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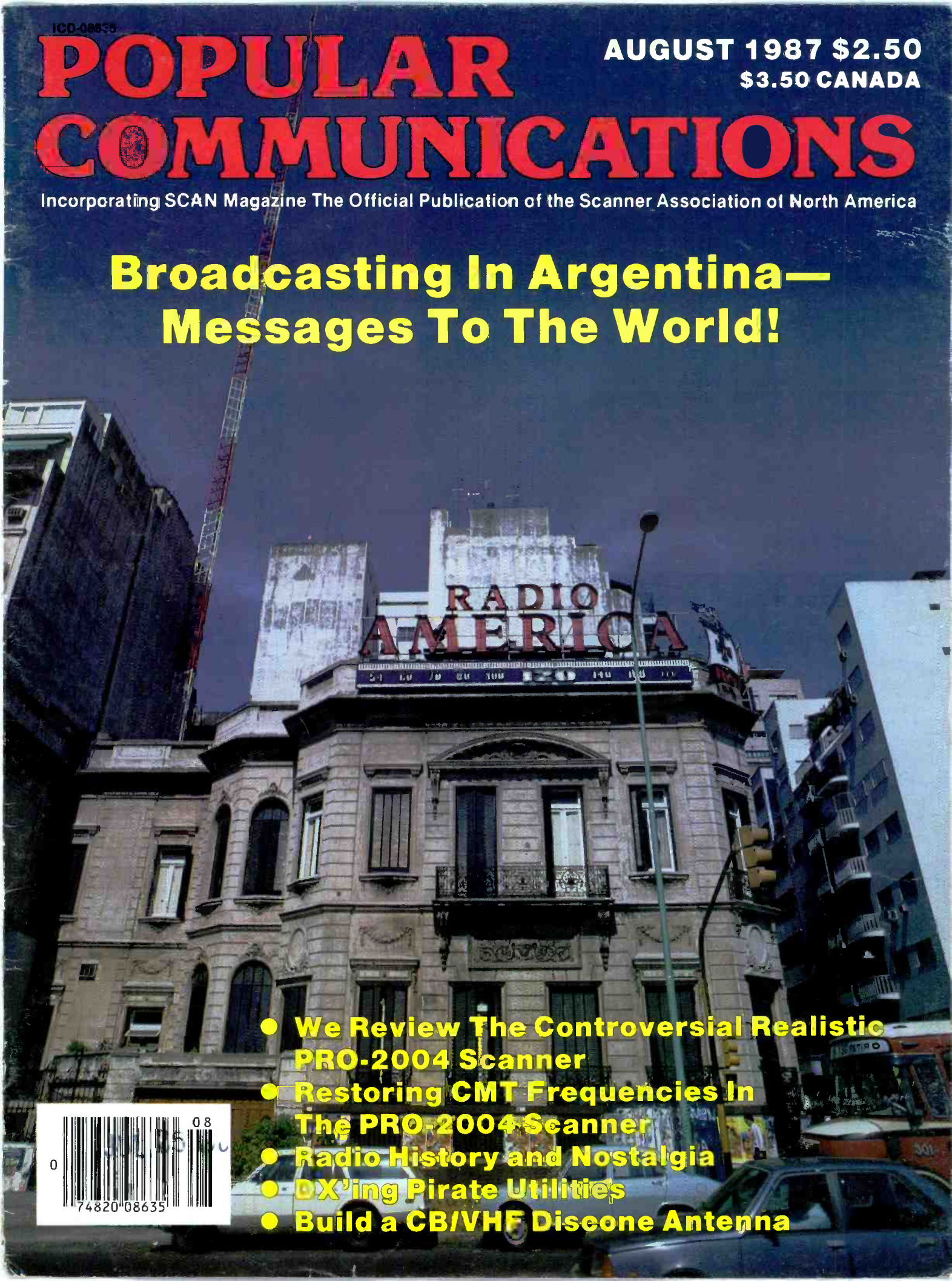

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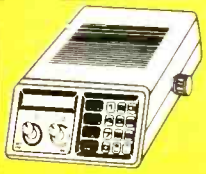

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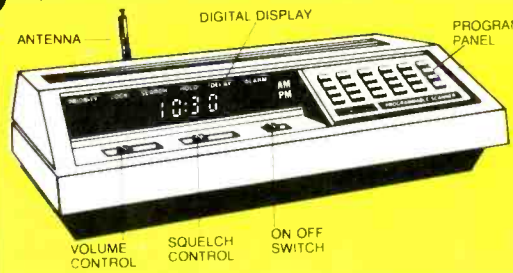

The Regency Z30 is a compact, programmable 30 channel, multi band, FM monitor receiver for use at home or on the road. It is double conversion, super heterodyne used to receive the narrow band FM communications in the amateur, public safety and business bands: 30-50, 144-174, and 440-512 MHz. Size 10¾"Wx2-7/8"Hx8-3/8"D.

Sophisticated microprocess-controlled circuitry eliminates the need for crystals, instead, the frequency for each channel is programmed through the numbered keyboard similar to the one used on a telephone. A "beep" acknowledges contact each time a key is touched. The Z30 scans approximately 15 channels per second.

Any combination of two to thirty channels can be scanned automatically, or the unit can be set on manual for continuous monitoring of any one channel. In addition, the search function locates unknown frequencies within a band.

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Plus $7.00 shipping each)

Digital Programmable 20 Channel Hand-Held Scanner with raised button keyboard for easy programming of the following frequency ranges: 118-136 MHz, 138-174 MHz, 406-512 MHz, 800-950 MHz (NOTE: This is the only hand-held portable scanner which will receive the 800-950 MHz range plus high band, air, and UHF). Features include priority, scan delay, memory backup, dual scan speed, channel lockout, jacks for external antenna and earphone, 90 day factory warranty, keyboard lockswitch, sidelit liquid crystal display for night use, program AM or FM mode, search or scan, size is 3" x 7" x 1½". Complete HX2200 package includes Ni-Cad rechargeable batteries, wall charger adapter, protective carry case, and rubber antenna. All for the low price of only $172.99 plus $7.00 shipping each. (Optional extended warranty: 3 years $39.99, or 2 years $29.99)

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$199.99 (6.50 shipping) *Handheld digital programmable, no crystal portable scanner. 16 channels, search feature, plus more! Frequency range: 30-50, 118-174, 406-512 MHz. Included in the package is a flexible rubber antenna, earphone battery charger/AC adapter, 6 AA Ni-Cad rechargeable batteries and a heavy duty carry case. All for the low price of:*

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(*) Add ($) per scanner, and $3.00* for all accessories ordered at same time. C.O.D. shipments will be charged an additional $3.00 per package. Full insurance is included in shipping charges. All orders are shipped by United Parcel Service. Shipping charges are for continental USA only. Outside of continental USA, ask for shipping charge per scanner. CIRCLE 172 ON READER SERVICE CARD

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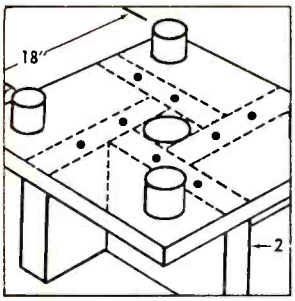

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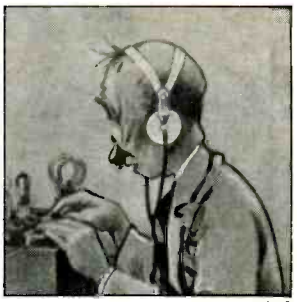

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FEATURES

This month's cover: *A view of radio station and antenna LR-9 (Radio America) at 1200 kHz in Buenos Aires, Argentina. Photo by Larry Mulvehill, WB2ZPI.*

DEPARTMENTS

Offices: 76 North Broadway, Hicksville, NY 11801. Telephone 516 681-2922. Popular Communications (ISSN 0733-3315) is published monthly by Popular Communications, Inc. Corporate officers: Richard A. Ross, Pres.; Thomas S. Kneitel, Vice Pres.; Alan M. Dorhoffer, Secretary. Second class postage paid at Hicksville, NY and additional offices. Subscription prices: Domestic—one year $16.00, two years $31.00, three years $46.00. Canada/Mexico—one year $20.00, two years $39.00, three years $58.00. Foreign—one year $22.00, two years $43.00, three years $64.00. Foreign Air Mail—one year $75.00, two years $149.00, three years $223.00.

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The size, price and performance of these new instruments make them indispensible for technicians, engineers, schools, Hams, CBers, electronic hobbyists, short wave listeners, law enforcement personnel and many others.

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#TA-100S	Telescoping RF pick-up antenna with BNC connector	**$12.00**
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BEAMING IN

AN EDITORIAL

BY TOM KNEITEL, K2AES

The Communications Season

I don't know about you, but this time of the year traditionally marks the annual high point in my personal communications connection. I've always suspected that I'm at the opposite end of the norm, that folks are most into this avocation during the colder months when they are sequestered indoors. These same people who exist in my imagination spend their days in the warmer months attending baseball games, walking through the park, and having backyard barbecues.

As for myself, I lost track of baseball somewhere between Cookie Lavagetta's heroic catch that won the Series for the Brooklyn Dodgers and the days when Joe DiMaggio was dating that movie star. In the era of Mize, Robinson, Musial, Yogi Berra, Kaufax, and Reese, I had more interest than after the game drifted into seven-figure salaries, free agents and dope. My warm-weather thoughts were transferred over to more challenging endeavors, like trying to master the art of concentrating on the sounds coming out of a communications receiver while also listening to a VHF scanner.

Summer means spending a lot of time aboard my boat which, in turn, entails monitoring VHF maritime Channel 16, plus the activities on the 28, 50, and 144 MHz Ham bands. And sometimes, in the middle of this, and to add to the jumble, there's a call coming through on the boat's cellular telephone.

This time of year means loading up the car and heading to distant points. If you have an XYL with whom you can share your interest in communications, you are truly lucky. I do my hobby virtually alone; nobody in my immediate family has been bitten by the bug and, for the most part, they barely tolerate my own limitless enthusiasm. What this translates into, in terms of driving somewhere on the Interstates, is sheer cacophony. My preference is to monitor CB Channel 19 or one of the 27 MHz Sideband frequencies, while also monitoring the scanner and simultaneously trying to keep an ear peeled for the sound of the radar detector. This creates an affront to my XYL who tries to override these sounds by playing tapes or listening to the car's radio.

While I have mastered the art of hearing only what I want to hear and filtering out the rest (a practical benefit all DX'ers eventually acquire), the little woman alternately grumbles and keeps cranking up the volume as an act of defiance—she prefers the term "self defense." I'm used to it by now, but unless I keep the windows closed, the strange mix of sounds emerging from the vehicle does create a disturbance of the peace as well as a distraction to all other drivers within a quarter-mile radius.

What does, however, annoy me on these summertime driving trips is the itinerary clash. I determine a destination and then carefully plan out a route that permits stops at selected broadcast and communications facilities, antenna farms, mountaintops that offer opportunities for extended VHF communications and reception, and enroute visits to see my communications cronies. Given the exact same starting point and destination, my wife sees only a succession of tourist attractions, antique shows, and the residences of her most distant and obscure relatives. I can assure you that her family is an insidious clan that has spent generations spreading out across the entire continent for the sole purpose of having a local branch available at any place we might ever decide to visit. I believe that, with the possible exception of a few spots in the Texas panhandle, the Oregon forests, and far northern Manitoba, they've got it all covered.

This summer I planned a driving trip to the peak of Spruce Knob in West Virginia. At 4,850 feet, it's the highest point in the state, and reached only by driving up a narrow, winding and treacherous road that has no guard rail. Among the scenic delights along the mountain road are the rusting and wrecked hulks of several cars that failed to negotiate one of the many sharp turns. While I questioned the wisdom of making this sojurn in my Trans-Am, I was drawn there by the notion that from the parking lot at the top of Spruce Knob there is a clear line-of-sight VHF shot into several states. More than twenty years ago, K2ZSQ and I went there and won the highest 6 Meter score for West Virginia during a *CQ Magazine* VHF contest.

This time, I took along every piece of portable communications gear I could muster that could send out or receive a signal on any self-respecting frequency between 27 and 512 MHz. It was a communications nut's dream come true and I was having a terrific time! Problem was that after only two hours at this wonderful spot, it was brought to my attention that the facilities atop Spruce Knob were somewhat sparse. That is to say that there didn't seem to be a Sheraton Hotel within at least 100 miles. In fact, it was pointed out that Spruce Knob had no facilities at all, just a parking lot surrounded by a couple of scrawny pine trees.

By a strange and miraculous feat of memory, it was suddenly recalled that somebody's aunt's cousins' nephew lived "just over in the next holler." Had I known that in advance I'd have preferred to take my radios to what's left of the summit of Mt. St. Helens.

With much consternation, the Spruce Knob visit was cut short and a diligent search for these people was commenced upon finding the first pay telephone after the drive down to civilization. Contact was made after several tries, followed by the ritual of exchanging names of mutually known relatives. This, in an apparent effort to convince these good people that we weren't imposters who had driven almost 500 miles for the primary purpose of scrounging a free meal and tricking them into letting us use their washroom.

The actual trip to the "next holler" took the better part of two hours and we were welcomed with considerable fuss. By a wonderful and unexpected twist of destiny, the house was topped off with a huge tower supporting all manner of antennas including the biggest 144 MHz array I had ever seen. Kismet had smiled. With the exception of the dinner, which was spoiled for me by the inclusion of a vile local delicacy called "ramps," it was a fantastic visit. This guy was even more of a fanatic than I was. They practically had to threaten me with a tire iron to drag me away from the controls of his absolutely spectacular station that included numerous scanners, transceivers and communications receivers.

Forget baseball, forget walks in the park, let's all get back to really enjoying the great outdoors. Ah, wilderness! Ah, radio! PC

MAILBAG LETTERS TO THE EDITOR

The most interesting questions we receive will be answered here in each issue. Address your questions to: Tom Kneitel, Editor, Popular Communications magazine, 76 North Broadway, Hicksville, NY 11801.

POP'COMM To The Rescue

I recently purchased a scanner directory that was supposed to have in-depth coverage of California, hoping it would advise me of how to monitor the stations of the U.S. Dept. of The Interior's Bureau of Reclamation Central Valley Project (CVP). I know that this is a large network; one of the base stations is in my home town, and it's probably very active.

Now, I'm turning to *POP'COMM* to save the day. Help!

G.L.R.
Willows, CA

The CVP operates two networks, north and south. Base stations are located at field HQ's, dams, reservoirs, etc. and communicate messages relating to water usage and conservation. All stations are assigned callsigns within the block KMC800 to KMC848, with the main stations being located at the Field Division HQ's. These are at Shasta (KMC802, mobile units 100 to 299), Tracy (KMC805, mobiles 300 to 399), Folsom (KMC824, mobiles 500 to 599), Fresno (KMC807, mobiles 600 to 699), Willows O&M Division (KMC822, mobiles 700 to 799). The Dept. of Interior Regional Office in Sacramento is also active (KMC804, mobiles 400 to 499). Check the following channels, and if history repeats itself, the next edition of your directory will undoubtedly contain this information almost exactly as we're running it here:

Channel 1	*171.775*	*North*
Channel 2	*172.425*	*North*
Channel 3	*166.35*	*South*
Channel 4	*167.175*	*South*
Channel 5	*166.325*	*South*
Channel 6	*166.925*	*South*
Channel 7	*163.025*	*South*
Channel 10	*167.15*	*South*
Channel 11	*166.6375*	*South*
Channel 20	*415.125*	*North*
Channel 21	*417.475*	*North*

—Editor

Author! Author!

I'm interested in writing some articles for *POP'COMM*. Is there a standard procedure for going about this?

Brooks P. Waterhouse, KCA6YJ
Los Angeles, CA

Your best bet would be to ask for one of our Author's Guides, and this holds true for the many readers who are prospective POP'COMM authors. Our Guide not only explains the manner in which manuscripts should be prepared for our consideration, it also offers helpful hints on what should be included and excluded in your topical coverage. More than that, the Guide tells you which topics interest us most, and which topics are not being considered for publication from non-staff authors at this time. A copy of our current Author's Guide is available upon request, but please be sure to include an SASE (self-addressed stamped envelope) for us to send it to you. —Editor

Smile, You're On Rancid Camera!

I don't seem to hear the Soviet over-the-horizon (OTH) radar "woodpecker" as much as I did several years ago. Let's hope that new technologies have lessened the dependence upon such devices that invade and disrupt the international HF broadcasting and communication bands.

Steven Chang
Honolulu, HI

Notwithstanding our own government's interest in operating OTH radars, it appears as though England and Australia are building more of these gizmos in order to monitor ship and aircraft movements. Things will certainly get a lot noisier before any new technologies move these racket-makers off the HF bands. —Editor

North Went West

If the earth is a giant electromagnet, then it must have a specific current flowing through it. Has this ever been measured? Also, it seems that since this magnet has been doing its thing for millions of years now it is a likely candidate for being picked as a form of terrestrial perpetual energy. It seems that by now it would have lost a great percentage of its power, yet obviously it hasn't.

Les Hirsch
University of Missouri

Although I doubt it was checked with your basic hobbyist-type meter, the electric current flowing through the planet is about 6.16-billion amperes, enough to run granny's electric blanket through at least a few thousand winters. There is a rather large power loss (going into heat) presently running at 813 megawatts. Now, you might say, "at that rate of operation it is hard to believe that this thing has been able to maintain its steam for so many eons." If that's what you're saying, you're not alone. The only reliable historical observations on the planet's main magnet were first made (by Gauss) about 150 years ago, and then updated by worldwide observations every few decades after that. What these observations show is that the exponential decay in the planet's magnetic field has a half-life of only 1,400 years. A double check of this figure was made by matching it against a hypothetical reference magnet having the same dimensions and strength. What it all means is that the main magnetic generator inside the little blob of mud we call Earth can't have been dissipating power at this rate for more than a couple of thousand years. It would seem that the present electromagnet within the planet is of relatively recent origin, or else the "old" magnetic field was somehow recharged or re-energized by some unknown event of catastrophic proportions. At the present rate of decay, in a few hundred years your Little Handee Dandee hiking compass might well need a preamplifier and a beam antenna to find magnetic north. —Editor

An Unkind Cut

In the *Communications Confidential* column there are sometimes CW loggings consisting of groups of letters. Don Schimmel, the columnist, often comments that certain of those transmissions are "cut numbers." Would you please give a brief explanation and also tell how it can be determined which encrypted groups are made up of "cut numbers" and which aren't.

William Kurpa
Holland, MI

Since the CW symbol groups for the numbers (1 through 0) are a tad long and cumbersome, it isn't uncommon for operators to shorten them down for quicker and more convenient transmission. This is especially true in the instances of five-figure (5F) encrypted groups. Instead of having to, for instance, send the figure "0" as the standard 5-dahs, it might be sent as a single dah, which is also the letter "T." That happens to be a very common CW transposition and is usually referred to a "cut zero." Messages may be sent with all or some of the digits "cut," and a typical set of "cut" numbers from 1 to 0 might be something like EISH5NDBMT. Actually, they can be anything that the operators agree upon beforehand. CW messages that consist of groups of mixed numerals and alphabet letters are probably using some "cut" numbers. Also, any time traffic is sent in the form of five-letter groups, check the assortment of letters used. If there are only ten different letters, then they certainly represent numbers in "cut" form. By examining the specific letters chosen, it may be possible to see a pattern that will enable you to determine which letters correspond to each number from 1 through 0. —Editor PC

NEW! Turbo Scan™ Scanners

Communications Electronics,™ the world's largest distributor of radio scanners, introduces new lower prices to celebrate our 16th anniversary.

NEW! Regency® TS2-MA

Allow 30-120 days for delivery after receipt of order due to the high demand for this product.

List price $499.95/**CE price $319.95**

12-Band, 75 Channel • Crystalless • AC/DC

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The *Regency* TS2 scanner lets you monitor Military, Space Satellites, Government, Railroad, Justice Department, State Department, Fish & Game, Immigration, Marine, Police and Fire Departments, Aeronautical AM band, Paramedics, Amateur Radio, plus thousands of other radio frequencies most scanners can't pick up. The *Regency* TS2 features new 40 channel per second *Turbo Scan*™ so you wont miss any of the action. Model **TS1-MA** is a 35 channel version of this radio without the 800 MHz. band and costs only $239.95.

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8-Band, 60 Channel • No-crystal scanner

Bands: 30-50, 88-108, 118-136, 144-174, 440-512 MHz.

The *Regency* Z60 covers all the public service bands plus aircraft and FM music for a total of eight bands. The Z60 also features an alarm clock and priority control as well as AC/DC operation. Order today.

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7-Band, 45 Channel • No-crystal scanner

Bands: 30-50, 118-136, 144-174, 440-512 MHz.

The *Regency* Z45 is very similar to the Z60 model listed above however it does not have the commercial FM broadcast band. The Z45, now at a special price from Communications Electronics.

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10 Channel • 25 Watt Transceiver • Priority

The *Regency* RH250B is a ten-channel VHF land mobile transceiver designed to cover any frequency between 150 to 162 MHz. Since this radio is synthesized, no expensive crystals are needed to store up to ten frequencies without battery backup. All radios come with CTCSS tone and scanning capabilities. A monitor and night/day switch is also standard. This transceiver even has a priority function. The RH250 makes an ideal radio for any police or fire department volunteer because of its low cost and high performance. A *60 Watt* VHF 150-162 MHz. version called the **RH600B-MA** is available for $439.95. A UHF 15 watt version of this radio called the **RU150B-MA** is also available and covers 450-482 MHz. but the cost is $439.95.

