In VHF/UHF configurations you can use lightweight, small diameter aluminum tubing. In either band, however, check the VSWR to assure proper cut (a VSWR analyzer such as the low cost MFJ units work well). Also, at VHF/UHF frequencies, reduce the spacing of the phase reversal stubs from 2–3 inches to about 0.75–1 inch.

Figure 2 shows the Big-D antenna

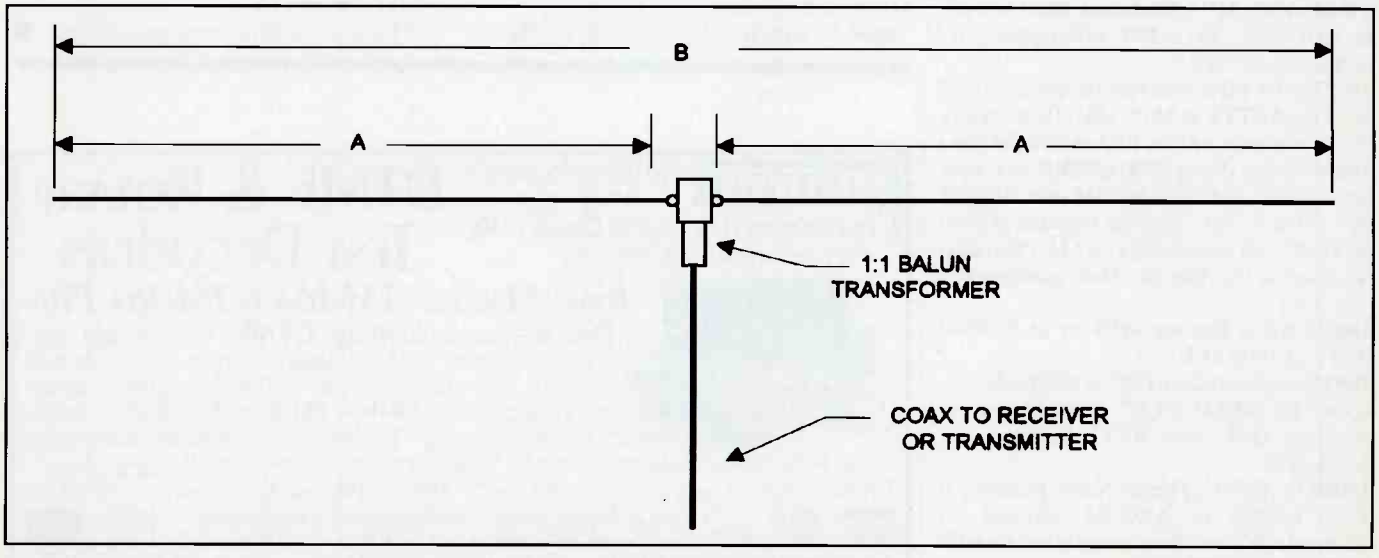

Fig. 1: Half wavelength dipole.

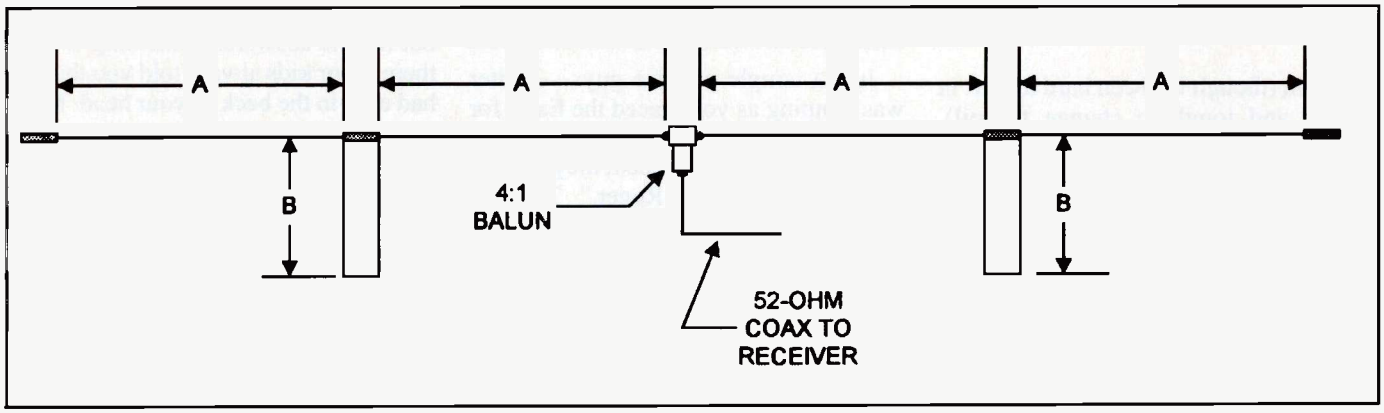

Fig. 2: Collinear array doublet.

"It has the advantage of being useful on both the high frequency shortwave bands (HF) as well as the VHF/UHF scanner bands."

mounted horizontally, as is true for most HF versions. It can also be mounted vertically, which is the preferred mounting when the antenna is used on the VHF/UHF scanner bands.

Where Did The "Awe" Go? I Still Have It!

Recently I read a letter to the editor in one of the radio magazines that the reason for the declining popularity of some of the radio hobbies was that the awe had gone out of it. With satellite TV relays and cellular phones that allow you to talk to someone in Tokyo or London while walking across the mall parking lot as easily as making a call to your house,, many people today are not as awed by scanning and shortwave listening as might have been the case before.

I disagree. I still have a sense of awe when listening to a rare DX station. And I note that the local ham/SWL/scanner equipment business supports three major dealers within a 50 mile diameter circle.

"Those manufacturers are not nuts . . . they wouldn't throw money away designing and producing receivers for which they had no market."

Collinear Phased Array Dimensions

Freq. (MHz)	"A" (Feet)	"B" (Feet)
3	156	78
4	117.00	58.50
5	93.60	46.80
6	78.00	39.00
7	66.86	33.43
8	58.50	29.25
9	52.00	26.00
10	46.80	23.40
11	42.55	21.27
12	30.00	19.50
13	36.00	18.00
14	33.43	16.71
15	31.20	15.60
16	29.25	14.63
17	27.53	13.76
18	26.00	13.00
19	24.63	12.32
20	23.40	11.70
21	22.29	11.14
22	21.27	10.64
23	20.35	10.17
24	19.50	9.75
25	18.72	9.36
26	18.00	9.00
27	17.33	8.67
28	16.71	8.36
29	16.14	8.07
30	15.60	7.80

And how about the abundance of high performance scanners and HF shortwave receivers on the market. Those manufacturers are not nuts . . . they wouldn't throw money away designing and producing receivers for which they had no market.

Perhaps it's a perception thing. I suggest that we may need to introduce some of our younger members of the community to radio at an early age. Perhaps you could arrange to set up demonstrations of shortwave and scanner receivers in local classrooms (I suspect grades 6 through 9 would be most productive).

Local ham clubs can be of use. Although ham and SWL/scanner interests are different, they overlap considerably. It is often the case that hams are recruited from the ranks of listeners, and most hams had to be listeners before getting their "ticket" from the FCC. Besides, there are also lots of us who do both (like me, for example). You might want to contact the American Radio Relay League (ARRL), 225 Main Street, Newington, CT, 06111 for info on ham radio and the clubs in your area. ARRL can be reached via their web site at <http://WWW.ARRL.ORG>, or via e-mail at <HQ@ARRL.ORG>. Also, type in key word "amateur radio" on your web crawler and you will find the <radio.rec> newsgroups. They are a source of information on various phases of the radio hobbies.