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The *Uniden Bearcat* 50XL is an economical, handheld scanner with 10 channels covering ten frequency bands. It features a keyboard lock switch to prevent accidental entry and more. Also order the new double-long life rechargeable battery pack part # **BP55** for $29.95, a plug-in wall charger, part # **AD100** for $14.95, a carrying case part # **VC001** for $14.95 and also order optional cigarette lighter cable part # **PS001** for $14.95.

NEW! Scanner Frequency Listings

The new Fox scanner frequency directories will help you find all the action your scanner can listen to. These new listings include police, fire, ambulances & rescue squads, local government, private police agencies, hospitals, emergency medical channels, news media, forestry radio service, railroads, weather stations, radio common carriers, AT&T mobile telephone, utility companies, general mobile radio service, marine radio service, taxi cab companies, tow truck companies, trucking companies, business repeaters, business radio (simplex) federal government, funeral directors, veterinarians, buses, aircraft, space satellites, amateur radio, broadcasters and more. Fox frequency listings feature call letter cross reference as well as alphabetical listing by licensee name, police codes and signals. These Fox directories are $14.95 each plus $3.00 shipping. State of Alaska–**RL019-1**; State of Arizona–**RL025-1**; Buffalo, NY/ Erie, PA–**RL009-2**; Chicago, IL–**RL014-1**; Cincinnati/ Dayton, OH–**RL006-2**; Cleveland, OH–**RL017-1**; Columbus, OH–**RL003-2**; Dallas/Ft. Worth, TX–**RL013-1**; Denver/Colorado Springs, CO–**RL027-1**; Detroit, MI/ Windsor, ON–**RL008-2**; Fort Wayne, IN/Lima, OH– **RL001-1**; Hawaii/Guam–**RL015-1**; Indianapolis, IN–**RL022-1**; Kansas City, MO/ KS–**RL011-2**; Long Island, NY–**RL026-1**; Louisville/Lexington, KY–**RL007-1**; Milwaukee, WI/Waukegan, IL–**RL021-1**; Minneapolis/St. Paul, MN–**RL010-2**; Nevada/E. Central CA–**RL028-1**; Oklahoma City/ Lawton, OK–**RL005-2**; Orlando/Daytona Beach, FL–**RL012-1**; Rochester/Syracuse, NY–**RL020-1**; San Diego, CA–**RL018-1**; Tampa/St. Petersburg, FL– **RL004-2**; Toledo, OH–**RL002-3**. Regional directories which cover police, fire ambulance & rescue squads, local government, forestry, marine radio, mobile phone, aircraft and NOAA weather are available for $19.95 each. **RD001-1** covers AL, AR, FL, GA, LA, MS, NC, PR, SC, TN & VI. **RD002-1** covers IL, IN, KY, MI, OH & WI. For an area not shown above call Fox at 800-543-7892 or in Ohio 800-621-2513.

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List price $369.95/**CE price $218.95**

11-Band, 55 Channel • Handheld/Portable Search • Lockout • Priority • Bank Select Sidelit liquid crystal display • EAROM Memory Direct Channel Access Feature • Scan delay

Bands: 29-54, 118-136, 144-174, 406-420, 440-512 MHz.

The new handheld *Regency* HX1500 scanner is fully keyboard programmable for the ultimate in versatility. You can scan up to 55 channels at the same time including the AM aircraft band. The LCD display is even sidelit for night use. Includes belt clip, flexible antenna and earphone. Operates on 8 1.2 Volt rechargeable Ni-cad batteries (not included). Be sure to order batteries and battery charger from the accessory list in this ad.

Bearcat® 100XL-MA

List price $349.95/**CE price $178.95/SPECIAL**

9-Band, 16 Channel • Priority • Scan Delay Search • Limit • Hold • Lockout • AC/DC

Frequency range: 30-50, 118-174, 406-512 MHz.

Included in our low CE price is a sturdy carrying case, earphone, battery charger/AC adapter, six AA ni-cad batteries and flexible antenna. Order your scanner now.

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★★★★ Free local frequency directories ★★★★

Save even more with this special coupon. As long as your order is **prepaid by money order**, you'll get extra special pricing on items listed in this coupon. In addition, if you order a *Bearcat* 50XL or *Regency* HX1500 scanner with this coupon, you'll get a free set of *Duracell* batteries which we recommend for best performance. If you buy a *Regency* Z60 or Z45 scanner using this coupon, you'll get a free Fox frequency directory worth $14.95. This coupon must be included with your *prepaid* order. *Credit cards and quantity discounts are excluded from this offer.* Offer valid only on prepaid orders mailed directly to Communications Electronics Inc., P.O. Box 1045 - Dept. M3, Ann Arbor, Michigan 48106-1045 U.S.A. Coupon expires July 31, 1987. Coupon may not be used in conjunction with any other offer from Communications Electronics Inc. Be sure to add shipping & handling fees listed in this ad (add $3.00 for shipping free books or batteries).

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BC100XL-M3 *Bearcat* 16 channel scanner	$177.95
BC800XLT-M3 *Bearcat* 40 channel scanner	$278.95
INF1-M3 *Regency* Informant scanner	$249.95
BC210XW-M3 *Bearcat* 20 channel scanner	$168.95
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RD55-M3 *Uniden* Radar Detector	$97.95

★★★ *SPECIAL SAVINGS COUPON* ★★★

Bearcat® 800XLT-MA

List price $499.95/**CE price $289.95/SPECIAL**

12-Band, 40 Channel • No-crystal scanner Priority control • Search/Scan • AC/DC

Bands: 29-54, 118-174, 406-512, 806-912 MHz.

The Uniden 800XLT receives 40 channels in two banks. Scans 15 channels per second. Size 9¼" x 4½" x 12½."

OTHER RADIOS AND ACCESSORIES

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RD55-MA *Uniden* Visor mount Radar Detector	$98.95
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PC22-MA *Uniden* remote mount CB transceiver	$99.95
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***NEW!* R1090-MA** *Regency* 45 channel scanner	$148.95
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A60-MA Magnet mount mobile scanner antenna	$35.95
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Add $3.00 shipping for all accessories ordered at the same time.
Add $12.00 shipping per shortwave receiver.
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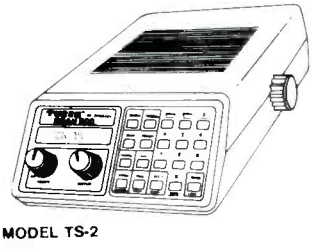

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SCAN Files Comments With FCC In Support Of RM-5836

The Scanner Association of North America has officially filed comments with the Federal Communications Commission in response to a petition for a rule to require warning labels on scanners. While it may seem odd at first that we would support such a proposal, the alternatives could be far more serious. It is no secret that those who organized the effort to pass the onerous Electronic Communications Privacy Act of 1986 planned that legislation as only the first step towards banning the manufacture and sale of equipment! The ECPA legislation, as finally drafted, is a crazy-quilt of inclusions and exclusions that would mean scanner manufacturers would need to design special software and integrated circuits to program out the so-called "off limits" frequencies. This could cause a quantum leap in equipment prices, so even though the majority of scanner users have no desire or need to receive these frequencies, we all will pay a heavy price if equipment restrictions go into effect. And it is not a one-ime task, either. As the cellular industry and others grab for new frequency assignments, the scanner manufacturers would be required to redesign their equipment again. When you are talking about custom IC chips, this is not pocket change! It is very expensive and time consuming, and enough to make some suppliers decide that it isn't worth it. The end result would be much higher prices and fewer equipment choices.

So there you have the background of why we made the decision to officially support warning labels as an alternative to equipment restrictions. Ideally, we like to have an opportunity for member input before taking such action, but in this case there simply was not time before the filing deadline. Therefore, your Board of Directors approved the following submission to the FCC:

Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C.

Re: The Labeling of	)	
Communications	)	RM 5836
Scanner Devices	)	

COMMENTS

The Scanner Association of North America ("SCAN") hereby files comments on the proposed rulemaking. SCAN is a not-for-profit educational corporation, with members throughout the U.S. Members are users of scanning radio equipment and, therefore, have a vital interest in this proposal. Members use this equipment professionally, such as in Police, Fire, Emergency Medical Services, and Maintenance of Radio Systems. Members also use scanning radio equipment as an adjunct to their hobby, such as "Railfans," Aviation Enthusiasts, and Amateur Radio Operators. Members also use scanners in Neighborhood Watch programs (as endorsed by the National Sheriffs' Association) or simply to be informed about events in their community.

SCAN hereby endorses the concept of a requirement that scanner radios be labeled to indicate that, in some cases, and under certain circumstances, reception of some communications may violate the provisions of the Electronic Communications Privacy Act. We believe that this would provide adequate protection for both scanner radio users and those users of the communications services intended to be protected by the Act.

SCAN also believes that this solution is the only practical one. Restricting reception capabilities of scanners is a costly and ineffective alternative; it would penalize users with legitimate purposes for full coverage scanners, but it would not prevent reception by those using block converters or other types of reception devices.

Without arguing the merits of the Electronic Communications Privacy Act, it is clear even to the casual observer that much of the communications intended to be protected by the Act is readily accessible by rudimentary means. A tuneable UHF TV converter or TV set with a continuously variable tuner can easily be used to receive cellular phone transmissions, for instance. A receiving frequency converter, designed to extend the reception of a scanner to the 800-900 MHz region can, by its every nature, be used to receive these same frequencies; it is impossible to determine the purpose of a block converter of this type, for which there are many legitimate uses.

Open radio communictions, such as current cellular phone transmissions, cannot be expected to be private. Intentionally, or inadvertently, many of these transmissions will be received. Therefore, in addition to warning notices on scanners, we suggest that notices also be required on cellular phones. The issue of marketing of cellular phones to those who do not recognize the difference between a wire-line phone and a cellular phone is one that has been raised by the Cellular Telephone Industry Association (CTIA) and others. It is our contention that they are correct in suggesting that the public has a perception that cellular phones are as private as a wire-line phone call. This is a perception that we feel needs to be quickly corrected. Warning labels on cellular phones are, in our view, the most practical way to achieve this.

SCAN also suggests that reception warning labels be required on frequency converters and any other devices capable of receiving cellular phone and other services included in the Electronic Communications Privacy Act.

The warning label requirements would, in our view, be a positive educational tool to inform the public about the nature of open radio communications and current laws regarding reception. It would have a minimal effect on the cost of scanners, converters, or cellular phones which would be required to be labeled. Therefore, SCAN believes that it is a practical solution to informing the public about the provisions of the Electronic Communications Privacy Act and the reality of open radio communications.

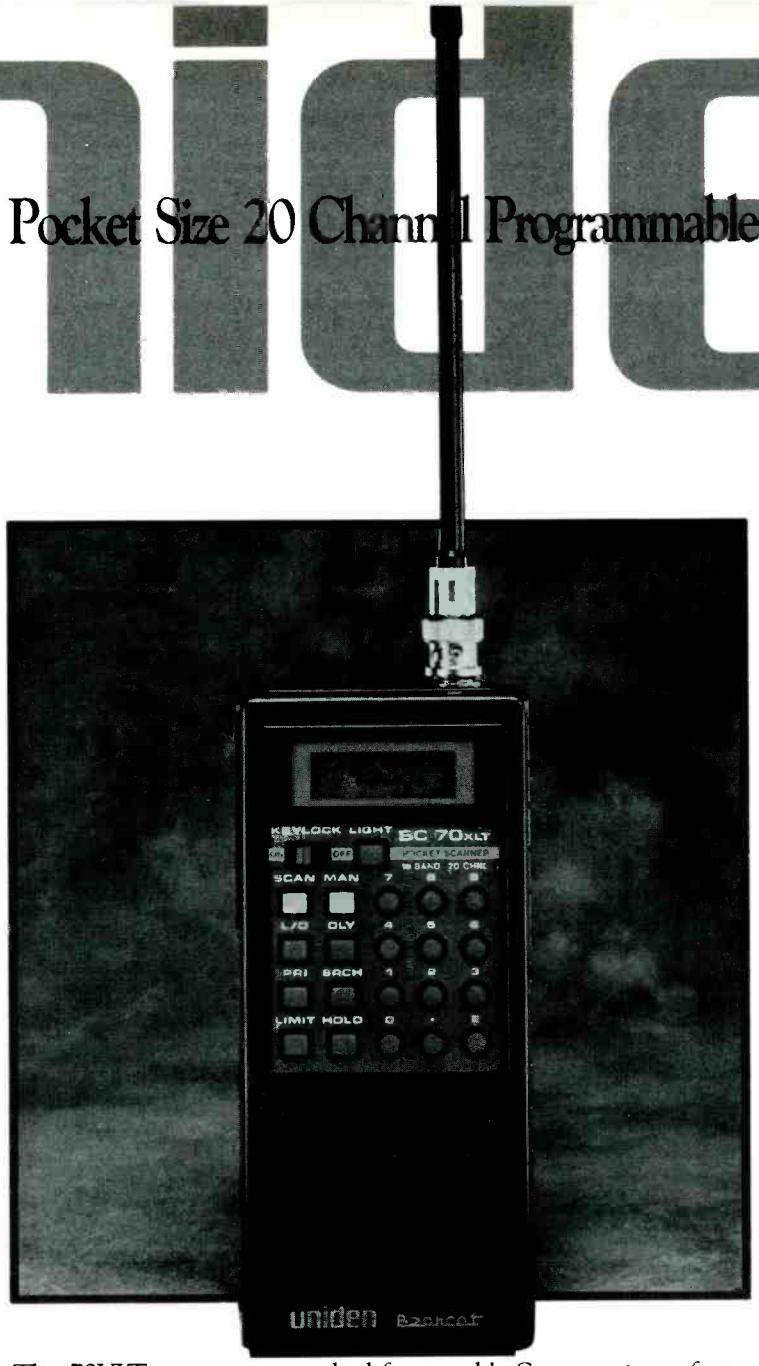
SCAN Insurance Program Update

One of the many benefits of SCAN membership is the SCAN Insurance Program, provided at no additional cost with membership. SCAN members and their families all over the country have received benefits from this program, which is provided through Hartford Insurance, a highly-rated insurance firm. This is a special program with coverage even in dangerous situations, which is especially valuable to our police, fire, EMT and other public safety service members. However, there are some ways that you or your family will miss out on these benefits. One is simply by omission. We urge you to put the policy, which is provided with your membership kit, in a safe place with your other insurance and important

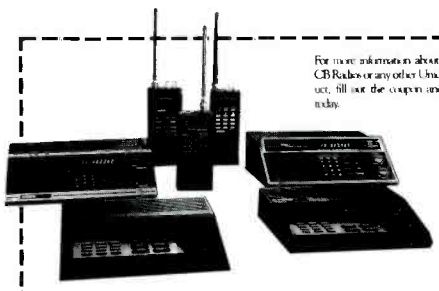
(Continued on page 73)

uniden

70 XLT Pocket Size 20 Channel Programmable Scanner



The 70XLT sets a new standard for portable Scanners in performance, dependability and size. This hard working unit has 20 programmable channels and 10 bands of coverage. It has the most desirable features including Priority, Lockout and Delay. It also includes automatic and manual Search to find new active frequencies. Built-in rechargeable batteries give hours of trouble-free use and quickly charge overnight. A Charger/Adaptor allows the unit to run on 120 VAC and the LCD display includes selectable illumination for night time scanning. The superior engineering of will treat your ears to real life excitement and drama as you've never heard it before.



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Tuning In On Tango Land

Argentina Speaks To The World

BY GERRY L. DEXTER

Which word does it for you? Tango? Evita? Malvinas? If you live and breathe shortwave then maybe letters and numbers are the key. 11710? RAE? One or more, surely, must trip the right circuits and bring the word "Argentina" to mind.

Argentina as a point of DX'ing or listening interest is deceptive. At first glance it appears to offer little of much interest but, in reality, there's a lot more than you may think, well beyond the country's external service.

Little, if anything, in modern Argentine life has had such an effect as the ill-starred Malvinas (Falklands) War in 1982. The war and its loss by Argentina were instrumental in the return to a civilian government and that government, in turn, has made changes in Argentine radio.

During the war itself, shortwave listeners were treated to a bonanza of interesting broadcasts, in particular the anti-British broadcasts of the clandestine station "Liberty." Also from the Argentine side was the relay on shortwave of mediumwave stations servicing Argentine troops on the island, the short-lived Falkland Islands Broadcasting station broadcasting as a member of the National Argentine network, and so on.

In 1983, a new national broadcasting plan began to return to private hands many stations which had formerly been under operational control of the government. In addition, the new plan called for a large number of new stations. 44 radio and 18 TV stations were sold by the government while 72 new radio and 10 new TV licenses were granted. 1984 called for another 208 new radio and 8 new TV stations to be granted and a third stage added still another 150 stations. Virtually all of these new outlets are planned for mediumwave, though if very many of them are on the air, they do not seem to be reflected in the latest station listings.

Despite the government rollback of broadcasting control some 40 mediumwave outlets remain as "Radio Nacional" outlets. Significantly, the government seems to be keeping some of the best channels for its own stations. Only three of the 40 Radio Nacional outlets are operating above 1200 kHz, where geographical coverage is not as great as it is for the lower part of the AM band. Most are running the highest powers, too—25 kW.

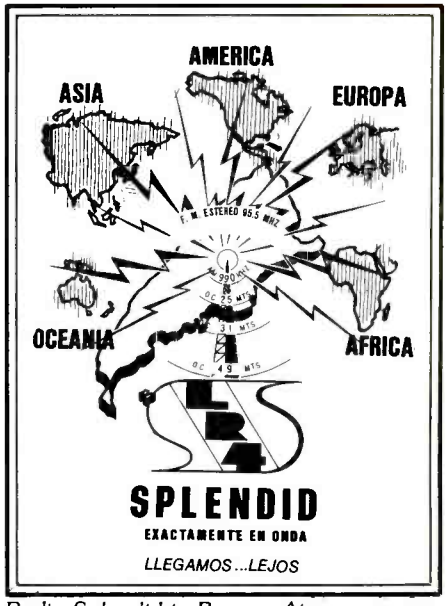
One of the more interesting Radio Nacional outlets on mediumwave might well be Radio Nacional Ushuaia e Islas Malvinas. Ushuaia is a quite small town and serves as the capital of the National Territory of Tierra del Fuego. With a limited audience size one might wonder why a 5-kW transmitter on a prime mediumwave channel like 780 kHz is required, or why it moved from a considerably higher AM band frequency. It's a pretty reasonable guess that the answer lies in the other half of the station's name. Ushuaia would seem to be a very good location for providing a broadcast service to the Malvinas and, from the name, it's obvious that the Malvinas are part of the station's service area. This was not, however, introduced during or in anticipation of the war since the station was on the air for years prior to that.

This card from RAE is in the collection of many a listener.

The Malvinas are on other minds from a broadcasting standpoint. In 1985, the Argentine Senate passed a measure to set up a radio service which would beam English language programs to the Kelpers in order to provide an Argentine view of things. This service has apparently not gone on the air yet and it isn't known whether it would be carried on shortwave—probably not.

Besides the radio stations owned by the national government, there are about 21 owned by the governments of individual Argentine states (there are 22 of these, called provinces, plus the Buenos Aires Federal District and the Tierra del Fuego National Territory). At a still lower governmental level are about eight stations owned by municipal or other localized governments.

The remainder, about 90 stations, are private/commercial operations. Some are quite large, such as the station featured on *POP' COMM*'s cover this month—LR9, Radio America in Buenos Aires which is on 1190 kHz with 25 kilowatts days, 5 at night.



Radio Splendid in Buenos Aires was once widely heard on shortwave.

From a programming standpoint Argentine broadcasters have a fairly free hand. Restrictions apply to the number of commercial minutes per hour and there are laws against programs of fortune-telling and si-

Another Argentina shortwaver now on mediumwave only is Radio El Mundo.

milar subjects. There's a recommendation that half the programs be Argentine in content but that seems to be advice and not law.

Argentina's shortwave activity can't compete with the quantity or the near-weekly changes which take place in Peru. The pace is much, much slower. But every now and again a blip appears on the DX'er's activity scope, usually in the form of some fairly permanent change in the order of things but occasionally as a brief anomaly, usually missed. Put it this way: there are never more than a handful of Argentine shortwave broadcasters on the air at any one time; all of them can be logged, yet it's safe to say that no DX'er in North America can claim to have heard all of the shortwave broadcast-related activity from Argentina in the last few years or even of today.

Argentina's external service was instituted in the late 1940's by the Peron government as a means of promoting that government's achievements and responding to its critics. By 1950 the service had installed 100-kW transmitters—the same units are still in use today. In earlier days, the service was known as S.I.R.A.—Servicio International Radiofonico Argentino, operating on 9690, 11880, 15290, 15345 and 17720.

In 1958, the name was changed to Radiodifusion Argentina al Exterior (RAE) but the assignment was still about the same: spread positive words about Argentina—an assignment that most state radios follow. On-the-air hours have increased from about seven per day in the early years to approximately 22 per day now. Only one or two languages have been added to the original group.

RAE's most recent schedule shows English at 0100-0200 (widely heard in North America) and 0400-0500 on 9690 and 11710, also at 1800-1900 and 2100-2200 on 15345. Spanish, Portuguese, French, Japanese, Italian and Arabic are aired during various other time segments. The 2100 English broadcast is also carried on 6060 and 11710 on weekends.