You can also provide some assistance to science teachers as a way of introducing radio hobbies to kids. For one thing, propagation phenomenon are easily seen by nearly all receiver owners (especially shortwave). But there are also other possibilities: whistlers and spherics (natural VLF radio signals), sudden ionospheric disturbance hunting (VLF monitoring), solar eclipse events and monitoring natural radio signals (18-30 MHz) from the planet Jupiter.

Connections

I can be reached at P.O. Box 1099, Falls Church, VA, 22041, or via E-mail at <CARRJJ@AOL.COM>. Don't forget to send in your photos of antenna installations and letters to me today! ■

Loose Connection *(from page 80)*

problem (though it's been hard to start in winter and tough to change the oil). You're best match is a Sagittarius.

Avoid archery contests.

AQUARIUS FAVORITES:
SW STATION: Radio Fungus—featuring the Sump-Pump Hour, Tuesdays and Thursdays, 2100 UTC.
SCANNER FREQ: 145.67—the water co. meter-cheater hotline dispatcher.
FOOD: Watercress, Water Chestnuts, and Water Buffalo.
MUSIC: Swan Lake.
VACATION SPOT: Cambodia—during the monsoons.

VIRGO

Yeah, sure . . . On your birthday, Venus was leaning on one arm. With practice, you may yet copy RTTY signals with a pencil (and by the year 2022, you might get a whole word). Marry a Taurus or a Sable, but nothing older than a '73 Fairmont. Avoid long drives.

VIRGO FAVORITES:
SW STATION: R. Baffin Bay—The Tuesday Night Personals (Wednesdays, 1700 UTC).
SCANNER FREQ: 38.68 Gus, the security guy at the Pine Acres Drive-In Theater.
FOOD: Raw Oysters.
MUSIC: The Hoosier Hot-Shots Play the Best of Jerry Vale.
VACATION SPOT: Akbar's Pocono Trout Farm and Hot Spring.

LIBRA

The Personal Injury Attorney—Habeas in the cusp of your corpus. You've spent 15 years building an "existing structure" that looks remarkably like a broadcast tower, and you've convinced two out of three neighbors that you have a guy-wire easement by virtue of your CB license. Marry a bail-bondsman—quickly!

LIBRA FAVORITES:
SW STATION: Radio Pro Bono—The PRB1 hour.
SCANNER FREQ: 156.78 Mutual Aid Ambulance Dispatch.
FOOD: Baloney.
MUSIC: Sioux City Sue.
VACATION SPOT: That really bad turn, just outside of town.

GEMINI

Just a couple of wise guys—Jupiter was jumping as you graced the Earth for the first time. Your friends don't know you don't have an echo-box; they wonder why you say "Roger, Roger." The best SWR you can ever hope for is 2:1 'cause you use twin-lead. Marry those chewing gum girls.

SW STATION: Radio Pago Pago.
SCANNER FREQ: 222.22 The Minnesota Twins Groundskeepers.
FOOD: Couscous and Goo Goo Bars.
MUSIC: Tico Tico, Boola-Boola.
VACATION SPOT: Bora Bora.

SAGITTARIUS

The Survivalist—The dog-star was drooling in your cuspidor when you were born. Foes and small, furry animals "quiver" at the sight of you. That bow sure can launch an antenna, but in a city lot? Marry an Aquarius—they're the most tolerant.

SAGITTARIUS FAVORITES:
SW STATION: A survivalist pirate station in Yorba Linda, California.
SCANNER FREQ: Can't tell you 'til you give the secret handshake.
FOOD: Grubs, bark, nuts and berries.
MUSIC: Wagner—anything by Wagner.
VACATION SPOT: Toad Suck, AR.

CAPRICORN

The Old Goat—Hostility has been rising since you were born. You get on the local channel just to annoy people. They don't realize that you were there first. Marry a Crab, or anyone who'll put up with you.

CAPRICORN FAVORITES:
SW STATION: The Voice of Authority—the Curmudgeon Hour, weekdays at 1000 UTC.
SCANNER FREQ: The neighbor's cordless phones.
FOOD: Prunes and Bran Flakes.
MUSIC: None—there hasn't been any good music since 19 and 39!
VACATION SPOT: Wapwallopen, PA.