RAE is operated by SOR, the Servicio Oficial de Radiodifusion, which controls all Radio Nacional stations and, in turn, answers to the Direccion Nacional de Radiodifusion; that bureau reports to the Secretary of Communications. Reports on RAE reception should be sent to Casilla de Correo 555, 1000 Buenos Aires.

Radio Nacional in Buenos Aires uses the same transmitters as RAE and is scheduled on 6060 at 0100-1100 Tuesday to Friday; 0100-1500 Sunday and Monday; 6120 at 1000-1300; 9690 at 0500-1100; 9710 from 1000-1300; 11755 from 1300-1700 and 15290 from 1000-1700. All programs are in Spanish and the address for reception reports is the same as that of RAE.

One of the country's oldest stations is Radio Belgrano which, at various periods, has been under both government and private ownership. Station LR3 uses 1 kilowatt on 6090 with a schedule listed from 2200 to varying 0300 sign-off. It is frequently heard in North America, despite the fact that Radio Luxembourg and Radio Havana Cuba also use the channel at times.

Radio Belgrano currently takes a leftward slant and its programs include a broadcast against the Stroessner government in Paraguay, prepared by Paraguayan exiles in Buenos Aires but carried only on the mediumwave outlet. There's a similar anti-Uruguay program as well as one directed against Chile.

This brought trouble to the station's door in April 1985 when ten right-wing militants burst into the station's suburban Buenos Aires transmitter site, tied up engineers and security guards, then planted and detonated five bombs. Fortunately, no one was hurt but the blasts put the station off the air. Damage was apparently not very serious as the station returned to the air in a matter of days.

Last year Radio Belgrano added a "foreign service" with a one hour segment called "La Voz del Sur America" at 0100. The station generally verifies correct reports sent to Uruguay 1237, 1016 Buenos Aires.

Two other long-time shortwave broadcasters in Buenos Aires—Radio El Mundo and Radio Splendid—left shortwave in late 1983, their frequencies taken over by Radio Nacional.

The city of Mendoza, which is way out west, practically on Chile's doorstep, offers Radio Nacional de Mendoza. LRA34 uses 1 kW on 6180 (though sometimes it's actually a fraction below that) and is best received in the wee hours, around 0900 or 1000. Reports go to Emilio Civit 460, 5500 Mendoza.

A much tougher station to log (and Mendoza is anything but easy) is Radio Provincia de Santa Cruz which, according to the latest information available, is active on an experimental basis using just 500 watts on 6100 from 1000-1600. It has been on only since May 1986. Programs are simply relays of the mediumwave station. Reports go to Avenida Roca 823, 9400 Rio Gallegos. Let's hope the experiments are more successful than the fate of Radio Provincia de Misiones which operated on 6160 until it closed in January 1982.

Straight south of Mendoza is Malargue and Radio Malargue, LV19. It, too, uses just 500 watts and operates on 6160 from 1100-2200. This one has been logged in the U.S. a few times and chances for success would improve if sign-on were at 1000, which it may be at times. The station relays its sister mediumwave outlet and promotes the area as one of great future promise, with exploitable oil and mineral reserves. Reports go to Esquivel Aldao 350, 5613 Malargue.

When it came on the air in late October 1979, Radio Nacional Arcangel San Gabriel created quite a stir among SWL's, for the station claimed to be operating from Argentina's Esperanza Base (actually Fort Sargento Cabral) in Antarctica. There was some doubt about this, particularly after QSL's showed geographical coordinates which put the station in the middle of the Scotia Sea! But, the station seems to be where it says it is and it exists, officially, to provide information and entertainment to the military and civilian personnel at the dozen different Argentine bases in the Antarctic. There is also speculation that the station, merely by its existence, may be seen as reinforcing Argentine claims on Antarctic territory.

Initially, the station used a single 1-kW transmitter on 6030 but that has since been expanded by a pair of 2-kW units using 11955 and 15474. The 25m frequency has never been reported in North America but the 19m outlet is heard fairly well at times. Broadcasts run three hours per day, with sign-off at around 0030. An English ID is included with the sign-off announcement. The station issues an attractive QSL card for correct reports. The address is Base Antartico Esperanza, Territorio Antartico Argentino, Codigo Postal 9411, Argentina.

There is a sort of non-broadcast broadcaster on shortwave from Argentina. Radio Rividavia is a 24-hour-per-day mediumwave station in Buenos Aires using 630 kHz but it is heard regularly on shortwave. Shortwave is used as a link between the station and remote broadcast crews out covering sports events, although the Rividavia broadcasts seem to run at other times, too Listen during the local evenings on such oft-used frequencies as 4588, 5882 or 9115, single sideband. Even though it is not a shortwave broadcaster under the strictest of definitions, Radio Rividavia has a nice QSL card and is a consistent verifier. Reports go to Arenales 2467, 1124 Buenos Aires.

This paper pennant is sometimes sent with replies from RAE.

A new station that promises to be a very difficult catch here, if its schedule remains unchanged, is Servicio Provincial Comunicaciones Onda Corta, located at Viedma in Rio Negro province. The station is reported to broadcast only from 1500-1600 and on what, for us, is a "dead band" at that hour, 5950. Programs are mostly news and cultural affairs. There would seem to be some hope that in the future this schedule may expand considerably for Viedma is supposed to become the new capital of Argentina one day.

A new service, Radio Nacional Congresso de la Nacion Argentina, was to have gone on the air last fall but there have been no reports of its having been heard. The broadcasts were to be of the proceedings of the lower house of the Argentine parliament. The status, schedule and power/frequency details of this are unknown. If it is active it may be seasonal and it may not be on shortwaves.

Still another new service, this one to be aired over Radio Nacional transmitters, fea-

Radio Malargue in Mendoza Province uses 1 kW on 6160.

tures programming prepared by the National University of Cordoba and is targeted at all of Latin America. It isn't known if this is on the air yet or what the schedule is, or will be.

Argentina has two stations providing time signal services. Best known is LOL, operated by the Navy. It is scheduled at 1100-1200, 1400-1500, 1700-1800, 2000-2100 and 2300-0000 on 5000, 10000 and 15000 and can often be heard underneath the transmissions of WWV/WWVH. Identifications are by voice, in Spanish. QSL cards are issued from Servicio Hidrografica Naval, Observatoria Naval, Avenida Espana 2099, Buenos Aires.

The other station does not use a voice announcement and is thus considered strictly a utility station. It is Servicio Internacional de la Hora. LQB9 operates using 5 kW from 2000-2005 and 2345-2350 on 8167.5. LQC20 uses 17550 with 5 kW from 1000-1005 and 1145-1150. Both stations are actually on the air five minutes ahead of those times, sending a "CQ" and their call letters. Reports for these transmissions go to Servicio Internacional de la Horam Calle 38 Gral, Nicolas Savio 865, Villa Maipu, 1650 San Martin, Buenos Aires.

Beyond all of the possibilities are a number of other Argentine utility stations from fixed to VOLMET to marine and aero stations. There are rare occasions when the listener may stumble upon an Argentine mediumwave station being used as a marker by one of these utility outlets, as was recently the case on 8050.2. But these are totally unpredictable and such loggings are more chance than anything else. Still, it is a means of hearing a station which would not otherwise be heard on the higher frequencies.

Argentina—second largest and second most populous of South American countries—may not have the endless parade of stations a Peru or Bolivia does. But Argentina offers the DX'er its own brand of challenge, one that requires just as much patience and DXpertise. PC

Build A:

CB and VHF Discone

Looks A Bit Strange, But It Covers 27 To 275 MHz Without Retuning!

BY LEWIS KESEBERG

What with the newer scanners arriving on the scene all set to cover enormous chunks of frequency spectrum, my rooftop had started to look a bit like the control tower at a major airport. With a CB antenna, one for the 30 to 50 MHz "low band," another for the 150 to 174 MHz "high band," plus a few special-purpose antennas, things were getting crowded.

The concept of combining virtually all of my requirements into one single ultimate wideband antenna eventually crossed my mind. No matter how many chunks of metal and wire you shove into the air above your house, I suppose you never really stop searching for something that approaches being that impossible, ultimate type of skyhook, especially when you know that each band and radio service calls for a different shape and size.

On the other hand, the discone antenna—originated almost 50 years ago and rediscovered recently—comes awfully close to being the answer to my search. It offers a near-perfect match to 52-ohm coax cable, an operating range of 10-to-1 in frequency, and freedom from any critical tuning adjustments. It has low wind resistance and, despite what you might think from looking at it, the discone is vertically polarized. Another plus is that it offers greater groundwave coverage than many other vertically-polarized antennas. This comes about because its most effective portion is located right at the top of the pole; other types of vertical antennas have their most effective portions part-way down the mast which usually results in a closer "communications horizon."

Okay, this isn't an amazing revelation. Discones are available commercially, such as the one offered by Encomm, Inc. (2000 Avenue G, Suite 800, Plano, TX 75074), so nothing I've said thusfar should come at you like a bolt from the blue. On the other hand, perhaps you'd like to try scratch-building one of these devices, and that's where I come in.

Building A Discone

Before starting construction, it's best to know just what a discone antenna is and what it is supposed to do. Basically, the dis-

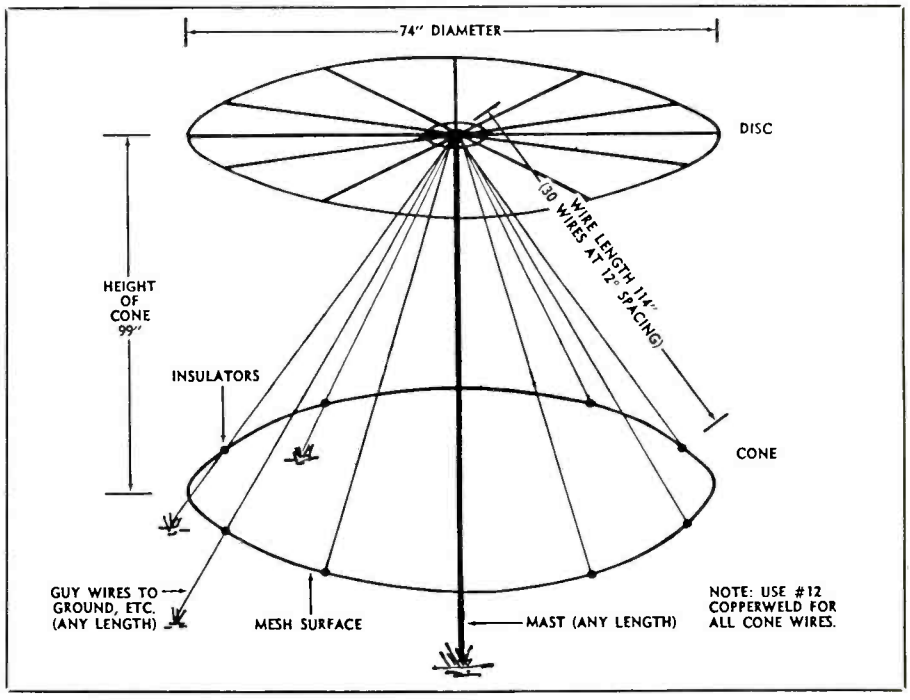


Figure1: Discone, overall view.

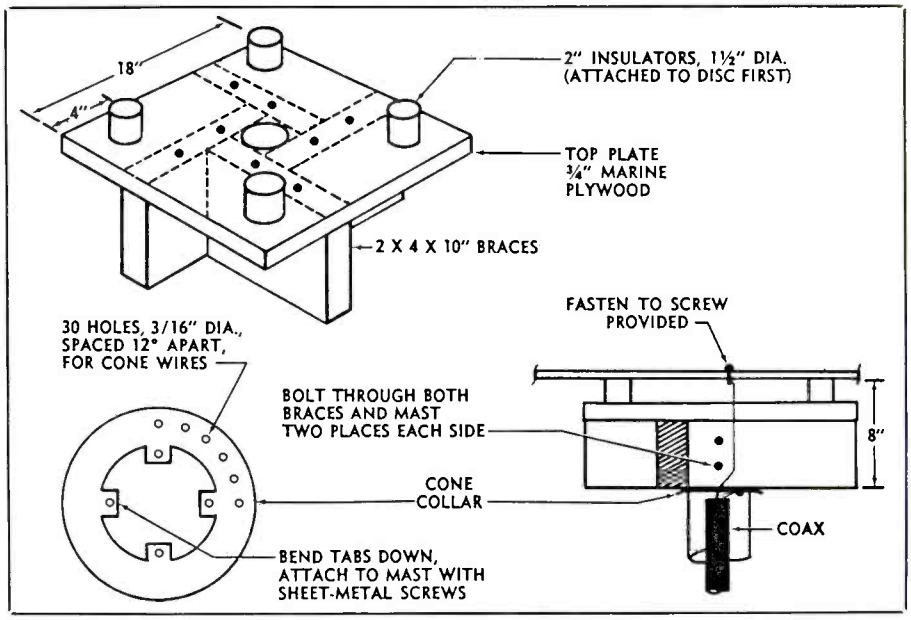


Figure 2: Insulator details.

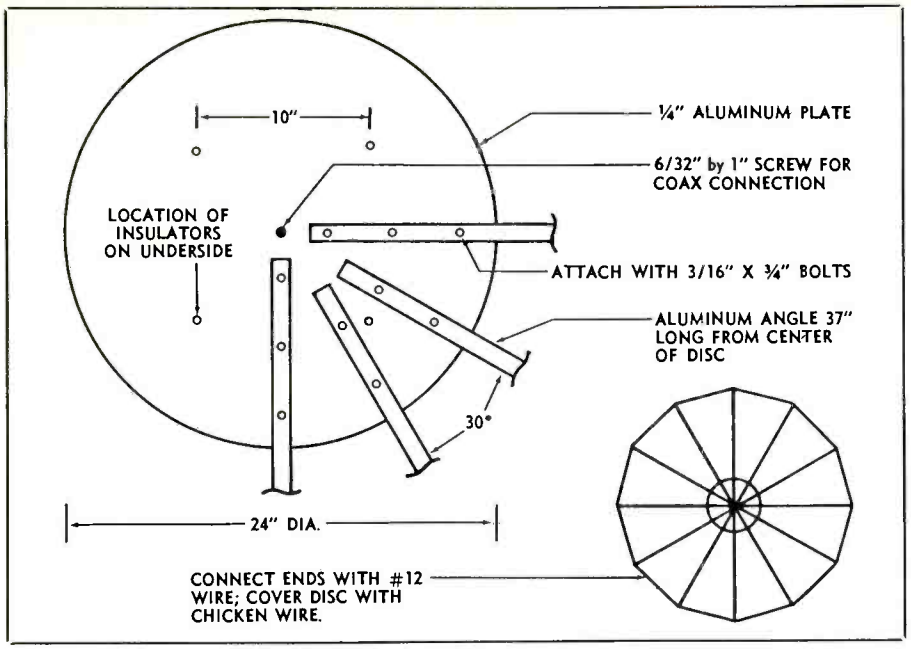


Figure 3: Details of disc assembly.

cone consists of an inverted (with the point towards the sky) metallic cone with a large disc (also metallic) balanced on the point. The disc is really fastened firmly, and insulated instead of balanced—but at any distance it looks like a balancing act (see Figure 1).

The coax feed line comes up inside the cone. The shield of the coax connects to the cone, and the center conductor connects to the disc. Thus, the cone becomes a continuation of the shield, while the disc becomes a reflector connected to the center wire.

In practice, outgoing RF energy hits the disc and is reflected out the open side of the affair. If the "slant angle" of the cone sides is correct, though, the outgoing signal can't tell what's happening to it and the SWR will be down to 1.0.

The important things electrically, then, are to keep the slant angle of the cone sides proper and to keep the top disc level. Good insulation between disc and cone at the center is also essential.

Mechanically, an 11-meter discone is quite an impressive array and could offer much, much wind resistance. If you built one out of solid sheet metal, the first breeze would tend to whip it away like a sail. However, a fine-mesh screen looks to RF like a solid sheet of metal if —and *only* if—the spacing between conductors in the screen is small compared to the wavelength of the RF. This is the key to our construction.

For instance, a screen spacing of 0.01 wavelength is plenty close enough to look solid to RF. Yet at 11 meters this becomes a spacing of 0.11 meter or 4½ inches (approximately) so that you could use very coarse fencing mesh for lowest wind resistance.

Best results were obtained with a type of fencing usually called "chicken wire" screening. This has a hexagonal screen pattern about an inch wide between conductors. You can use it for the surface of both the cone and the disc, cutting wind resistance to an absolute minimum.

However, the chicken wire is too flexible to stand up by itself. You must put a framework behind it for support. Wooden framing is okay, but aluminum angle stock is just as easy to work with and lasts longer.

The only really tricky part about the whole antenna is construction of the insulator that goes between the disc and the cone. It's shown in detail in Figure 2; follow the drawing closely and you won't go wrong.

Actual construction procedure is as follows: First, put up your mast. It can be any length greater than 10 feet. Next, fasten the insulator-and-guy-ring structure to the top of the mast. Now, connect the coax to the insulator-and-guy-ring assembly. Put together the disc assembly on the ground and get it into position on the insulator aloft (this may require some help). As a safety measure, DO NOT erect this anywhere near the powerlines as it could cause a severe hazard if it should topple over into those lines. Attach the guy-wires to the assembly and secure them at anchor points selected so as to give the proper slant angle. Finally, cover the guy-wire structure with chicken wire, soldering the joints, and you're ready.

The disc assembly referred to above is shown in detail in Figure 3. It should be completely assembled on the ground and lifted to the top of the pole before securing to the insulators—otherwise, the affair will be too top-heavy.

When you're finished, hook the other end of the 52-ohm coax to your communications gear and fire up. If you intend to use this for several different bands and purposes, *do not* have any scanners or other receivers connected and operating from the discone while you are transmitting. PC

POP'COMM Reviews:

Radio Shack's New Realistic PRO-2004 Scanner

It Covers From 25 To 520 MHz And From 760 To 1300 MHz—Well, Almost!

Radio Shack's announcement of a 300-channel programmable scanner covering virtually every frequency (except some UHF-TV channels) between 25 and 1300 MHz was met with much joy within the ranks of scanners users. Prior to the PRO-2004 going on sale, however, Radio Shack had second thoughts about whether they wanted to actually permit this scanner to cover frequencies used by cellular mobile telephones (CMT's). As a result, before any sets were shipped out to stores or customers, the design of the equipment was modified to blank out the bands between 825 and 845 MHz, also 870 and 890 MHz. Inasmuch as the PRO-2004's boxes and instruction manuals had been made up, a note that explained the modification was slipped into each manual.

All of this has been cause for a considerable amount of talk about the PRO-2004 and also relating to Radio Shack's motives for making the change in the unit's specs prior to its release. The motive is simple—Radio Shack showed its support of the Electronic Communications Privacy Act (ECPA) that frowns upon listening to CMT communications. Radio Shack is in the CMT business and, although the ECPA didn't forbid the inclusion of CMT frequencies in the PRO-2004, the manufacturer probably felt it would be counterproductive to its successful participation in the CMT market to allow the PRO-2004 to cover those frequencies. Had the PRO-2004's ability to receive CMT frequencies never been announced, nor printed in so many places, it is probable that none of this would have been a matter of controversy. At this point, it's all moot. The PRO-2004 has arrived, sans CMT frequencies, and its quite a versatile piece of equipment nonetheless.

The controversial PRO-2004 is attractive and easy to operate.

What It Is

Look back on what scanners were a mere

ADDENDUM

PRO-2004
PROGRAMMABLE SCANNER
General Coverage AM/FM Monitor Receiver
Cat No. 20-119

Dear Customer,

The unit is changed so the following frequencies are not received. When you try to enter the frequency in these ranges, ERROR will be displayed. The search function also skips these frequencies.

825.000 to 844.995 MHz
870.000 to 889.995 MHz

Radio Shack
Fort Worth, TX 76102

Printed in Japan
86D-6887

Upon unpacking the PRO-2004, I found this note from Radio Shack.

ten years ago and you realize how far technology in this field has come; the PRO-2004 has 300 programmable channels, wide frequency range, and ease of operation.

A listing of all of the PRO-2004's features would be very lengthy, and would include selectable mode (AM, wideband FM, narrowband FM) operation, ten banks of thirty channels each, selectable search increments (5, 12.5, and 50 kHz), memory backup, battery warning alarm, a "sound squelch" that prevents the unit from locking up on a frequency with an unmodulated carrier, and the ability to store ten different scan/search bands.

The PRO-2004 has a priority feature that can be shifted to any channel, selectable (8 or 16 channels per second) scanning speeds, and the ability to store as many as ten frequencies located during scan/search for later transfer into the unit's regular programming memory system.

Yes, it does make the *beep* sound every time it's presented with a programming instruction. Like this or not, it has become a standard feature of practically all keyboard programmable scanners. Thankfully, the *beep* made by the PRO-2004 is rather low in volume (although it can't be adjusted or easily eliminated altogether) and probably won't annoy those who generally dislike the space-age sound effects.

The keyboard itself has its 29 individual microswitches covered over by a single sheet of plastic in order to resist the harmful effects of dust on the switches. This card is well marked (and colored in grey, blue, and bright yellow) to indicate where to press.

The frequency display consists of back-lit LCD's (black figures on a green background), and there's a dimmer switch. The display is designed well enough so that it can be easily read. It provides ample information to keep you well informed as to what the PRO-2004 is doing. You can even tell it to provide you with a directory listing of all of the locked-out channels; a nice touch. Your reviewer's personal preference would have been for an LED display, however they probably wouldn't have been able to include all of the prompts and status information presently given.