PISCES

The Flounder—The moon didn't rise on your birthday. You connected that microphone to your shortwave receiver, but no one answers! Something fishy in there. Your kids always told you that you had eyes in the back of your head. Marry a Leo—Cats love fish!

PISCES FAVORITES:
SW STATION: Tuna Radio—Fish Harmony with First Tuna, Second Tuna, Barracuda & Bass—Just for the Halibut.
SCANNER FREQ: VHF channel 16, the Coast Guard.
FOOD: Anything that'll stay on a hook
MUSIC: Porgy and Bass.
VACATION SPOT: Fishkill, NY.

TAURUS

The Bull. With Capricorn getting your goat, friends have always questioned your stories. Did you really work all countries in Europe on Channel 19? Mobile? Your friends often wear boots. Marry a Libra—they can get you out of trouble.

TAURUS FAVORITES:
SW STATION: R. Madrid.
SCANNER FREQ: 167.53—the toreador's dressing room.
FOOD: Doors. Matadors, Toreadors, and Picadors.
MUSIC: Anything by Herb Alpert.
VACATION SPOT: Pamplona, Spain—just for the exercise!

SCORPIO

The Bug—Equally at home in spy stories and hotel kitchens—and universally unwelcome. Now more readily detectable, you find life ever challenging. Consider a spouse who loves Morse code. Ix-nay the exterminator!

SCORPIO FAVORITES:
SW STATION: Any of those numbers stations—English or Spanish!
SCANNER FREQ: any of the "Bugging" freqs (but you knew that already, didn't you?)
FOOD: Yes.
MUSIC: Flight of the Bumblebee; La Cucaracha.
VACATION SPOT: Suncook, New Hampshire, for the Bean Hole Supper.■

Tuning In

(from page 4)

split second. Computer geeks probably have a very precise word for how long this takes—certainly it isn't a *"split second,"* but you get the idea. The best news is that so far I haven't been plagued by any interference from the computer or monitor—and they're right next to the receiver! The FirstRate program has become the most indispensable tool in my radio shack. I've been using for a few weeks now, and frankly, I can't help wondering why I waited so long to get with the program.

The point is, if you've been waiting, wait no longer. Our new Computer Corner columnists, Bonnie Zygmunt and Ed Griffin are on board to give us all a helping hand in what can be an intimidating and yes, confusing medium. Take the time to read their bi-monthly column and send your questions and comments to them in care of *Pop'Comm*.

Since I've been reading the books and spending lots of time talking to the tech support folks, I've learned a few computer buzz words that make my life whole lot easier. I've even got about 100 of them written down in my spiral notebook for easy recall.

RCI Wins a Battle

With its 240-plus hours of programming per week and worldwide audience of nine to 16 million regular listeners, Radio Canada International reaches a phenomenal audience, even in the U.S., where a quarter million people tune to RCI at least once a week. But in this unusual time, where down is up and wrong is often right, it should come as no surprise that after a half century on shortwave, RCI has been subject to the budget scalpel once again.

For the time being though, it appears the government has "found" the necessary money to keep the transmitters running for another year, but that's not enough. According to a news release from the Canadian government, " . . . this one-year funding arrangement takes effect April 1 . . ." The same day the government gave RCI a new lease on life, Wojtek Gwiazda, a spokesperson for the Coalition to Restore Full RCI Funding told me "While this is an amazing turnaround in the space of one week, and obviously everyone is very happy that the politicians have finally listened to people around the world, there is no clear commitment that we have anything *long term* —that is *essential*." He continued, "Have the politicians reacted politically or to the fact that if you turn off RCI, there is no alternative?" Even the news release from the government noted, "The new funding arrangement for RCI will help us deal with the immediate future while we work on the broader framework." Like MASH's old Colonel Potter would say, "Horsefeathers!" Politics in action! Seems to me they're really saying, "We knew this was train was coming and got out of the way just in time. Whew! We've bought 'em another year and certainly a lot can happen in that time."