The squelch is the kind I like. When the control knob is rotated, it gently slides into squelch mode rather than entering with an abrupt *pop*. In AM and NBFM modes, the squelch sensitivity below 520 MHz is rated at 0.5 μV; in WBFM it's 3 μV.

The owner's manual is adequately explanatory, being 23 pages in length and including a block diagram. The PRO-2004 does lots of tricks, some of which can't be easily figured out by trial-and-error. That makes the book a most important factor in using the PRO-2004. Actually, once you perform the various programming functions with the aid of the book's step-by-step guidance, they all seem quite simple and logical. I'd say that the PRO-2004 is definitely user-friendly.

The book shows a listing of 53 "birdies" in this scanner, although only a couple lie within the higher-interest bands; about half of them are above 783 MHz. There's an interesting feature of the unit; Radio Shack dubs it the *Zeromatic* function. I suppose a more appropriate or catchy name might have been concocted for this automatically activated circuit. It prevents the scanner from locking onto the modulation sidebands of signals instead of the actual center operating frequency.

Although some intermod and cross talk (as often noted with programmable scanners) was found on several frequencies, the PRO-2004 appears less prone to this than many other scanners put into use here. Radio Shack scanners, in general, have always had a pretty good track record in this department. While many scanners turn up 144 MHz band Ham images around 166 MHz, search as I might with the PRO-2004, none were ever heard (thankfully). Likewise, the 118 to 136 MHz VHF aero band was also totally clear of the type of cross talk to which some other programmables fall victim.

The PRO-2004, in action, proved to be sensitive. Running it from an all-band scanner antenna, excellent reception resulted. I liked the 16-channel-per-second fast scanning speed, and I thought that the sound squelch function was a great idea. Operation was simple, and I liked that the PRO-2004 had a memory that permitted the unit to resume with whatever it was doing the last time it was turned off.

It's possible for the user to open up the set and cut one diode in order to restore operation in the missing 825 to 845 MHz and 870 to 890 MHz CMT bands.

Notwithstanding the missing CMT frequencies, Radio Shack's PRO-2004 was found to be well designed, filled with wall-to-wall features, well made, attractive to the eye, relatively simple to operate, versatile, and a good performer all around. It weighs 7 lbs., operates from 120 VAC or 13.8 VDC, and is supplied with a telescoping whip that attaches to its BNC-type antenna connector. Audio is supplied by means of a top-mounted speaker, a front-panel headphone jack, a rear-panel high level output tape jack, or a rear-panel external speaker jack. A rear-panel attenuator switch can be activated to cut strong signals by 10 dB.

Radio Shack's Realistic PRO-2004 is an excellent scanner.

Reviewed by F.X.F., North Dakota

Cellular Coverage For Your New Realistic PRO-2004

And some other goodies, too!

BY BILL CHEEK, "DR. RIGORMORTIS"

So, you bought the new Realistic PRO-2004 VHF-UHF scanner with all that awesome frequency coverage, only to find that it won't cover the cellular bands as it was originally supposed to do? Or, perhaps you have decided NOT to buy the PRO-2004 because it doesn't feature the cellular frequencies, contrary to what their 1987 catalog depicts? Yes, Radio Shack's corporate fathers deleted the cellular coverage in the PRO-2004 at the last moment before the scanner appeared in the stores. The decision was reached as Congress and the cellular telephone industry were conjuring up the Electronic Communications Privacy Act (ECPA). Radio Shack thus established their philosophy that cellular transmissions should be entitled to privacy and protection.

Fortunately for the monitoring hobby, they had to RETROFIT to delete cellular coverage from the PRO-2004, because the radios had already started rolling off the production lines before the Big Decision. This makes it exceptionally easy to UN-retrofit and restore the full performance capability of the two cellular bands, 825.0 MHz-844.995 MHz and 870.0 MHz-889.995 MHz. The cost of this modification is zero, if you do it yourself.

The procedure is simple, and just about anyone with a Philips screwdriver and a pair of diagonal cutting pliers can do the job. If you don't trust your technical prowess, a pro-shop should be able to do the job for you for around $25. Use photos 1 and 2 to guide you through following the steps:

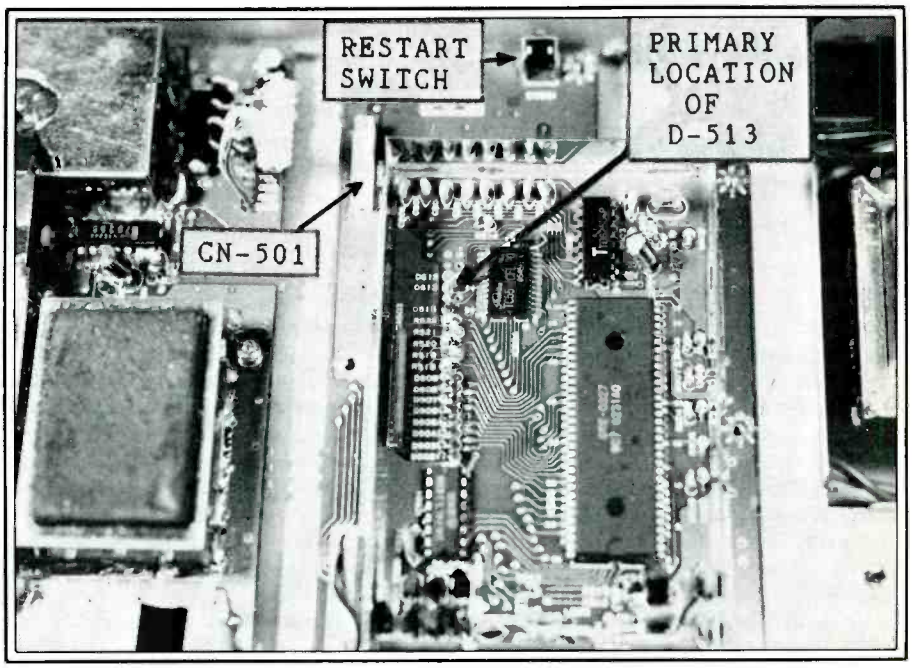


Photo 1: Cellular modification.

Steps of Procedure For Recovering The Cellular Bands

1. Remove the four screws from the rear of the radio. Slide the chassis forward and out of the case so you can easily maneuver it around for examination and work.

2. Turn the radio *upside down*. Locate a metal "box-like" sub-chassis in the center area of the main chassis. If there is any doubt, the correct subchassis is the one that has the RESTART switch, SW-501. (See your Owner's Manual for location of the RESTART switch on the back panel, and don't confuse it with the RESET key on the front panel.) The subchassis is marked, "PC-3" in the rear area of the board. Carefully pry off the metal cover of this sub-chassis. Inside, you will see a 64-pin Integrated Circuit "chip," the only chip of this size in the radio. By the way, this chip is the CPU.

3. Refer to photo 1 and examine the component side of this board in the area where there is a row of diodes and resistors. At one end of the row will be D-502. Look at the OPPOSITE end of this row and locate diode, D-513. It is possible that D-513 won't be present; if not, there will be a spot marked for it anyway.

A. *If D-513 is present*, clip the accessible end of it, and push the two cut ends apart so they can't touch. That's it; you now have the cellular coverage for which the PRO-2004 was originally designed.

BUT WHAT IF YOU CAN'T FIND D-513? Right! In some models, it is NOT where it is supposed to be. No problem. You just have a little more work to do first. *PERFORM STEPS B, C and D ONLY IF D-513 IS NOT INSTALLED.*

B. CAREFULLY loosen and remove the 9-pin cable-harness connector, CN-501, from the subchassis (see photo 1). It's located toward the rear, left side of PC-3. Don't remove the other cable-harness connectors.

C. Remove the seven (7) screws which secure the PC-3 subchassis to the main chassis. Turn the subchassis upside down so you can see the solder-side of the circuit board.

D. Refer to photo 2: Somewhere on the solder side of this board, there will be a single, solitary diode . . . probably in the vicinity of where D-513 is marked on the other side of the board. Don't worry, though, because there won't be any other components on the bottom of this board to confuse you. CLIP one lead of this diode and spread the two cut ends apart so they can't touch. That's it; you now have the cellular coverage for which the PRO-2004 was designed!

A note on operation in the cellular bands: The allocated channel spacing in the two cellular bands is different from all other bands covered by the PRO-2004: 30 kHz! This is of special importance when SEARCHING in the cellular bands, because if you press the STEP key on the front panel, you'll change the STEP INCREMENT from 30 kHz to 5 kHz. Press the STEP key again, and the increment changes to 12.5 kHz. Press STEP one more time, and the increment becomes 50 kHz. Press it again, and it goes back to 5 kHz! WHAT, no 30 kHz as required? Right! The 30 kHz STEP INCREMENT is not a normal function of the CPU, and it is available in the SEARCH MODE

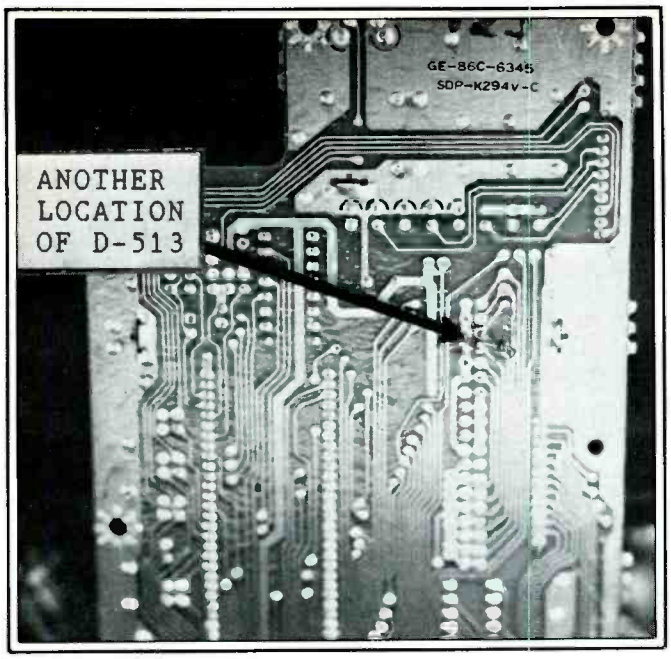


Photo 2: Cellular modification.

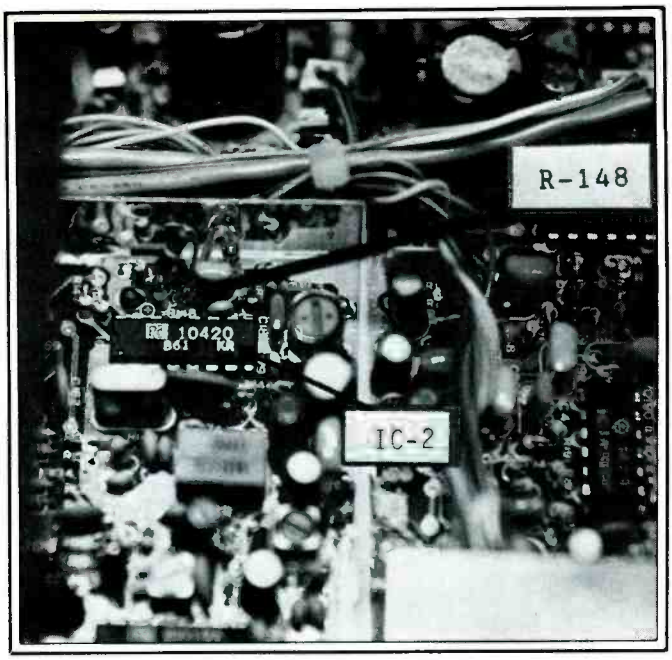


Photo 3: Squelch modification.

only in the designated cellular bands. To get back to the 30 kHz STEP INCREMENT after you have pressed the STEP key, you'll have to press the RESET key on the front pane. The CPU will then automatically select the 30 kHz STEP function when SEARCHing the cellular bands. Don't confuse the RESET key on the front panel with the RESTART button on the rear panel.

PRO-2004 Squelch Improvement

One of the few design deficiencies in the PRO-2004 is a sloppy SQUELCH action. It resembles "backlash" in a loose gear train. To see what I mean, start from the MINIMUM Squelch position and slo-o-wly increase the Squelch until the noise is silenced. Now, back off the Squelch Control until the silence breaks. See what I mean? Fortunately, there is a simple cure. Cost of this improvement is less than $1.00. Refer to photo 3 and follow these instructions:

1. Refer to photo 3: Place the radio, with the case removed, in the normal, upright position, so you can see down into the top area of the main chassis. Locate the subchassis with a metal cover that is partly hidden under the sloping face plate of the radio. This subchassis is, more or less, laid out in the right half of the radio, and is square in shape. There are thirteen holes in the cover for alignment purposes. Carefully pry the cover off this subchassis. The circuit board here is marked "PC-1," but you can't see it because it is hidden under the sloping front panel.

2. Locate IC-2, which will be in the far left side of the "PC-1" subchassis, and off by itself, away from the other integrated circuits (photo 3). The type number of this IC is TK-10420, though the "TK" may not be marked on the chip. IC-2 is located just to the left of a crystal, X-2.

3. Locate R-148, a 47-K resistor (yellow-violet-orange) between Pins 12 and 13, on the left side of IC-2. It is clearly marked on the circuit board.

4. Cut the top lead of R-148 somewhat up and away from the body of the resistor, and spread the two cut ends apart. Leave enough resistor lead to solder to later. NOTE: The UPPER lead of R-148 is painted, so it would be a good idea to FIRST melt the paint and tin that section of the lead with solder before cutting it.

5. Solder a resistor of about 68-K ohms to 150-K ohms, 100-K nominal, (value not too critical) between the two cut ends of R-148. (I used a 100-K resistor in mine.) That's it. Test your Squelch action now! It's notably improved! You can elaborate on this simplistic version by substituting a variable resistor of about 250-K ohms in lieu of the fixed resistor. Adjust the trimmer resistor for desired, tighter Squelch action without "pumping" on critical level signals. Too high of a resistance causes "pumping," while too low resistance doesn't cure the "backlash."

How About An S-Meter For Your PRO-2004?

Would you like to be able to discern difference of signal strength among different stations? Do you use a scanner beam antenna, and if so, wouldn't it be nice to know EXACTLY where to point it for maximum (or minimum) reception? Do you experiment with different antennas, but because of the lack of an S-meter, you're not sure which antenna works best for you? Relax! The cost of this modification should be less than $5.00. The job is easy, and all you need are basic hand tools, a drill with ¼" bit, and some kind of a voltmeter, digital or analog, that is capable of reading between 1 and 3 volts, DC. Photos 4 and 5 will guide you in the following instructions:

1. Place the radio, with the case removed, in the normal, upright position, so you can see down into the top area of the main chassis. Locate transistor Q-9 which is in the far-right front area of the radio just beneath the sloping front panel. (See photo 4.) Q-9 is positioned just outside and to the right of the metal subchassis described above in the Squelch Improvement. Q-9 is visible and easy to get to. Push or gently bend Q-9 toward the front panel to expose its three leads.

2. Drill a ¼" hole in the rear chassis of the radio, wherever convenient. One good location is in the vicinity of the speaker just below its right-hand edge, on the rear panel. Temporarily remove the speaker assembly if you like this location for the RCA Jack. See photo 5.

3. Install an RCA Jack in the ¼" hole. (Radio Shack Cat #274-346.)

4. Install one lead of a .01-μF ceramic disc capacitor (Radio Shack Cat #272-131) to the center lug of the RCA jack, and the other lead to the ground lug of the RCA Jack.

5. Clip off all but ¼" of the leads of a 10-K ohm resistor. Carefully, solder one end of the 10-K ohm resistor to the collector, (center lead), of Q-9. NOTE: Pre-tin the center lead of Q-9 and the resistor leads before soldering the resistor to it. Use a low-heat solder gun with a slender tip for this connection, and you won't have to remove Q-9 from the circuit board.

6. Solder a 12" wire to the free end of the 10-K resistor. Slip a 1" section of small heat shrink tube or other insulated tubing over the wire and resistor to protect it from shorting against anything.

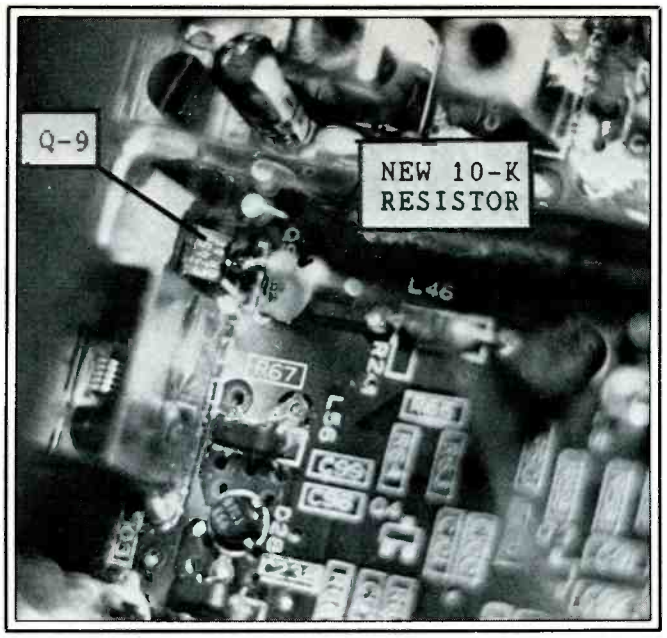


Photo 4: AGC S-meter modification.

Photo 5: AGC S-meter modification.

7. Route the wire around the several subchassis to the rear of the radio and solder the free end to the center lug of the RCA Jack.

That's it. Now connect a voltmeter to the new RCA Jack. Use an RCA Plug, Radio Shack Cat #274-339, and a pair of leads from the plug to your voltmeter. (Shielded wires not necessary.) The Black (−) lead of the voltmeter should connect to the shell (ground) of the RCA Plug. The Red (+) lead of the voltmeter connects to the center (hot) lug of the RCA Plug. The voltmeter can be either digital or analog, but a digital voltmeter offers MUCH better resolution with two or more decimal places. Now tune the PRO-2004 to a channel that has no activity. The voltmeter reading will be around +1.87 volts DC when no signals are present. Then tune the scanner to a busy channel and note the increased voltage! Extremely strong stations will "max out" at around +2.6 volts. The voltage variation at this jack is proportional to the strength of the received signal. This gives you the capability to objectively evaluate received signals and/or the performance of your antenna system.

For example, to compare two or more antennas, select a base station signal such as a NOAA Weather Station (162.xxx MHz). Jot down the Received Signal Level (RSL) indicated by the voltmeter. Then change antennas and take another reading from the voltmeter. The higher reading indicates the better antenna for that frequency. Just be aware that any given antenna can work better on *some* bands than others. You'll want to perform the above tests on as many bands as possible, and then repeat the tests in an identical manner for any other antennas you want to evaluate.

The theory of this S-Meter feature is fundamental. All we're doing is measuring the receiver's IF AGC (*I*ntermediate *F*requency *A*utomatic *G*ain *C*ontrol) voltage at the RCA Jack. The 10-K resistor isolates Q-9 and its function inside the radio from anything external, including short circuits, that you (or your kids) can stick into the RCA Jack. The .01-μF capacitor protects and filters the AGC line from introduction of external RF fields and interference through this port. While the range of the AGC voltage at the RCA Jack is rather slim, the variance is directly proportional to the strength of the received signal. That's why a digital voltmeter with two decimal places will give you all the resolution you'll ever need to fully utilize this enhancement. Radio Shack offers several digital voltmeters, two of which are eminently suitable (and economical) for this purpose: 22-188 goes for $34.95 or 22-170 at $29.95.

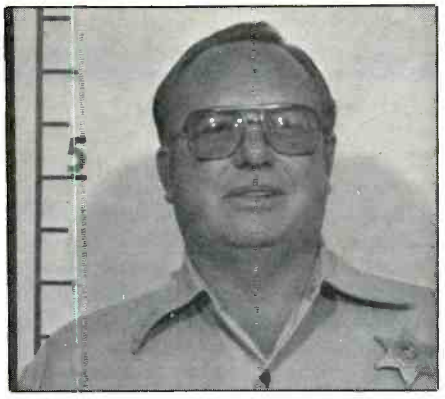
HAPPY MONITORING! **PC**

Deputy Rescues Stricken Snowmobiler

SCAN PUBLIC SERVICE AWARD

Larry Thiemann doesn't remember what happened after his snowmobile fell through the ice of Lake Waubesa near Madison, Wisconsin. Thiemann was rescued from the icy waters by Deputy Robert Pavey of the Dane County Boat Patrol and then revived in a gallant team effort after his heart stopped.

Thiemann, 32, and his brother Dan, 26, were in a group of snowmobilers. Six snowmobiles were traveling in single-file on Lake Waubesa when they ran into weak ice near the point where a river empties into the lake. The first snowmobile crashed through this weak spot, and the others followed. An unusually warm period of winter weather and an unexpected amount of sunshine contributed to the weak ice. According to an account of the incident in the *Wisconsin State Journal*, none of the snowmobiles were equipped with flotation devices.



Pavey received the call and drove his truck along railroad tracks near the lake until he spotted the location of the accident. He stopped the truck, donned a float suit and grabbed a rope before going to the accident scene, using the truck's spotlight to see the way. A bystander shouted to Pavey that two people were going under. (Except for the Thiemann brothers, the other snowmobilers reached shore safely and were treated for exposure and released from area hospitals after the accident.)

As Pavey tried to reach the two men, he fell through the ice and into the freezing water. He was finally able to reach Dan, who was lying on a small piece of ice and holding on to his unconscious brother, trying to keep him from slipping into the water.

"I had to be kind of careful I didn't disrupt the ice he was lying on." Pavey told the *State Journal*. "It was a little touch-and-go there for a while. Both of us were going down."

At this point, firefighters from nearby McFarland, Wisconsin, arrived at the scene. Pavey was able to get a rope around Larry Thiemann's wrist, and other rescuers pulled him out of the lake.

Pavey said that Dan Thiemann must also be credited with helping to save his brother's life. "It was a tremendous team effort by everybody who was there," Pavey told the *State Journal*.

But the efforts to save Larry's life had only begun. Rescuers started cardiopulmonary resuscitation when Thiemann's heart stopped. A University of Wisconsin Hospital helicopter carried both Larry and Dan to the hospital.

In the operating room, doctors tried several methods to revive Larry, including thumping on his chest, pumping warm fluids into the body, and finally an unusual method of warming Larry's blood. Larry was connected to a cardiopulmonary bypass machine which allowed doctors to control blood temperatures and let them add oxygen to blood. After his blood had been warmed, he was given an electric shock and his heart started—over two hours after it had stopped. He was off life-support systems an hour later, and awakened four hours after that, surprised to be in a hospital. It was the very cold water that drastically reduced Larry's body temperature and prevented damage to the brain and other organs.

For his part in the rescue, Deputy Robert Pavey will receive the SCAN Public Service Award, which consists of a $100 cash prize and a special commendation plaque. For making the nomination, Karl Heil will also receive a plaque. Congratulations to both of you.

SCAN PHOTO CONTEST WINNERS

Best Equipped

In this impressive set-up, the control console plays a very important part in the operation of all the communications equipment shown here.

Carey Fisher of Lawrenceville, Georgia, writes that despite the size of his shack, most of his VHF/UHF monitoring is done with a Yaesu FRG-9600 controlled by a Commodore 64 computer.

The equipment here consists of a Regency MX-7000 scanner, Regency ACT-R20/6 VHF/UHF monitor, ICOM IC-22A two-meter Amateur rig, Midland 13-509 220 MHz Amateur band transceiver, Kenwood TS-780 Amateur radio, Kenwood TS-930S/AT Amateur rig and shortwave monitor, and the already-mentioned Yaesu.

In addition to the Commodore 64 computer, Carey also uses a Kantronics KPC-1 packet radio interface and Panadaptor PR-1, Sanyo MBC-555 and HAL ST-5000 accessories.

The station console is made of ¾-inch plywood with Formica surfaces. Carey was able to pick up some of the control panels in used condition at Hamfests and then modify them for his own use. Other panels were designed and built specifically for this station.

With this control console, Carey has the capability to crosslink stations on any two different Amateur radio bands from 1.7 MHz to 450 MHz. This provides a remote base capability, in which a control station on 220 MHz can remotely (from mobile or handheld transceiver) control and operate fixed station equipment on any of the HF Amateur bands as well as the two-meter band. This control ability extends to directional antenna rotation and phone patching.

Best Appearing

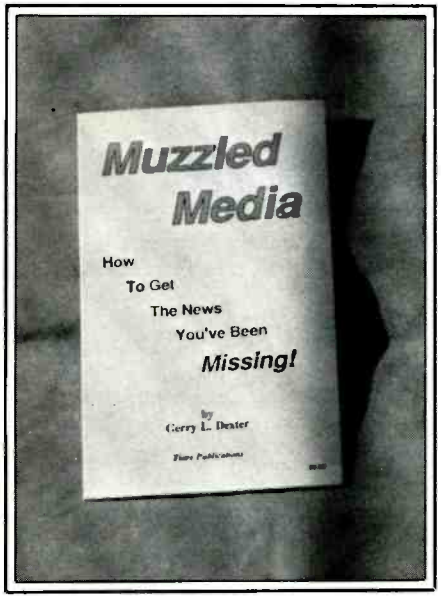
This comfortable listening post belongs to Dick Wintermatel of Phoenix, Arizona. Dick writes that he recently discovered scanning while recovering from a serious illness. As you can tell, Dick enjoys recording much of the excitement received on his scanners.

The center of the system is a Bearcat 210XL scanner, which feeds the audio track of one of two Sony HF video recorders. (A Technics cassette deck and audio switcher

(Continued on page 73)

BOOKS YOU'LL LIKE!

BY R.L. SLATTERY



The News Makes News

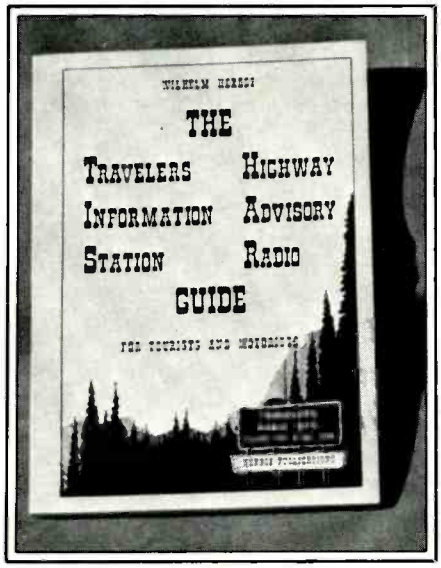
In author Gerry Dexter's new book, *Muzzled Media*, the point is made that our domestic news media (broadcast and print) doesn't cover a great many of the news events that take place around the world. The reason for this varies from lack of time/space, political or commercial considerations, or simply because those who select the news to be broadcast or printed hereabouts thought you'd be less interested in certain items than others.

In this 96-page (5½" by 8½") illustrated book, Dexter presents his premise and provides many specific examples of worldwide news events of recent days that never quite made it into the American news media. It's somewhat of a condemnation of the news media and comes to the conclusion that we are, after all, what amounts to being in a "news prison." The hope is to escape from that prison, and *Muzzled Media* suggests how the dedicated "news junkie" can go about this.

The trick is to know the when and where of the deluge of English language shortwave newscasts that pour out around the clock from most of the nations of the world. These broadcasts offer direct access to the raw news which, although often heavily propagandized, contains a myriad of items you'd otherwise never have learned about. This includes local news items, foreign press opinions, financial news, scientific developments, tourist information, cultural items, feature stories, and human interest items.

Muzzled Media tells how to tune in on these broadcasts and provides basic information on specific nations, stations, schedules and frequencies. There is also a listing of several sources of shortwave equipment.

Muzzled Media is $8.95 per copy, plus $1 shipping (in the U.S. and Canada) from Tiare Publications, P.O. Box 493, Lake Geneva, WI 53147.



Travel Without Travail

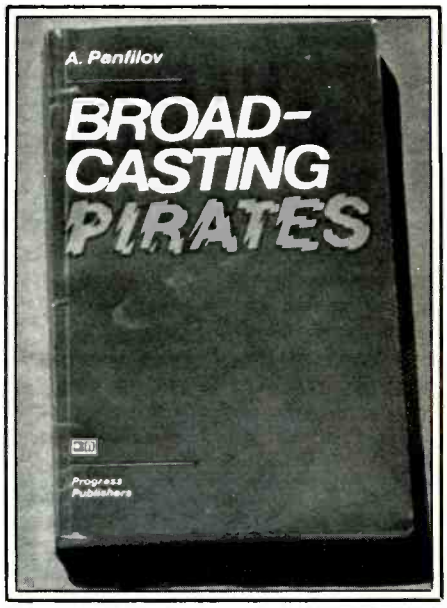
Those who travel by car frequently see roadside signs suggesting that drivers tune their car radios to certain frequencies (often 530 or 1610 kHz) for information on parking, road conditions, park facilities, etc. These special low-power broadcasts are intended for use and reception within a very limited area. The stations that transmit these broadcasts are called Travelers Information Stations (TIS).

Wilhelm Herbst has contacted numerous TIS operators and obtained from them highly detailed information concerning their individual activities. The result is his book, *The Travelers Information Station Highway Advisory Guide*. In this 168-page book, Herbst presents a state-by-state (and province-by-province) directory of roughly 250 TIS stations, providing a generous amount of data about each station including its call-sign, location, owner, address, coverage area, purpose, schedule, transmitter power, antenna type, as well as details of its recorded programming format(s). This information is amplified by many photos, maps, etc. He also provides the names of those persons at each station who appear to be in charge of things.

Everything's included here—from Walt Disney World to airports, national forests and parks, state highway repair crews, and more. Herbst obviously put a lot of time and effort into digging up as much information as possible on the inner workings of these stations that are of interest not only to motorists but also to many DX'ing enthusiasts who have discovered the challenge of seeing how many of these stations can be logged at a distance and even QSL'd. Some astute DX'ers have picked up TIS stations from hundreds of miles away, and have been rewarded with QSL cards and letters. Herbst's book gives you a look at some of the actual cards sent out by TIS facilities.

A useful book for the motoring tourist, and a worthwhile addition to the library of DX'ers who are up to the challenge of trying to log and secure QSL's from licensed broadcast band stations 10 watts and less. More than that, Herbst's book provides good browsing for anybody else interested in these unusual and little-known utility broadcasting stations. He's done his homework on them, and this book is a worthwhile first-time look at what turns out to be an aspect of DX'ing that is surely worth trying.

The Travelers Information Station Highway Advisory Radio Guide is available at $9.95 plus $2 postage/handling from Gilfer Shortwave, P.O. Box 239, Park Ridge, NJ 07656.



A Classic KGB Disinformation Book

Broadcasting Pirates, by A. Panfilov, has got to be one of the most strangely curious and totally absorbing books you'll ever get a chance to read about international shortwave radio, made doubly compelling be-

cause it was published in Moscow, USSR under the aegis of the Soviet KGB! It's anything and everything *but* factual, being an integral part of an active disinformation campaign directed against the United States. As such, it's a real piece of work and something not to be missed.

This is a 200-page book that presents itself as a probing contemporary study of shortwave radio as it is now, and has been in the past, utilized as a tactical weapon in the international war of ideas, with special attention to its place in the ideological arsenals of the U.S., England, and West Germany. It sets forth the official Soviet/KGB "party line" version of propaganda broadcasting dating back to the Nazis and traces it through to the present-day CIA, VOA, BBC, and other participants. Essentially, it is a masterful and very cleverly mixed bag of factual data and baloney the likes of which I've never before encountered. The author makes much of all of the intrigue and sinister behind-the-scenes things taking place at many shortwave stations, including RFE, Deutsche Welle, etc. There's considerable revelation about secret and undercover (so-called "black") stations, and there are copious helpings of names, places, dates, quotes, and footnotes offered to support the information.

This is the English language KGB translation of the book, which is now rare and out of print. The few (and only known) remaining copies were tracked down and, while the supply holds out, are available for your perusal. It's a twisted and rather startling version of what's going on in shortwave radio, as perceived from the other side of the Iron Curtain—a true curiosity and collectors' item. If you think our own Intelligence Community can generate tailor-made and plausable "facts" to fit almost any occasion, just wait until you get a gander at what these KGB guys can crank out! Every page of *Broadcasting Pirates* will alternately inform, amaze, astound, amuse, offend, and outrage; no communications library could ever be complete without this classic of disinformation and propaganda.

In total, it presents many insights into the thinking of our nation's adversaries and how they justify their own somewhat distinctive use of the shortwave bands, using double the number of frequencies needed, and jamming much of what's left. Unfortunately, you seldom get the chance to see anything like this, especially relating to shortwave radio. Tracking down the remaining cache of available copies took effort and dedication. It was well worth the trouble, even though the number of copies obtained was relatively small and no more will be forthcoming.

The English translation of *Broadcasting Pirates*, by A. Panfilov, is available, in limited quantity, at $11.95 per copy (one to a customer) plus $1 postage/handling (to addresses in the U.S./Canada/APO/FPO). Order it from CRB Research, P.O. Box 56, Commack, NY 11725. PC

Recalling Radio

Recall Those Thrilling Days Of Yesteryear When Radio Was Called "Wireless" And A Good Cigar Was A Freem!

BY ALICE BRANNIGAN

In the 1920's gangster era (as differentiated from the 1980's gangster era), bank robbers and bootleggers made clean getaways time after time, to the great consternation of the police. Those were the days when most law enforcement agencies weren't radio-equipped so that they might quickly dispatch patrol cars to the scene of the crime.

Recently, the prestigious Institute of Electrical and Electronics Engineers, Inc., made official note that in 1928, "a dedicated Detroit patrolman and an electronics buff devised the first successful one-way radio link between police headquarters and cruisers" so that "critical news of crimes in progress could . . . be transmitted from the station house to police cars as they drove."

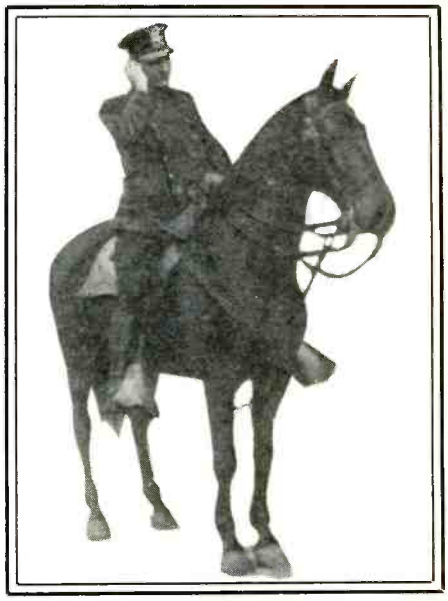
The IEEE therefore designated this, the "Detroit Police Department's first use of mobile radio, and two subsequent landmarks in mobile-radio history, as Electrical Engineering Milestones." IEEE cited the other two milestones, including the Bayonne, NJ Police Department's pioneering in two-way AM radio in 1933, and the two-way FM first used by the Connecticut State Police in 1940.

IEEE's literature speaks of how electronics was a fledgling science when "Detroit Patrolman Kenneth Cox and Robert L. Batta . . . built a stable radio receiver and antenna system. Their successful one-way radio, coming after years of trial and error, was installed in April 1928. The Detroit Police Department made history as the first to dispatch patrol cars regularly by radio." The IEEE then goes on to relate how "two-way AM mobile radio was developed five years later in March 1933 by Lieutenant Vincent J. Doyle of the Bayonne, NJ Police Department, and radio engineer, Frank Gunther."

The IEEE's official announcement was followed, this past Spring, by formal dedications at the "Milestone Sites." The IEEE is the world's largest technical professional society with more than 280,000 members in 130 countries. Therefore, I almost hesitate to be the first one to meekly stand up and point out that while they know lots about volts, resonance, and harmonics, they may be out-of-phase when it comes to things mainly historic.

Let's not tell the IEEE that police radio kicked off many years before they said it did. The May 1922 issue of a magazine called *Illustrated World*, ran an article entitled *Catching Crooks By Wireless* (by Hugh L. Benson) in which existing police dispatch systems were discussed and described.

In 1922, this Chicago patrolman was equipped for receiving police dispatch messages. Note the small earphone at his elbow. His shield isn't on the wrong side—the issue of "Illustrated World" that ran this photo printed it backwards!

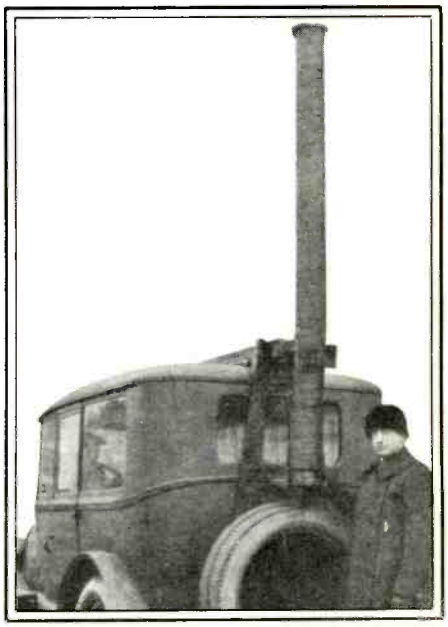


This 1922 Chicago cop hasn't got an earache. He's receiving police bulletins on his portable receiver. Who said cops horse around?

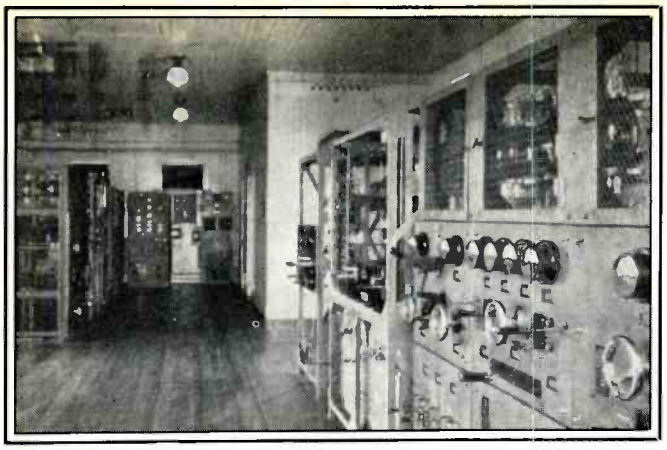
For one thing, this 1922 story relates how broadcasting station KDKA in Pittsburgh, PA would respond to major crimes by "flashing full details over a 500-mile radius, and every motorcycle policeman, every local authority, almost every garage and hundreds of roadhouses and farms are on the lookout for those attempting a getaway." It goes on to say that "in some districts the cops on the road receive [the information] over their own small radio outfits."

Furthermore, the author tells how, in 1922, "many cities have equipped their police with radio outfits. Chicago's flivver squads, for example, demonstrate what can be done in this respect. The . . . squads that tour that city are kept constantly advised of crime movement from the city's own radio station." A photo is shown of a 1922 police chief's car that is equipped with receiving and transmitting equipment hooked up to a mobile antenna that looked like a stove pipe attached to a fold-over hinge.

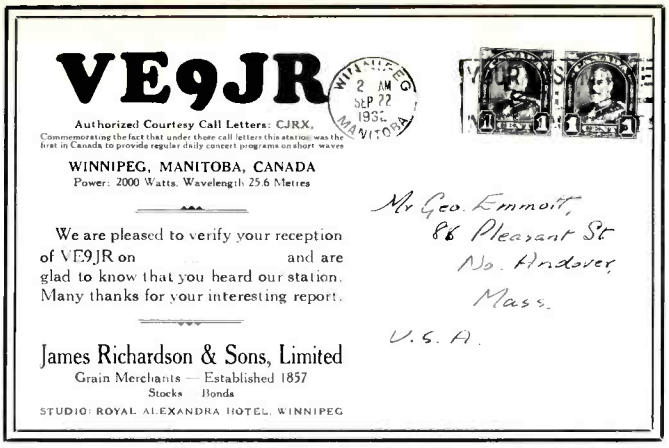
It would certainly seem that, even in 1922, regular and reliable police dispatching went out to foot-patrolmen, horseback units as well as squad cars. More than that, there were also mobile units equipped with transmitters as well as receivers. This would



This, believe it or not, is a two-way radio-equipped police mobile unit that existed eleven years prior to the date the IEEE says they were regularly used! The photo was taken in 1922 and appeared in a magazine dated that year.



This gives you an idea of how shortwave broadcaster VE9JR looked in 1932.



The business side of VE9JR's QSL card states that it was also known under the callsign CJRX.

certainly make it look like the folks who have recently been congratulated for accomplishing these feats in 1928 and 1933 may have somehow managed to "re-invent the wheel."

Let's keep it our little secret, okay?

Message Service

Calling Joel O'Brien of Vernon, VT whose information about Coast Guard lightships appeared in the October 1986 issue. We no longer have your address on hand here, and someone is trying to reach you. Please contact John L. Crist, WA5RSS, 3423 Park Lane, Dallas, TX 75220. John served on the old Portland Lightship off the coast of Maine and he's trying to locate the address of the United States Lighthouse Society. John hopes that Joel, or one of our other readers, may be able to send him that address. We hope so, too!

Man, Oh Manitoba!

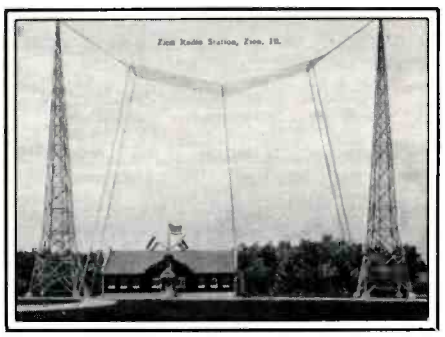
In the early 1930's, when international shortwave broadcasting was beginning to gain its worldwide reputation, station VE9JR was doing its share for the cause.

Operating from the Royal Alexandra Hotel, Winnipeg, Manitoba, VE9JR claimed to be the first station in Canada to provide regular daily concert programs on shortwaves. This station operated on 11720 kHz with 2 kW, and had a second outlet on 6150 kHz (callsign: VE9CL). The VE9 prefix, of course, indicated that the stations were licensed as experimental facilities, although VE9JR had also been assigned a regular commercial broadcast callsign, CJRX.

These stations were licensed to James Richardson and Sons, Limited, grain merchants. The Richardson operation also included two other stations, CJRM in Moose Jaw, Saskatchewan, and CJRW in Fleming, Saskatchewan. Both of these stations operated on 665 kHz in the early 1930's. Both ran 500 watts.

A 1932 QSL from VE9JR was submitted to us by Ron Boucher of Manchester, NH. This large-size card has the veri information on one side and a photo of the station's transmitting gear on the other. VE9JR wasn't the type of experimental station that had a breadboard transmitter feeding into a wire antenna on the roof. The photo shows VE9JR in a large room filled with impressive equipment mounted in six-foot racks.