Sure, anybody can put out a news release, but when it comes to fielding questions from the media, that's another matter entirely. Over the course of nearly a week, I made several attempts to reach Canadian Minister of Heritage Sheila Copps, to no avail. Some say she's staunchly behind RCI, while other sources indicate otherwise. Politics. I can't help wondering who's running things.

Even if funding has been restored to RCI, many other international voices face an uncertain future. Certainly as governments grapple with tremendous cutbacks and are forced to do more with less, these threats are more real than ever. So as an information-hungry public that supposedly thrives on the news, information, and cultural programs that are a mainstay of international shortwave, we radio monitors can sit back and let someone else worry about it, or we can take the high road and let our views be heard.

It's time to keep the pressure on the legislators and decision makers. Remember, this isn't just about Canadians deciding through their government how their country talks to the world, it's, as Gwiazda says," . . . a wonderful *obligation and responsibility*. It (shortwave) has worked (for RCI) for 50-plus years, showing the good and bad side of what's going on here . . . shortwave has proven itself and will continue to do so over the years."

You can send a letter or email urging *continuous, full funding for RCI* to The Right Honorable Jean Chretien, Prime Minister of Canada, Ottawa, Canada K1A 0A6 <pm@pm.gc.ca> and The Minister of Canadian Heritage, The Honorable Sheila Copps, Ottawa, Canada K1A 0A6 at <min_copps@pch.gc.ca>. If you don't do it, who will? ■

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JAPAN RADIO NRD535D with matching speaker, mint condition $1200. May trade for R-7100 in like condition. Call Raymond, 517-732-2639.

NEED HELP! Radio Shack can't repair/replace band switch and FET amp on analog geezer's like-new Realistic DX-200. Can anyone? Joseph Burgess, 407 Hiawatha, Frankfort, KY 40601, (502) 695-3016.

RC-740X band expansion for **KENWOOD** 741/742 series, **ScannerWEAR WINDOWS** software for **ICOM, AOR, Opto** receivers see all at **http://www.radioscan.com. RADIO CONTROL SYSTEMS, INC.**, 1-800-560-7234.

WANTED: Used Realistic **Pro-2006** Scanners. (Restorable Models only.) List price and condition. James Maksym, P.O. Box 8052, Saddle Brooke, NJ 07663.

WANTED: Radio Shack Realistic "NAVAHO-PRO" Model TRC-40 CB base station! This 23 channel has a rotary mechanical clock. Also, **wanted** old Radio Shack and LaFayette **catalogs** from 1960's and early 70's. Mark Wisniewski, 7150 Lakeshore Road, Cicero, NY 13039; (315) 699-0291.