Ron is an avid collector of antique radio receivers and he occasionally publishes a fine catalog of the equipment that he offers for sale to other collectors. He sent us his latest edition and it contained some beautiful gear. Collectors who'd like to see the next edition of Ron's catalog can ask for one (please enclose an uncancelled American 22-cent stamp with your request). Ron's address is: Ron Boucher, 376 Cilley Road, Manchester, NH 03103.



Station WCBD was impressive looking but short-lived. Here is the transmitting plant in Zion, IL.

Flat Earth Radio

Does everybody remember station WCBD in Zion, IL? Certainly you'll not soon forget the story *POP'COMM* ran on this early broadcaster that was operated by Wilbur G. Voliva, leader of a religious group that insisted that the world was as flat as a deflated beachball.

Running 500 watts on 870 kHz in the mid-1920's, Voliva's fiery oratory made him a national celebrity sixty years ahead of the well-known TV evangelists of today, and he was equally controversial. Not only that, Voliva's religious organization operated many highly profitable industries that manufactured and nationally sold shoes, clothing, brooms, cookies, ice cream, and many more items.

A good look at the WCBD transmitter building, antenna system and towers was supplied by Jerry Rappel, KA0BLE, of Davenport, IA. The building, decked out with flags, is quite a handsome structure. The antenna is center fed, consisting of four wires. The diagonal wires at each end of the antenna were intended to prevent it from swaying in the winds that sweep in off Lake Michigan.

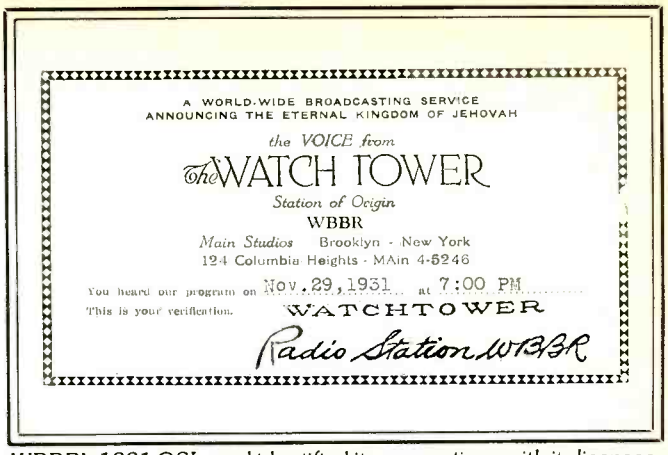
Jerry, who has been a Ham for ten years, is active in SWL'ing and antique radio collecting. He spends his days as an engineer for TV station WQAD in Moline, IL.

Witness To Radio

While WCBD in Zion had a relatively short broadcasting career, religious station WBBR lasted much longer. WBBR went on the air around 1924 with 500 watts on 1100 kHz. This station was licensed to the People's Pulpit Association, 124 Columbia Heights, Brooklyn, NY. The transmitter was located in Rossville, a community in the Staten Island section of New York City. Throughout its lifetime the station was associated with the *The Watchtower*, the publication of Jehovah's Witnesses.

By 1926, WBBR had moved to 720 kHz and a few years later it jumped to 1300 kHz with 1 kW. WBBR remained on 1300 kHz through the 1930's, shifting to 1330 kHz and upping its power to 1 kW just prior to WWII. At that time the name of the station's licensee was changed to the Watchtower Bible and Tract Society. On 1330 kHz, WBBR shared time with 5 kW broadcaster WEVD (English/Yiddish/Italian language programming). That's the way WBBR rode out the rest of its existence, which extended through most of the 1950's. WBBR's spot on the dial was eventually taken over

WBBR, a religious station in New York City, used this three-tower antenna system during the 1950's just before it went off the air.



WBBR's 1931 QSL card identified its connections with its licensee, a religious group.

by WPOW and then by present station WNYM (5 kW). WEVD dropped its AM coverage and presently operates only on FM (97.9 MHz).

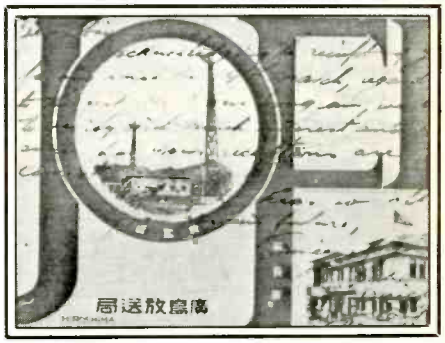
The WBBR transmitting plant on Staten Island was 18 miles from the station's Brooklyn studios, with programs carried by telephone lines. In the photo we have of the WBBR facilities, probably from the 1950's, we see a rural site adorned with three 411-foot towers. The middle tower has a small microwave dish at its mid-point.

Joe Hueter, of Philadelphia gives us a look at the QSL card he received from WBBR in 1931, verifying his reception of that station. Other cards we have seen reveal that sometimes WBBR sent out EKKO stamps with their veries.

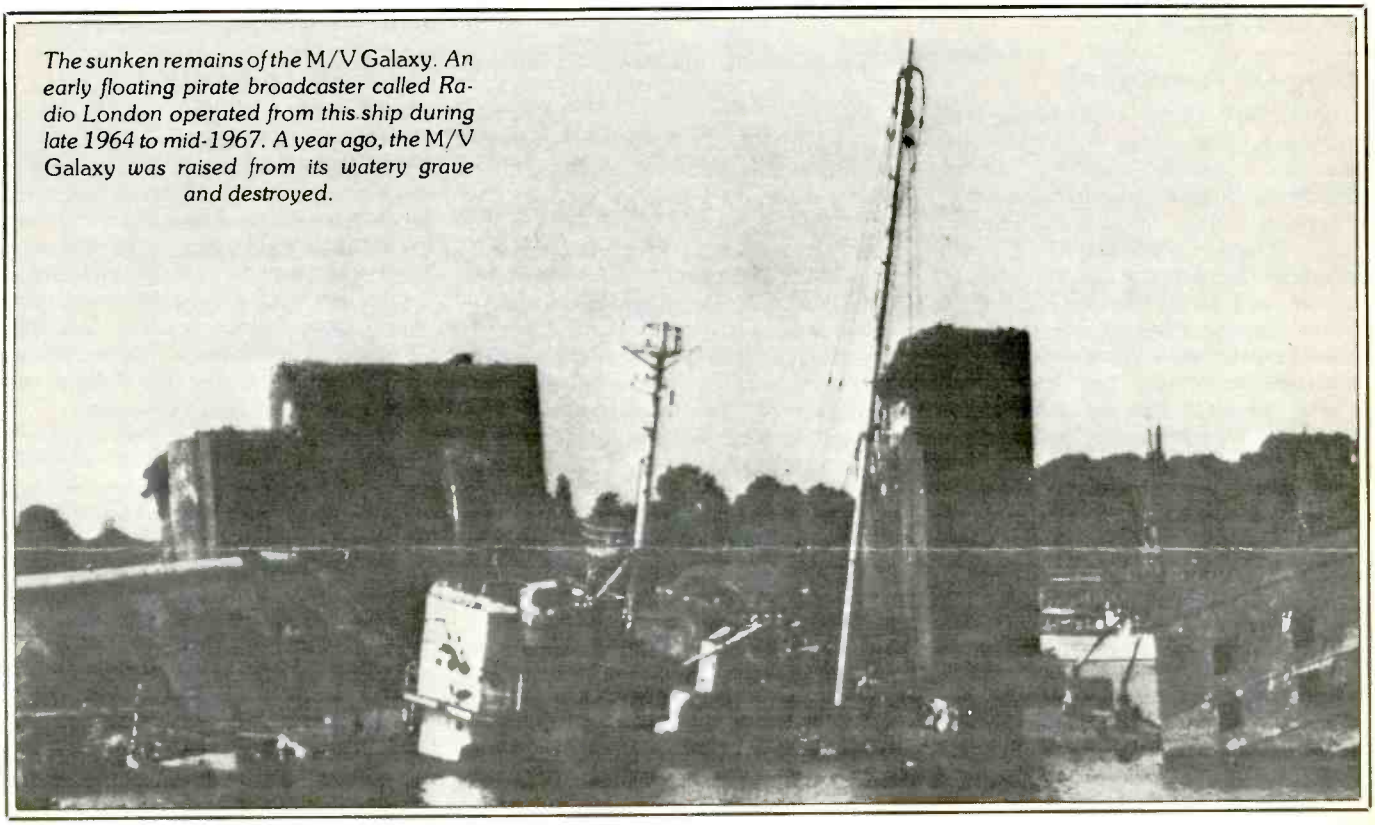
Trans-Pacific BCB DX

Joe Hueter, by the way, is a reader who has been extremely supportive of our efforts in these pages, generously offering us access to his vast collection of QSL's dating back many years. From the hundreds of QSL's he has been sent by BCB stations, we asked him to select the one veri of which he was most proud.

Apparently, that wasn't a difficult decision because Joe feels that his QSL from JOFK in Hiroshima, Japan is the star of his collection. This QSL was received by Joe in



In the 1930's, JOFK was a 10-kW BCB station in Japan that put out a fantastic signal. This QSL was sent to a DX'er in Philadelphia.



The sunken remains of the M/V Galaxy. *An early floating pirate broadcaster called Radio London operated from this ship during late 1964 to mid-1967. A year ago, the* M/V Galaxy *was raised from its watery grave and destroyed.*

the 1930's for his reception of the 10 kW station that operated on 830 kHz. Think about it, BCB reception from Japan to Pennsylvania, a real feat!

The QSL itself has a yellowish-brown background. The verification message is written, by hand, in English. A photo of the station is shown at the lower right hand corner of the card.

Currently, JOFK is still in Hiroshima and belongs to the Japan Broadcasting Company (NHK). It operates on 1071 kHz with 20 kW. Even with 20 kW JOFK probably doesn't get many reports from Pennsylvania!

All At Sea

Don Turney, WB2EDR, of Pompton Plains, NJ noted in *Warship International* magazine that the vessel *Galaxy* had sunk. The magazine understood that it had once been a floating radio station and asked if anybody could provide further information on the former warship (a former *Admirable* class minesweeper).

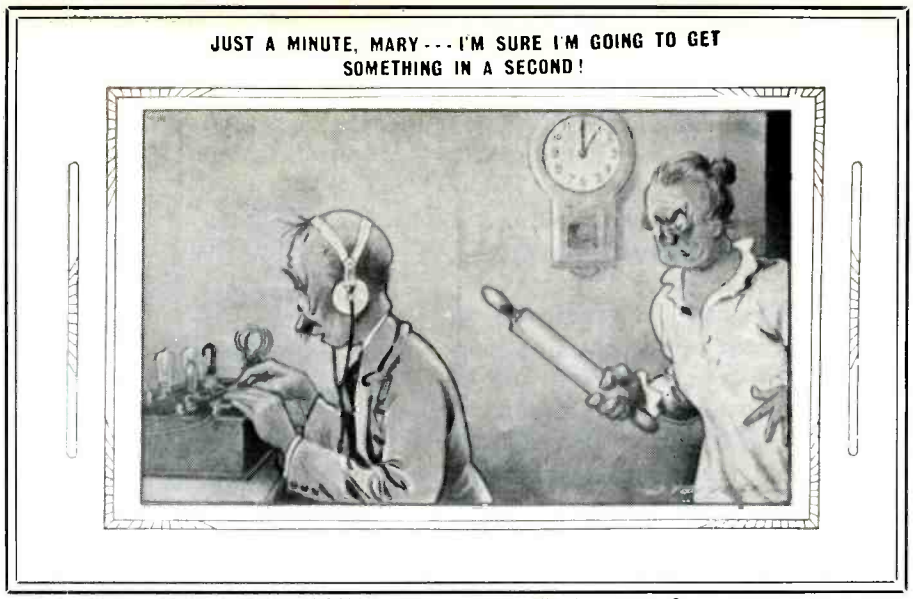
Could we solve the mystery? Sure! The old *Galaxy* had served as the home for an early British pirate station known as Radio London. Anchored 3½ miles off Frinton-on-Sea, the station started testing on December 19th, 1964. Regular broadcasts began December 23rd, and the station operated until it was shut down at 3 p.m. on 14 August 1967.

Operating on 1130 kHz, Radio London ran a 50 kW RCA Ampliphase transmitter. Initially, the station used 17 kW, but gradually increased its power to a higher rating. Some said that the station eventually ran as much as 75 kW! The signal was shunt-fed to a 212-foot mast.

Radio London, which identified as *This Is Big L* and *Wonder Radio London*, cost a half-million British Pounds (Sterling) to place on the air, claimed that it had 12 million listeners in the U.K. and 4½ million on the continent. Radio London was owned by the Marine Investment Co., Inc., of Grand Bahama Island, and was backed by American investors.

The ship itself was built during WWII and was one of about 150 AM-type vessels, 185 feet in length with steel hulls, similar to the PCE-type escorts. They had multiple-unit diesel-electric plants running twin screws. *Galaxy*, however, was a name given to the ship after its service with the U.S. Navy. After its life as a floating pirate broadcaster, *Galaxy* sailed to the Deutsche Werft in Hamburg, FRG. Presumably, it was to be given an overhaul and be refitted for some other purpose. When it arrived it was still flying the Honduran flag used during its bootleg broadcasting career.

What with one thing or another (probably due to the owner's lack of funds, or his legal entanglements) the arrangements for the work were never completed. Eventually, the *Galaxy* was towed over to the old HDW facility at Kiel-Dietrichsdorf where it sat amidst the twisted shambles that remained from WWII aerial bombings thirty years earlier. At some point, it simply foundered at its moorings and a year ago it was raised and finally demolished.



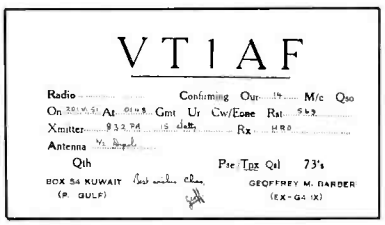
This 1920's radio cartoon is still relevant, no?

No News Is Good News

Larry Marks, of California, asks me to settle a bet about who used to begin his radio broadcasts with the line, "Ah yes, there's good news tonight." Larry says that when he saw H.V. Kaltenborn's photo not long ago in *POP'COMM*, it reminded him of the famous voice he used to hear on the radio when he was a youngster. Problem is that, although his XYL can't remember who it was that used that line as his trademark, she says that it definitely wasn't Kaltenborn. A couple of lobster dinners versus a pair of headphones are the spoils of the bet that rides on my answer.

Historic Ham QSL's

For many years, the small Middle East nation of Kuwait was little-known outside of its own local region. The nation has been ruled by the Al-Sabah dynasty for almost 250 years, although the British government handled Kuwait's defense and foreign relations from the late 1900's until 1961, when Kuwait became a fully independent state.


VT1AF

Radio ..... Confirming Our ..... M/c Qso

On ..... At ..... Gmt Ur Cw/Fone Rst 5nn

Xmitter ..... Rx .....

Antenna ..... Pse/Tnx Qsl 73's

Qth

BOX 84 KUWAIT (P. GULF)

GEOFFREY M. BARBER (EX-G4 IX)

Located at the northern end of the Persian Gulf, Kuwait is smaller in size than the state of New Jersey. Primarily an Arabic nation, it has only been during the past few years that Europeans and North Americans had any occasion to be there for more than a day or two at a time. The nation is, of course, oil-rich and that has been the nation's major export for forty years.

Kuwait was devoid of Ham activity until about 1950. Prior to that, the nation didn't even have a callsign prefix for such purposes. The first sign of Ham "life" came in 1950, when the ARRL's official DXCC country list showed that there were stations using an "unofficial" prefix of "VT," which came from within the British assignment block. Undoubtedly, these stations were all operated by the military, the handful of Europeans who were there in government service or were with the oil companies. Chances are that the stations simply set up shop and, in the absence of anybody to tell them to shut down, operated without any problems.

By 1953, the British government had started issuing official licenses there using the prefix MP4. Upon becoming independent, Kuwait assigned its Hams callsigns commencing with the prefix 9K.

Our QSL comes from that *Twilight Zone* era when there were no official licenses. Station VT1AF was operated by Geoffrey M. Barber, ex-G4IX. His 15-watt CW signals fed into a dipole were worked by an American operator on 14 MHz. But that was in 1951, and those days are gone forever!

The chap on the left is Arnie Sposato, KA2TYA, the Advertising Manager of POP'COMM's *sister publication,* CQ Magazine. *That's me on the right, during a recent visit to the PC/CQ offices while trying to prove that I really do exist.*

My answer is that the question has me totally stumped, and although I have read about H.V. Kaltenborn, I'm not personally familiar with the sound of his famous voice, or anything he might have said. One of my regular sources, however, is familiar with that line from the late 1930's and WWII world of broadcasting and reports that you're going to be eating lobster very soon.

I'm informed tha the line was always said by radio commentaror Gabriel Heatter, who became prominent during his stint as host of a program called *We The People*— an ancestor of TV's *Real People*. Kaltenborn was the guy who predicted that Thomas Dewey would win the 1948 presidential election. When Harry Truman won, Truman made fun of Kaltenborn by imitating his clipped diction and nasal voice, and repeating Kaltenborn's incorrect prediction. Sorry, Larry. I'm reasonably certain that you regret you asked.

Male Versus Female

As Larry has demonstrated, there's never a dull moment between the Yin and Yang of life. And it's nothing new—radio has never ceased to be a great instigator of those problems. In this early-1920's radio cartoon we see a pioneer DX-chaser in a happy state at two in the a.m. The missus seems less than pleased at his interest in trying to hear KDKA, KGO, or WBZ. In his innocent bliss, he mutters, "Just a minute Mary . . . I'm sure I'm going to get something in a second."

Good thing he's wearing headphones to cushion the konk. I guess these days she'd just drop the microwave oven on his noggin.

For Alice's Sake

We'd be pleased to hear from our readers with information for these pages. That means photos, news items, old QSL cards or letters. We can't return anything, but we're just as happy with good quality repros made on an office copier. PC

THE HAM COLUMN

DAVE NEWKIRK, AK7M
AMERICAN RADIO RELAY LEAGUE HQ

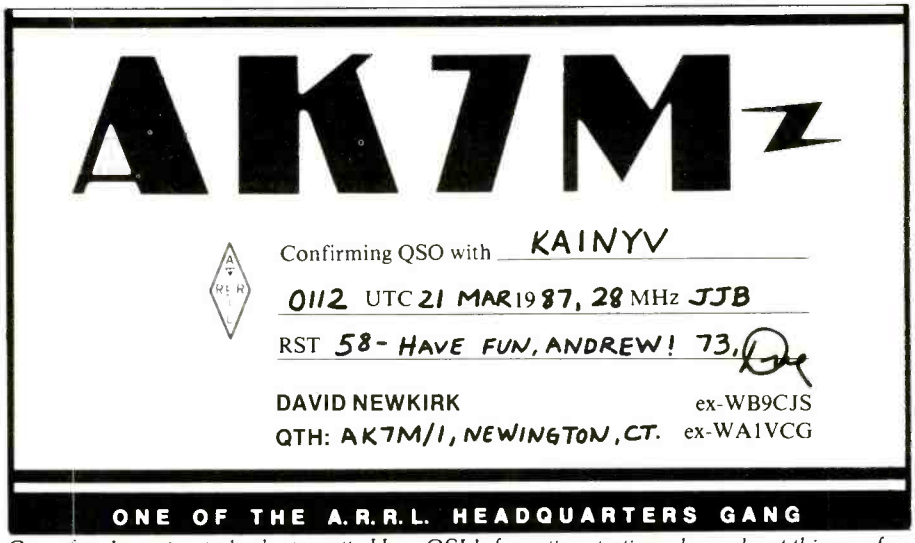
GETTING STARTED AS A RADIO AMATEUR

FCC Gives Beginning Hams 10-Meter SSB And Oodles More

Humans have been speaking to each other for some time now. Come to think of it, the telephone ain't no spring chicken, either. Huh—so if this is 1987, and if the Novice-class Ham license is supposed to be for folks interested in having fun with *modern* telecommunication, why not let those Novices—gasp—*talk* to each other on the Ham bands?

It happened March 21, 1987, at 0001 hours Coordinated Universal Time (Friday afternoon and evening, local time, in North America): Expanded operating privileges went into effect for over 166,000 of the 420,000 radio Amateurs under FCC jurisdiction. No longer will entry-level Hams—the Novices—be stuck with operating only code, code and more code in a multimode radio world. Now they're plugging in microphones, computers and TV cameras and taking to the air with new voice, data and image communication privileges.

Novices account for about 81,000 Hams out of that 166,000 total. The remaining 85,000 or so licensees, Technician-class Hams, further up the Amateur licensing "ladder" than Novices, got something out of this Novice Enhancement deal, too: Novices *and* Technicians can now operate *10-meter SSB!* FCC expects at least 21,000 people a year to get started in Ham radio as Novices now that Novice operation means more than being stranded in a desert of dits and dahs.



Gee, if we're going to look at exotic Ham QSL's from time to time, how about this one for starters? Note the time, date and frequency of the contact. Yep, it's time for Novice phone fun: This card's for Andrew, KA1NYV, the first Novice I talked to on 10-meter SSB! He's fifteen years old and goes to high school in Glastonbury, Connecticut.

What About Them Oodles?

The nitty-gritty of Novice Enhancement is that Novices now have *over 90 times more radio spectrum space* than they had before March 21. (Before: 300 kHz, code only. After: *27.41* MHz, with voice, code, radioteletype, facsimile, TV.) There are two *new* Novice bands at 221.10-223.91 MHz (1.25 meters, VHF) and 1270-1295 MHz (23 centimeters, UHF). Novices can now operate through repeaters, send computer data, and transmit facsimile and TV signals.

As was the case before March 21, the Novice license is good for ten years, and is renewable. Also as before, examinations for Novice-class Ham licenses are administered by volunteer examiners, now by two examiners instead of one.

Do you still have to know the Morse code? Yes, but at only 5 words per minute. Novices have a lot of fun using their shortwave code privileges in the 80-, 40-, 15- and 10-meter Amateur bands, especially for long-distance work at low power, when code is often the only way to get signals through. But if code isn't your bag, you can give the Morse key a rest and try a little . . .

10-Meter Phone Fun

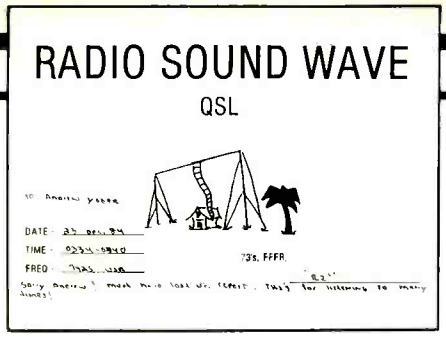
Have *you* tuned in any 10-meter Novice SSB operators yet? The new 10-meter Novice phone band stretches from 28.3 to 28.5 MHz, and upper sideband operation is the standard there. As CB operators know, there's DX gold in them thar 27 and 28 MHz hills even near the bottom of the sunspot cycle—where we (unfortunately) happen to be right now. Sunspots or no, summer is the hottest time for *sporadic-E* propagation—a source of excellent DX signals from distances of 400 to 2600 miles out—and 10 meters is a band where sporadic-E DX really sizzles. Even without the magic of E-skip, there *are* surprising DX openings these days on 10, all the way down to South and Central America, as gleeful Novice SSB'ers found out right away on March 21!

Even when DX skip cools off on 10 meters, it's a good band for local "intercoms" and neighborhood networks around the clock. In the Hartford area, one group meets every Sunday night on 28.400 MHz. I've also heard of a Friday-night 10-meter Novice net in New York City, but I don't know what the net frequency is. Where's the 10-meter net action in *your* area? Write and tell me about it, and I'll cover it here. How's 10-meter DX for *you*? Make with the pen, typewriter, or scrawl it in blood, but let me know. What? *No* 10-meter phone fun in your area? Well, then, *start* it!

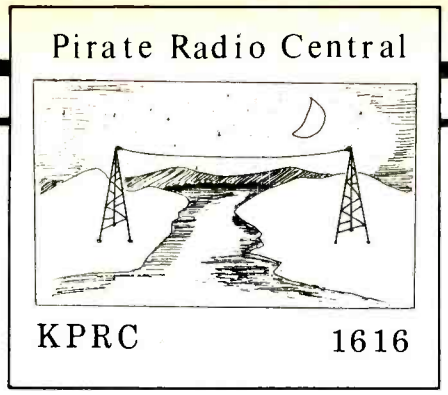
CB'ers have proven how effective 27 MHz is for mobile operation, and 10-meter mobile Ham work is a piece of cake, too. In fact, if you've got room for a good CB skyhook, you've got more than enough room for a 10-meter antenna, on the car or at home. (Even *in* the home, it turns out: The 10-meter antenna at AK7M is a simple folded dipole, just under 17 feet long, made and fed with 300-ohm TV ribbon cable and thumbtacked to my apartment wall. An antenna tuner completes the ensemble. Yes, this is an *indoor* antenna, folks, and it gets out just fine on 10 meters with my 20-watt SSB transceiver.)

How do you get a Novice license if you don't already have one? Drop a line to Novice Phone Fun, American Radio Relay League, 225 Main Street, Newington, CT 06111, and we'll send you the info, and the full details of the new Novice and Technician privileges, too.

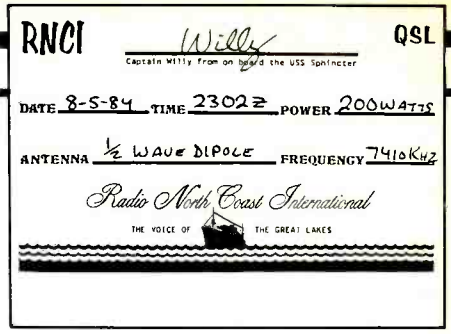
Huh? You're *already* licensed, and a quick tune of the 10-meter Novice phone band seems to show that "nobody's there"? There's one way to know for sure: Call CQ!



Radio Sound Wave is one of the few stations to QSO in SSB.



KPRC, the famous NYC MW pirate, was once jammed by "The Pirate Blaster."



RNCI is occasionally heard making personal contacts in the 41 meter band.

DX'ing Pirate Utilities

Pirate Broadcasting Behind The Scenes

BY ANDREW YODER

Pirate radio is a novelty of the radio spectrum that is the most unpredictable and hardest to verify. These stations generally attempt to broadcast music or views presently unavailable on commercially syndicated radio. Most pirates (or 'free radio stations,' as they often wish to be called) broadcast very sporadically with low-powered transmitters.

Free radio on shortwave began to take shape with more frequent broadcasts around 1976, although the stations were occasionally heard long before that date. Around this time, operations were generally inclined to pop up and just "have a little fun on the air." Most of these stations only played rock music with short identifications, while technical knowledge (as well as program originality) was quite limited. Many were obviously the result of radio amateurs with high ambitions of broadcasting.

With the coming of the 1980's, free radio took on a new look—more professional broadcasts with a much greater knowledge of shortwave and broadcasting. It is probable that many of these new operators read about pirate broadcasting in the now-defunct publications, *S9* and the Free Radio Campaign's *The Wavelength*. As these new sources of information advanced in availability, many operators made contact with other stations, which occasionally resulted in broadcasting leagues or federations.

A need for the quick and easy exchange of pertinent information grew as the federations became closer. Because the information contained in written letters tends to stagnate quickly, a few pirates came to realize the importance of live communications. As telephone bills could reach astronomical proportions, (the Voice of Venus once had a phone bill hit the incredible sum of $500 in one month!) some stations found it necessary to use another alternative—the radio.

The results of this new "pirate complexity" are pirate utilities; the hardest to hear, identify, and verify stations. In plain English, this means great news for the avid shortwave listener.

Pirate utilities are best defined as: any radio or TV communications provided by a free radio station, but not intended for outside listeners or for the general public. This includes two-way communications, feeders, jammers, and transmitter tests. Few stations give regular (or even irregular) identification and, since a large body of the transmissions involves times, frequencies, and dates of future broadcasts, the stations will rarely verify any such reports. This adds to the devious atmosphere and the hidden mystique of the hobby.

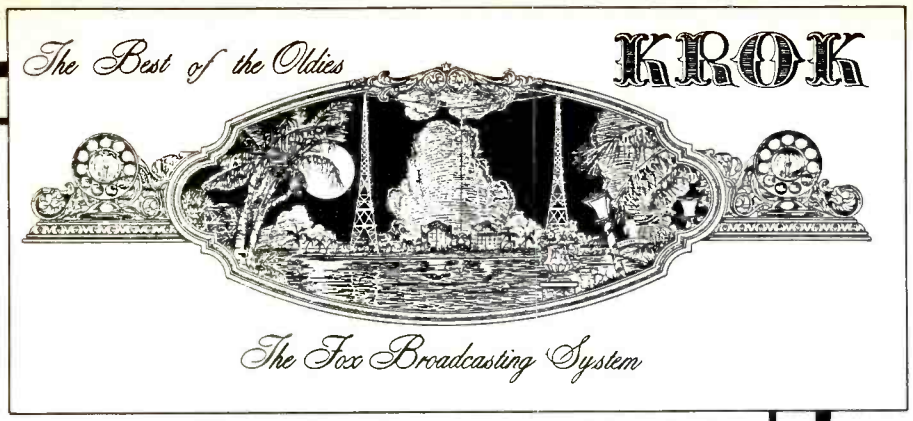
In Europe, two-way communications are frequently heard, and stations rarely attempt to cover their identities, as the majority are, for the most part, operated in the open anyway. The Federal Communications Commission (FCC) takes a stronger line on the pirate situation, and thus the more clandestine-style approach is used.

Unfortunately, most pirates find radio contacts impractical and overly dangerous. There is usually no need for long-distance communications as most operators are either trying to fill a community service or they view their activities primarily as just a little fun. Those stations broadcasting as a community service would only need to contact people nearby, while those doing it as a joke would find it senseless to risk a possible bust from the FCC over a mere prank.

Although it would seem more confidential for operators to contact each other in the Amateur bands with fake callsigns, most QSO's tend to take place within the 41 meter pirate band (between 7350 and 7490 kHz). Radio North Coast International (RNCI), KROK, Zeppelin Radio Worldwide, and Radio Sound Wave were frequently heard in contact with each other throughout 1985. These talks consisted mainly of who was supposed to appear next in pirate fests, etc. WMTV, The Voice of the Night Hawk, WROD, and one of the many incarnations of The Voice of the Purple Pumpkin have been heard in recent years attempting to contact other stations. KROK, Radio North Coast International, Zeppelin Radio Worldwide, Radio Sound Wave, and WMTV all verify readily.

Radio Amity, a 1983 station, used outside radio contacts for a totally different reason—for finding loop telephone numbers and for receiving reports from friends on the reception of the broadcast. Several of the messages exchanged included: "Hey Amity, your audio is breaking up," and "Radio Amity is looking for a loop."

WBST, KROK, and The Voice of Democracy have been known to test their transmitters only with their opening and/or interlude signal. WBST uses horror movie sounds with the song "They're Coming To Take Me Away;" KROK uses the first 5



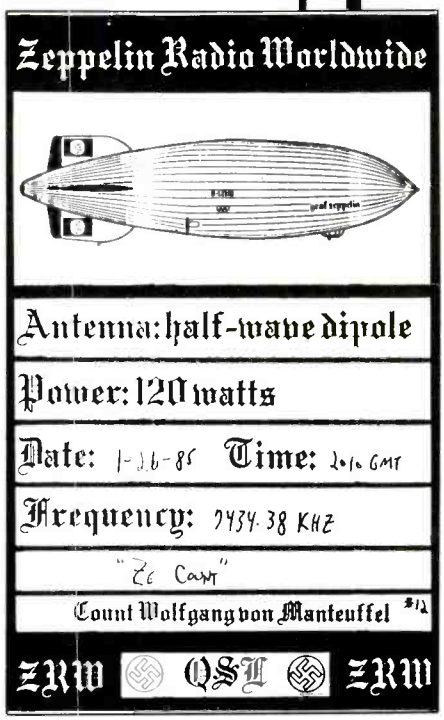
A QSL card from KROK, "the best of the oldies."

notes of the "Close Encounters" theme, and The Voice of Democracy uses the first 12 notes of "The Star Spangled Banner." Unfortunately, although The Voice of Democracy and WBST both have addresses, they have notorious reputations for not replying to anyone.

Up until this date, the method of feeding a transmitter with programming from another location via radio hasn't been extremely popular. Due to the cost and complexity of feeding a transmitter with a radio or telephone link, stations rarely ever use feeders. Most stations that make use of feeders, find it more feasible and safe to use telephone lines rather than another transmitter. WRAM, a shortwave pirate that was widely heard between 1980 and 1983, aired rock music and used phone calls that were fed to the transmitter over Citizen Band frequencies. A station known as KRKY announced in several pirate magazine articles in 1981 that they would "connect to the transmitter via UHF link." Unfortunately, KRKY never made it to the air.

Deliberate jamming by free radio stations is rare, but a reality. KPRC, a famous mediumwave pirate from the New York City area, was jammed by a station early in 1984 using LSB. The jammer called itself "The Pirate Blaster—big and small, we stomp them all" and made comments, even answering some of the listeners' questions with a fake oriental accent! The racist American clandestine/pirate, The Voice of Tomorrow received extreme interference during a broadcast on 48 meters, ironically from the Israeli off-shore station, The Voice of Peace. (The jamming was probably unintentional).

While relays of legal stations are not exactly pirate utilities, since they are usually meant to be heard by the public, they are just as mysterious. Some of the stations relayed in the past several years include: AFCN, CFMI, CHNO, KVOO, WTOP, WPGC, WWDC, WAAF, WLW, WLS, and WPFM. Although nearly all relays are from old, pre-recorded programs, one notable exception, KABF 88.3 from Little Rock, Arkansas, was widely heard with live programming on 41 meters in late 1984 and early 1985. The announcers were very excited about being heard across the country on shortwave, had call-in shows, and even told listeners that the relays would be verified by KABF. In another exceptional case, one mediumwave station had been widely heard throughout the northeastern U.S. between 1620 and 1632 kHz in 1986. Because it only broadcasts segments of programs from legal stations without identifying itself, some listeners dubbed it "The Mystery Aircheck Station."



Pirate utilities are extremely difficult to verify because very few ever announce ID's or addresses. However, most transmissions that are identified with a call and have an address will verify correct reception reports.

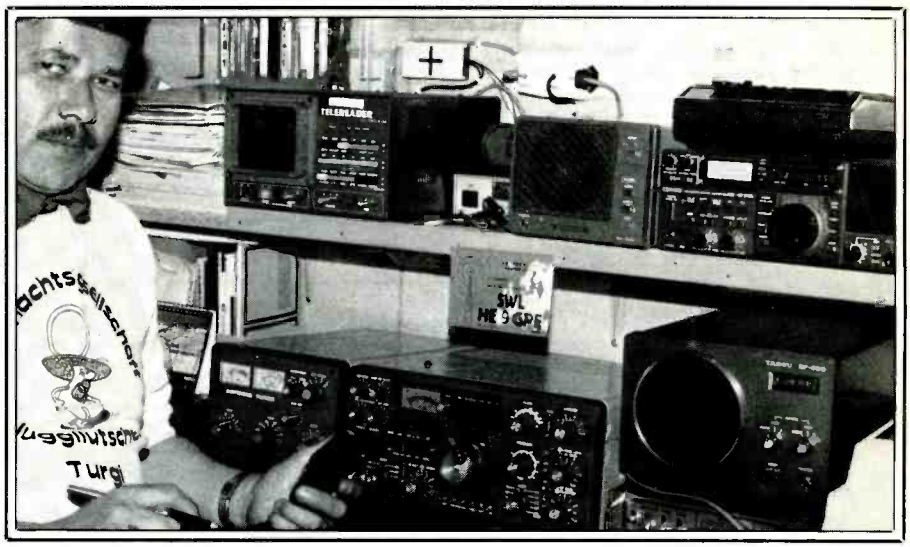
As unlicensed radio and cheap technology continues to grow, pirate utilities will undoubtedly do the same. The possibilities are endless. After all, several pirate TV stations are active in Europe and with the work of Captain Midnight on the HBO satellite, anything could happen next! Good luck DX'ing the pirate utilities! PC

18 Great Ways to Improve Your DX Reception

Here Are Some Ideas That Should Do Wonders At Your Station!

BY "ED", KCT1HN

Editor's note: While the author is primarily involved in monitoring utility ("ute") and scanner stations, much of what he says is applicable to other aspects of DX'ing. As such, all DX listeners should find it to be valuable.



A well-equipped world-class monitoring station operated by Sigi Bill of Turgi, Switzerland. Sigi holds Ham license HB9SQK, and has also been issued the SWL station callsign HE9GPE by the Swiss Government.

Everybody has a different view and approach to monitoring and communications. We can compare it to fishing. Some folks get a bamboo pole and some package-wrapping cord and create a fishing rod. To the end of the cord they attach a cork from an old bottle, plus a sinker and hook of random size. Using this apparatus and an earthworm for bait, they can stand on a bulkhead or a low bridge and try their luck. Eventually they'll catch something, and perhaps it'll be enough for dinner. If so, they'll be satisfied and good luck to them!

To others, fishing is a high-adventure sport, an art form, a lesson in applied science, and an intellectual challenge. That it may also produce a fish dinner is a bonus. Towards this end, these fishermen make certain that they aren't restricted to standing on the shore—they go to where the better fish are. Using boats equipped with high-tech fish-finding electronic gadgets, and a full array of tide/current charts and books, they pursue their prey. Armed with custom-designed rods and reels, they seek out only certain types of fish, tempting and luring them with special scents, sounds, chum, bait, flys, and lures. They engage the fish in a battle of wits, hoping against hope that the crafty sportfish they are after will offer the challenge and excitement they seek. Sometimes the fisherman wins, after a lengthy test of his skills and equipment. Other times, despite all efforts, he doesn't win. It's all part of the sport, and telling about "the one that got away" is sometimes more thrilling than telling about the ones that didn't.

It shouldn't take too much imagination to draw the parallels between fishing and DX'ing. Some see the RF spectrum as something that changes slowly and infrequently. They know that if they tune to a specific frequency every day at the same time, there's a pretty good chance that the same station can be expected to be heard. They randomly and quickly tune across a band—*zip, zip, zip*—and conclude that there's nothing much to hear that they haven't heard dozens of times before. This type of DX'er is akin to the fisherman with the bamboo rod. He'll eventually catch something, probably enough to satisfy his basic interest in communications. Chances are he (or she, for that matter) will never know the challenge and excitement that DX'ing holds for those who go after DX with a real vengeance—those who have the legendary "eye of the tiger."

In A Constant State of Flux

Yes, it's true that specific stations can be expected to be heard on their previously noted frequencies if you look for them today and tomorrow at the same time. But the spectrum is best viewed on a much broader scale. It's best to think of it as something that is, like the eternal sea, a living and constantly changing medium. It is filled with signals that call out for you to see if you can catch them despite their efforts to hide behind bursts of static of interference, or when they fade or vanish.

This sea of signals has its own tides and currents, governed by sunspot cycles, the seasons of the year, the hours of the day, and other natural factors. The stations that exist within the medium are also everchanging; new ones come into existence, old ones modify frequencies or schedules in an effort to live in harmony with and take the best advantage of the "tides and currents." On a short-term basis it may be difficult to notice, but the communications spectrum today is vastly different than it was only five years ago. Five years from now, today's spectrum will be changed to a great extent.

Picture yourself, on the surface, ready to pursue the signals before they swim out of

Check out suppliers of monitoring gear for accessories. Here, DX'ers Paul Lannuier and Dave Flynn look over the goodies at the new Gilfer Shortwave showroom in Park Ridge, New Jersey.

range. You are going to seek them out in their hiding places, relentlessly chasing them down as you do battle with the elements and the forces of adversity. No more thoughts of dropping your hook over the side and placidly standing there while you wait for something to swim by and make itself known.

Here are some ways of going about preparing your attack on those elusive signals. You may already know some of these things, or you may not have thought of any of them. Hopefully, you will be able to pick and choose from those which offer the potentials of increasing your enjoyment. They have all proven successful at the author's station and the stations of others with whom they have been shared.

1. You don't have to have the very latest state-of-the art receiver costing megabucks in order to compete, but it should at least be one of contemporary design. That is to say that it should be of solid-state (not vacuum tube) design and it should have a digital frequency display that reads out (at the very least) to 1 kHz increments, although 100 Hz (or better) delineation is certainly preferable for serious monitoring frequencies between 1600 kHz and 30 MHz. Your receiver should have a noise blanker and/or limiter, a beat frequency oscillator (BFO), and separately selectable sidebands (USB/LSB). For serious CW DX'ing, the receiver should have a 500 Hz (or narrower) filter installed. For best results in SSB and/or RTTY monitoring, a 1.9 Hz filter should be installed. The built-in memory banks and other frills are helpful extras, but aren't vital in determining what you'll be able to monitor.

2. There are many receiving accessories available that can aid DX'ing to a significant extent. Although I can't assess all of them, I have found that a tunable preselector or preamplifier does a good job of boosting weaker signals while also reducing the possibility of receiving unwanted incoming signals.

Audio filters (such as notch filters) can also be used to your advantage. These accessories customize the audio that comes from your receiver. By careful adjustment of the front panel controls, the user can block out unwanted audio frequencies such as heterodynes, hiss, low frequencies, etc.

A variable antenna tuner may also be of benefit, especially if you are using a random length longwire. Communications dealers (including mail order suppliers) generally offer a selection of these accessories; check advertisements in *POP'COMM*.

3. Your antenna, whatever it is, should perform at least as well as the equivalent of an outside-mounted 100-foot longwire. If it exceeds that in performance, *great*! You may have a very fancy receiver with all of the right accessories, but if your antenna is a dud you aren't going to hear as much as you might. Too bad that so many DX listeners don't realize the importance of a good antenna. I'd rather have a mediocre receiver hooked to a super antenna than a super receiver running off of a mediocre antenna system. 'Nuff said!

4. Although it's never discussed, I'd like to say a few words about the benefits and joys of establishing your receiving station at an isolated and out-of-the way location within your family's living quarters. Of course, for many DX'ers this simply isn't possible.

The ability to concentrate completely upon your monitoring efforts *does* make a difference. If you are trying to monitor with a TV set in the same room, the kids fighting, the telephone ringing, and general family activities at close proximity all around you, it's going to diminish your ability to summon up the concentration required to dig out and identify stations whose weak signals are buried beneath several layers of interference.

5. Related to the foregoing, I have found that by turning out all of the lights in the room and monitoring in almost total darkness, I seem to be able to get a better handle on poor-copy signals than when the room is brightly lit. Maybe it makes concentration easier, or maybe it's just my imagination. Still, even those who laugh at this approach invariably swear by it if they bother to try it for an evening or two.