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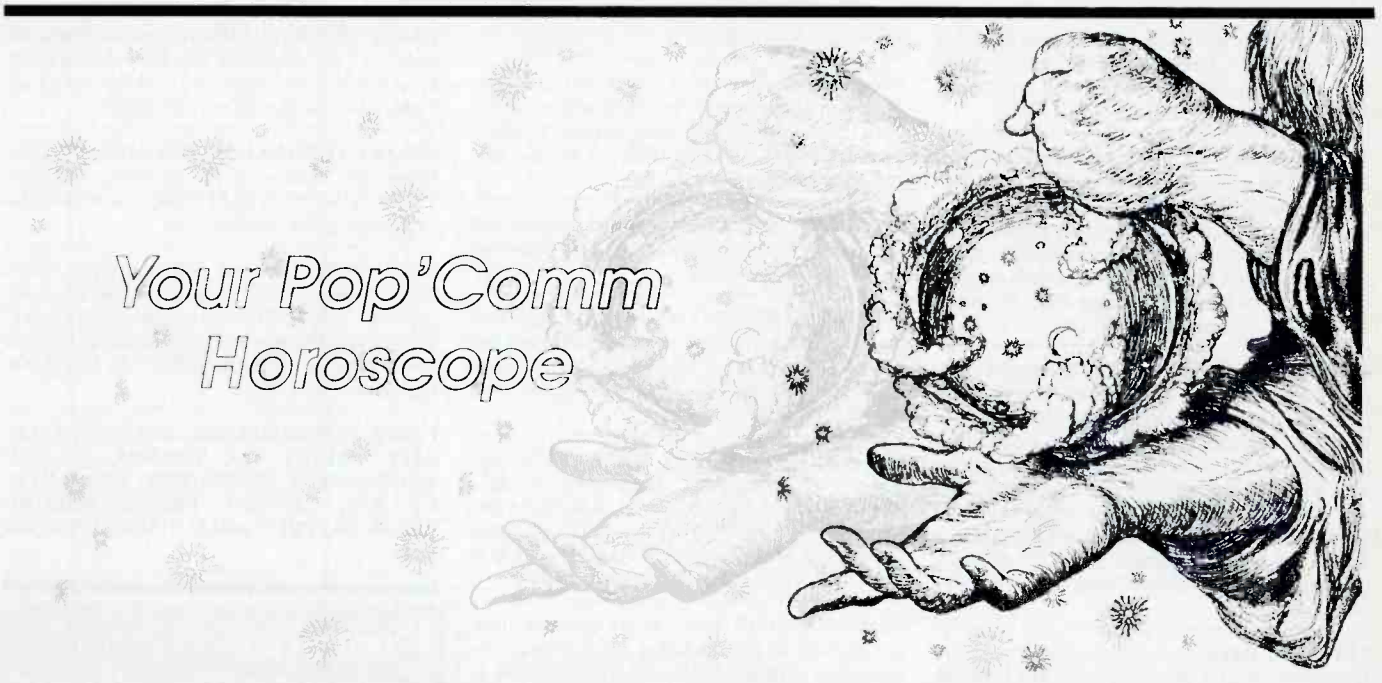
The Loose Connection

RADIO COMMUNICATIONS HUMOR

BY BILL PRICE, N3AVY



Your Pop'Comm Horoscope

This month I'm doing something a bit different; an amusing look at our horoscopes. Let's face it, there's something here for everyone.

ARIES

The Basic Car—Born with the barometer falling in your greenhouse, your scanner locks up on a highway work crew planning their next coffee break. Afraid to miss something, you constantly adjust your radio's squelch—you've worn out three pots so far. Your compatible sign is Gemini, but judges in some localities consider marrying a Gemini to be prima facie bigamy.

ARIES FAVORITES:
SW STATION: Radio Pierre—South Dakota's 24-hour Easy Listening and Militia Drill station.
SCANNER FREQ: 123.45 Where pilots and airline baggage handlers describe the contents of popped-open luggage.
FOOD: Corn Dogs with grape jelly.
MUSIC: The Schmenge Brothers, "LIVE."
VACATION SPOT: Hell, Michigan (for the annual "freeze-over" festival.)

CANCER

The Maine Fender—On your birthday, Pluto rose and bit Mickey, ending the cartoon segment prematurely. Your antenna seems to attract ice build-up. It's an annoying trait, particularly in Tucson. You're always torn between a concealed indoor SW antenna and the classic, mile-long end-fed Marlinfetzer. Your decision to tape a Marlinfetzer around and around your dining room has been a source of irritation to your family. You're most compatible with a goat . . . er . . . a Capricorn.

CANCER FAVORITES:
SW STATION: Radio Latvia (for the great recipes).
SCANNER FREQ: 234.56 Statewide Tollbooth-to-Tollbooth.
FOOD: Tuna-Lime Jell-O Surprise.
MUSIC: Freddie Fender Takes Five.
VACATION SPOT: Gilroy, California, for the Garlic Festival.

LEO

The Bayonne Street Vendor—When you first cried out, The Animals were in the House of the Rising Sun. Your spouse and your antenna are mismatched. A tuner will fix one of them; your antenna will have to be replaced. Tracking down Pirate Broadcasters is an interesting part of communications, but the phrase, "Open up, it's the FCC" is only going to get you in trouble. You should have married a Pisces.

LEO FAVORITES:
SW STATION: The Voice of Kenya.
SCANNER FREQ: 45.67 Used by Marlin Perkins and Jim, while Jim drifts down the crocodile-infested river and Marlin watches from the Land Rover.
FOOD: Wildebeest Tartar.
MUSIC: The Lion Sleeps Tonight.
VACATION SPOT: The Serengeti—during migration.

AQUARIUS

The Wet CoAx—Born with SWR rising in your transmission line, you spend all days asking for a radio check.

Since you got the first gasoline-powered antenna rotator, ice is no longer a

(Continued on page 76)

Ultra Compact Dual Band Handheld **FT-50R**

One tough little dual bander!

Features

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  RX: 76-200 MHz, 300-540 MHz, 590-999 MHz*
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- Full line of accessories

"You notice how loud this HT's audio is?"

"Yeah, it's Mil Spec tough like a commercial HT."

"Easy to operate, small, great price!"

"Yaesu did it again!"

U.S. MILITARY APPROVED MIL-SPEC 810

For the foremost in top-performing, durable, dual band handhelds there is one choice. The FT-50R. Manufactured to rigid commercial grade standards, the FT-50R is the only amateur dual band HT to achieve a MIL-STD 810 rating. Water-resistant construction uses weather-proof gaskets to seal major internal components against the corrosive action of dust and moisture. And, the rugged FT-50R withstands shock and vibration, so throw it in with your gear!

Dynamic and exclusive features set the FT-50R 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-50R is ADMS-1C Windows™ PC programming compatible, too. To round out the FT-50R, it has four battery savers, and super loud audio—remarkable in an HT this size.

A reliable companion where ever you go, the FT-50R 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-50R including MIL-STD 810, and other exclusive features.

NEW Xplorer

It's a receiver

a counter, a recorder, a decoder....

U.S. Patent No. 5,471,402

•Two-Line LCD display, first line displays frequency. Second line switches between either CTCSS, DCS, DTMF, Signal Strength, or Numerical Deviation.

NMEA-0183 GPS Interface,-Connect your GPS to the Xplorer for Mapping applications. *(GPS and Mapping Software not included)*

The New Xplorer Test Receiver. Ideal for any two-way communications testing or monitoring. The Xplorer is a value packed performer integrating the functions of a CTCSS, DCS, and DTMF Decoder, Frequency Recorder, Nearfield Receiver and more into one hand-held unit. No more guessing when programming a frequency for monitoring-the Xplorer captures nearfield frequencies off the air from 30MHz - 2GHz in less than 1 second. The New Xplorer; providing the power of handheld portability with state of the art functionality and performance.

•Built-in Speaker. All frequencies received are demodulated for instant monitoring.

...and the last instrument you will ever NEED.

Features & Specifications

•Easy touch control pad. F1 & F2 keys control all Xplorer functions. Hold, Skip, Store and Lockout all enabled through the keypad.

- •Frequency Lock Out, Manual Skip, and Auto or Manual Hold
- •Internal Speaker, Audio Earphone/Headphone Jack
- •Built-in PC Interface, PC Connection Cable and Download Software included
- •Relative ten segment Signal Strength Bargraph
- •Optimum Maximized Sensitivity for increased nearfield distance reception
- •Tape Control Output with Tape Recorder Pause control relay and DTMF Encoder for audio data recording
- •High speed FM Communications Nearfield Receiver, sweeps 30MHz - 2GHz in less than 1 second
- •Two line LCD displays Frequency and either CTCSS, DCS, DTMF, Deviation or Signal Strength
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- •Real-Time Clock/Calendar with lithium battery back-up
- •Built-in Rapid Charge NiCad Batteries with 5 hour discharge time and Power Supply included
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