A desk-lamp may be easily placed on the operating table to provide light when it's needed. Use a lamp with an incandescent bulb as opposed to one of those RF-noisy fluorescent lamps.

6. When searching out difficult-to-copy stations, get yourself decent headphones. They'll cut out extraneous and distracting environmental sounds while also increasing your ability to hear things that would be missed via loudspeaker reproduction.

Headphones should run you about $20 to $70. Get a pair with foam rubber ear cushions. Communications headphones are available with different impedances, such as 8, 12.5, 600 ohms, etc. Check your receiver's manual to find out the impedance at the headphone output so you get the proper ones. Don't try to use stereo HiFi 'phones; make certain that you get a pair specifically intended for communications use. Similarly, if you use an external loudspeaker, be sure it was designed for communications and not for music or other HiFi audio reproduction.

7. A station clock should be obtained and set against WWV or CHU. Get one that shows the local time and also UTC in a 24-hour configuration. Just for the record (you probably already know this), when it's after 0000 UTC, for logging and reporting purposes the date changes to the following day, regardless of what your wall calendar shows. So, when it's 9:15 p.m. PDST on July 23rd, monitoring results would be logged as 0415 UTC on *July 24th*.

8. For any monitoring efforts, knowledge is power—the more knowledge, the more power. That knowledge is held in reference material relating to the stations you want to monitor and in knowing what is taking place within the monitoring hobby in general. This holds true whether you're involved with scanners, "utes," shortwave broadcasts, Ham radio monitoring, or AM/FM broadcast DX'ing. My own policy is to assemble as many frequency directories as I can locate that relate to my specialties—no one directory ever seems to have *all* of the answers.

I also search through *POP'COMM* and selected DX club publications to fortify and expand my information input. From the many DX clubs that exist, I have found that the following ones best suit my own needs and preferences:

Association of DX Reporters, 7008 Plymouth Rd., Baltimore, MD 21208.

Ontario DX Association, P.O. Box 161 Station A, Willowdale, Ont., Canada, M2N-5P0.

SCAN, 7738, P.O. Box 414, Western Springs, IL 60558.

Speedx, 7738 East Hampton St., Tucson, AZ 85715-4212.

Great Circle SW Society, 2 Whits Ct., Newport News, VA 23606.

American SWL Club, 16182 Ballad La., Huntington Beach, CA 92649.

Longwave Club of America, 45 Wild flower Rd., Levittown, PA 19057.

All Ohio Scanner Club, P.O. Box 2496, Springfield, OH 45501.

For membership information, contact each of these clubs directly. Don't forget to enclose a self-addressed stamped return envelope for their reply.

9. By sorting through my information sources, I can find out which stations are on which frequencies, and when they are active. I use this data when I schedule and plan my monitoring activities. Many other DX'ers are hearing stations that I want very much to hear for myself. This is one of the best ways of zeroing in on the most desirable stations.

10. Sometimes I learn about a particularly interesting station or network. I'm fully willing to leave my receiver tuned to that one frequency while I await the hoped-for arrival of the station's signals, or to log all of the stations in a multi-station network that may share the frequency. I may go back to the same frequency many times on different days, and at different hours. It may be necessary to do this for weeks or even months

Try Your Luck On These!

Nights

4063 to	4143 kHz band	Ships (USB mode)
4180 to	4187 kHz band	Ships calling coastal stations (CW)
4350 to	4357 kHz band	Coastal stations (RTTY/ARQ modes)
4438 to	4650 kHz band	Press, military, diplo, etc. (all modes)
4650 to	4750 kHz band	Aeronautical (USB mode)
4750 to	5450 kHz band	Press, military, diplo, etc. (all modes)
5450 to	5730 kHz band	Aeronautical (USB mode)
6200 to	6222 kHz band	Ships (USB mode)
6256 to	6270 kHz band	Ships (RTTY/ARQ modes)
6270 to	6281 kHz band	Ships calling coastal stations (CW)
6325 to	6493 kHz band	Coastal stations (CW)
6525 to	6764 kHz band	Aeronautical (USB mode)
6765 to	7000 kHz band	Press, military, diplo, etc. (all modes)

Any Hours

7300 to	8185 kHz band	Press, military, diplo, etc. (all modes)
8297 to	8357 kHz band	Ships (RTTY/ARQ modes)
8360 to	8374 kHz band	Ships calling coastal stations (CW)
8436 to	8704 kHz band	Coastal stations (CW)
8718 to	8812 kHz band	Coastal stations (USB mode)
8815 to	9040 kHz band	Aeronautical stations (USB mode)
9040 to	9500kHz band	Press, military, diplo, etc. (all modes)
10150 to	11175 kHz band	Press, military, diplo, etc. (all modes)
11175 to	11396 kHz band	Aeronautical (USB mode)
11400 to	11650 kHz band	Press, military, diplo, etc. (all modes)
11975 to	12330 kHz band	Press, military, diplo, etc. (all modes)
12330 to	12435 kHz band	Ships (USB mode)
12491 to	12527 kHz band	Ships (RTTY/ARQ modes)
12540 to	12561 kHz band	Ships calling coastal stations (CW)
13100 to	13170 kHz band	Coastal stations (USB mode)
13260 to	13357 kHz band	Aeronautical communications (USB mode)
13360 to	1400 kHz band	Press, military, diplo, etc. (all modes)

Days

14350 to	1500 kHz band	Press, military, diplo, etc. (all modes)
15010 to	15100 kHz band	Aeronautical (USB mode)
15450 to	16360 kHz band	Press, military, diplo, etc. (all modes)
16460 to	16593 kHz band	Ships (USB mode)
16660 to	16705 kHz band	Ships (RTTY/ARQ modes)
16720 to	16748 kHz band	Ships calling coastal stations (CW)
17233 to	17357 kHz band	Coastal stations (USB mode)
17900 to	18030 kHz band	Aeronautical stations (USB mode)

Here are only some of the voice and non-voice "ute" bands that you can explore with the techniques described in the accompanying story. Times for maximum results are also given, although bold DX'ers have been known to check out "nighttime" frequencies during daylight hours, and vice versa. Sometimes the results are surprising and rewarding.

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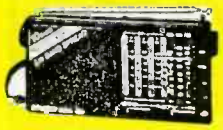

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before I strike pay dirt, or else decide that it's a lost cause.

11. If you have a second receiver, or can obtain one, it comes in very handy for use in intensive monitoring of one frequency over extended periods of time. You might consider dusting off a set that's been sitting on the shelf and using it for this purpose, or maybe you can pick up a good condition used receiver from looking through the classified ads in *POP'COMM's Communications Shop* or DX club newsletters.

12. Instead of parking on one frequency of interest and waiting for a specific station or network, try selecting a 1 MHz-wide band segment for intensive long-term monitoring; I do it very often. Concentrate your efforts there for several hours at a time over a period of days, weeks, or months. The time of day can be varied and changed until your logging records show every station and static crackle to be heard at your location on those frequencies. Even weeks after such highly intensified monitoring of a 1 MHz-wide band of frequency, you'll still be logging new stations!

13. It's best to tune across the frequencies *very* slowly and haltingly so that you don't miss anything. I don't have the slightest feelings of guilt when I place my receiver in narrow-band reception mode and tune across a band in steps of 500 Hz, pausing a minute or two at each step. With the receiver switched into CW or SSB mode, any signals (no matter how weak) will make themselves known. Time consuming, yes. I enjoy DX'ing and this is the way I relax. If I wanted "fast," I'd long ago have swapped my receivers for jai-alai lessons.

14. Even though it seems obvious that the stations with the booming powerhouse signals aren't the rare super-DX stations, too many DX'ers don't bother to concentrate their efforts on probing around for the very weak signals. Leave those needle-pinning wallbanger signals for the other guys. Your challenge is to seek out those stations with marginal copy; the weaker, more feeble, the more buried under interference, and the more tenuous the signal, the more worthwhile it will probably be. It may take you an hour or two of knob twisting, ear straining, and looking through reference books in order to nail down the station, but that's the fun of the hunt. What challenge is it to log a station that's so strong that it's rattling the windows?

15. You might want to set aside a period of time (such as a month or two) to specialize in monitoring in certain modes (SSB, AM, CW, RTTY, ARQ, FEC, FAX) or stations in certain groups such as aircraft, aero ground, ships, coastal, governmental, diplomatic, Interpol, weather, press, military, numbers, mystery signals, time signals, or whatever. By doing this, you become familiar with the frequencies and typical operating practices employed by each. This will give you an increased working knowledge that you can summon up at any time in the future. You may find certain things so fascinating that you'll stick with a particular thing and become an expert!

16. Here's a RTTY/ARQ/FEC tuning hint. When monitoring such signals, your receiver is normally in LSB mode. If you have problems tuning in a certain station because of interference, switch over to USB and try to retune the signal. You may find that you can salvage the signal with this technique. Of course, if you normally tune in USB mode, you can reverse the trick and switch over to LSB.

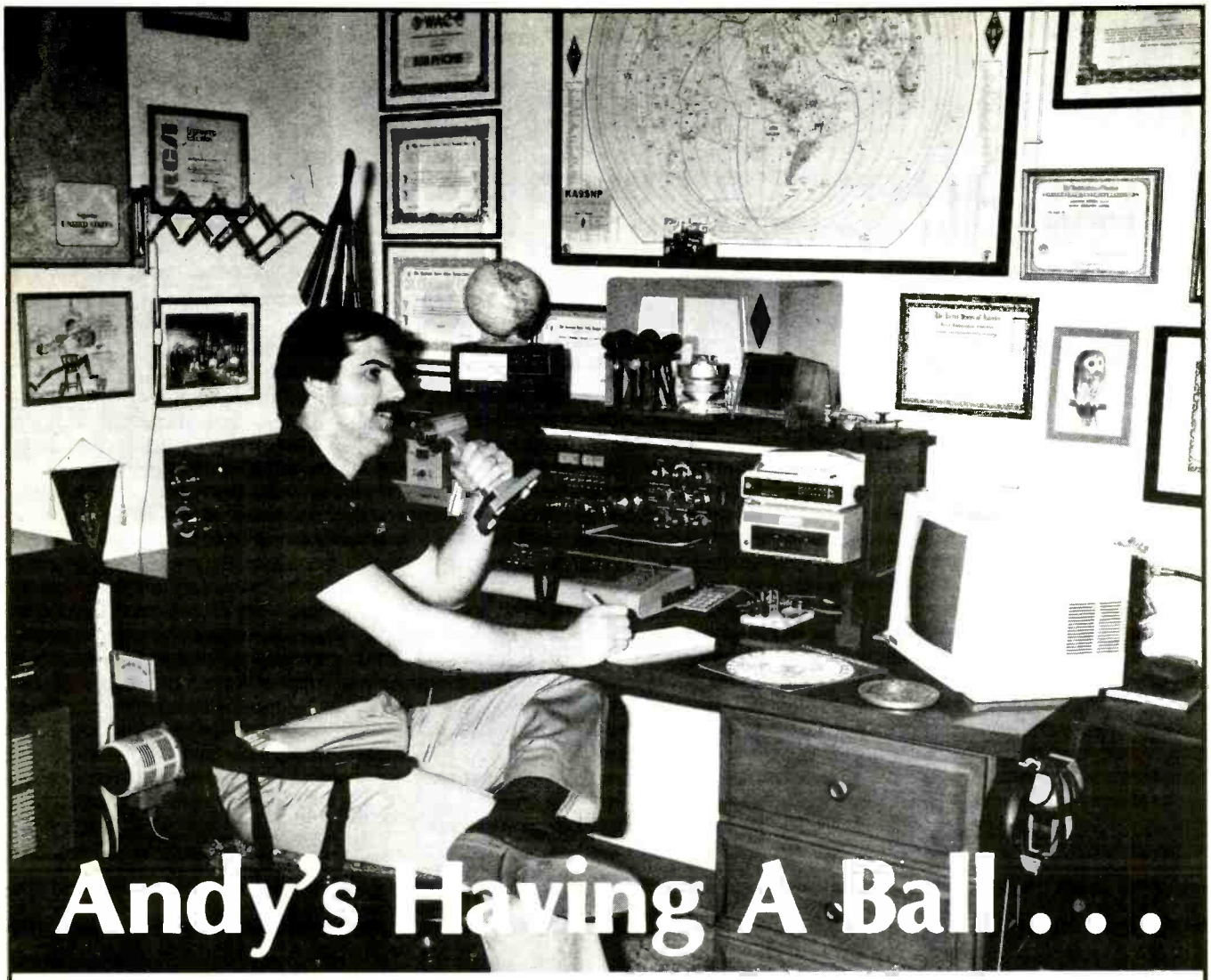
17. I like to have a cassette tape recorder handy at all times so that I can play back any transmissions of special interest. Some tapes are retained for reference and comparison with other tapes; some tapes are exchanged with monitors who share my specific interests. Detailed notes and files are maintained on these tapes, including the times and frequencies, so that when they are matched up against earlier or later recordings, conclusions may be reached.

18. Watch the news media for actions around the world that could trigger increased activity on frequencies known or believed to be used by military forces, smugglers, terrorists, diplomats, rescue services, etc., etc.

Conversely, if you spot increased activity on frequencies known or believed to be used by any of these groups and you can't match it up with the latest headlines, you may well be tuned in on the next day's or week's headlines! Several DX'ers known to your author have spent a few years matching up certain numbers' station activities against particular types of headlines. Thus-far the results look promising.

Obviously, increased activity on certain scanner frequencies is a good clue that forthcoming headlines will be shouting important messages to your community.

These are some of the things you can put to use to increase your enjoyment of the communications monitoring hobby. I hope that you find them as useful as I have. I've found the fishing is just fine! PC



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SATELLITE VIEW

INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

BY DONALD DICKERSON, N9CUE

Descrambling Satellite TV

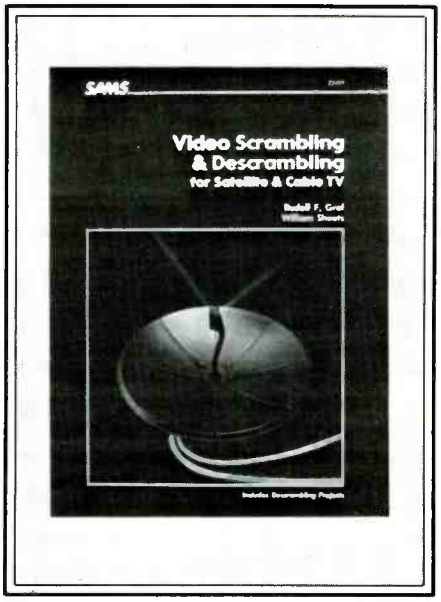
The Federal Communication Commission has recently announced that it would take a hands-off approach to the satellite TV industry's decision to scramble their signals. Though more companies are expected to begin using some type of scrambling in the near future, don't weep yet, it may not spell the end for TVRO.

Scrambling Techniques

There are several electronic methods available to the satellite TV industry by which their signals can be secured. One of the simplest ways of scrambling a TV signal is by altering a signal already present in the TV set or adding one which will confuse the TV circuits. For example, suppression of the TV's internal synch signal (those vertical and horizontal electrical pulses which reconstruct the TV picture on your screen) causes the information on the screen to become scrambled and unusable. A second method might introduce a sine wave signal into the set which will confuse things considerably. Portions of the TV signals can be inverted, high voltage to low, low to high, etc. These processes are simply reversed in descrambling. They are examples of simple scrambling techniques which are easily defeated. More secure systems use a combination of these techniques. The most advanced systems use several of these techniques in a random sequence and digital encryption of the audio signal. VideoCipher II is just such a system. It is used by HBO and Cinemax and may become a standard in the satellite TV industry. It should be mentioned though that there are several other systems in use nationwide. Broadcasters may end up going to a standardized system which will secure their signal and keep equipment cost down.

Descrambling

There are two approaches to descrambling. You can build your own equipment or buy it off the shelf. In either case, here is some timely information for you. If you are inclined to build your own descrambling equipment Howard W. Sams Publications may have the book you're looking for. They have just released *Video Scrambling & Descrambling for Satellite and Cable TV*, co-written by Rudolf F. Graf and William Sheets, both engineers and experts in the field of satellite and cable TV systems. The book's 250 pages cover all aspects of descrambling. It contains detailed plans for building your own equipment, from a simple five-component descrambler to sophisticated PLL and encryption chip descramblers.



This timely new book published by H.W. Sams is an excellent reference on satellite and cable descrambling.

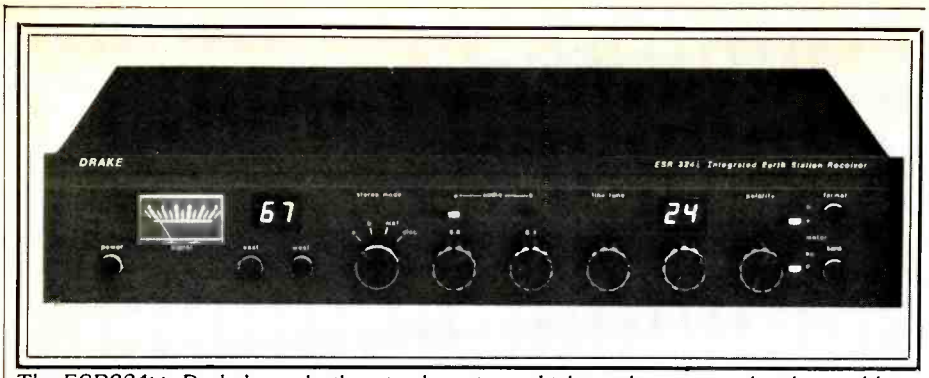
This volume also includes sections on digital scrambling, sine wave techniques, audio encryption, TV pirates, data encryption codes, data sheets, schematics, block diagrams and TV frequency charts. So whether you are a hobbyist, a technician, a computerist, a code breaker or want a quick education in descrambling, you'll find this book a nice addition to your library. There's even a section on the National Security Agency's codes and the Unbreakable Code used by the government. This SAMS publication comes in an easy-to-use 8″ × 11″ format.

Videocipher II

If building your own descrambler is more than you care to undertake, there is an off-the-shelf remedy for scrambled TV signals. The R.L. Drake company has tackled the problem with the introduction of its newest satellite TV receiver, the ESR2400. This new offering from Drake is a top-of-the-line receiver which is microprocessor-controlled and incorporates an antenna positioning system. The most interesting feature of the ESR2400 is its built-in VideoCipher II descrambler. You'll remember the VideoCipher II is the system used by HBO and Cinemax. It is a simpler version of the VideoCipher I, which was a more secure system but less cost-effective. The VideoCipher II seems to provide the needed security broadcasters are looking for at a reasonable cost.

The ESR2400 uses on-screen display of channel, satellite, polarity and signal strength. It offers a 19-channel memory. It not only remembers channel, but polarity, audio format and satellite, too. It incor-

The ESR2400 is Drake's state-of-the-art receiver which comes already equipped with a VideoCipher II descrambler.



The ESR324i is Drake's modestly-priced receiver which can be equipped with an add-on VideoCipher II descrambler.

porates an infrared remote control and Ku-band capability. This unit can be purchased without the VideoCipher II descrambler since it can be added later.

Drake has a second model, the ESR324i, specifically designed for the beginner. It is modestly priced and simple to operate. The ESR324i receives in stereo, operates C and Ku-band and can be equipped with the VideoCipher II descrambler. It's compatible with all Drake LBN's and the BDC24 down-converter. Both Drake receivers use 950-1450 MHz block input frequency.

Conclusions

As the satellite TV industry begins to standardize scrambling and descrambling techniques, one or two systems (such as the VideoCipher II) will dominate the industry. This standardization will help keep the cost of equipment down for the broadcaster and you and simplify your descrambling. Many satellite and cable companies are expected not to scramble at all due to equipment cost. Barring that approach, they may settle for simple scrambling techniques.

So, if you are thinking of investing in a TVRO station or are looking to upgrade your station with a new receiver, don't let the possibility of further scrambling by the satellite TV industry deter you. There is plenty to look forward to on satellite TV. Your comments and suggestions are always welcome. Write to me at *POP'COMM*, at 76 N. Broadway, Hicksville, NY 11801. See you next month. PC

CIRCLE 57 ON READER SERVICE CARD

CIRCLE 66 ON READER SERVICE CARD

CIRCLE 7 ON READER SERVICE CARD

BROADCAST TOPIX

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

BY MARK MANUCY, W3GMG

Believe it or not, AM stereo is back in the news! Canada has officially accepted the C-Quam system as the one system for Canadian radio stations to use for broadcasting AM stereo. All other systems will have to be turned off. I'll have some more information about this next month because I will be attending an AM stereo technical school sponsored by Delta Electronics next week. They are one of the Motorola licensees who build AM stereo exciters and monitors. I'm looking forward to it. I will be able to provide you with some inside information about how some broadcasters are feeling about the AM dilemma on both sides of the Canada/U.S. border.

The updates from Motorola and Kahn on new stations broadcasting AM stereo have slowed to a trickle. I am getting more up-to-date information from readers who are writing to tell me of new stereo stations. The requests for my AM stereo listing have increased in recent weeks also, so maybe there is still hope the AM band will again grow in popularity. For your listing of AM stereo stations send $2.50 to me requesting same.

For those of you interested in radio giveaways, Steve Lawrence of 1088 Walnut Street in Dubuque, IA 52001, is starting a club called AREC, for American Radio Exchange Club. Drop him a note.

Peach State Public Radio is in what state? Why Georgia, of course. Currently four stations are on the air with three more very soon. They are WDCO, 89.7, in Cochran/Macon; WJSP, 88.1, in Warm Springs/Columbus; WXVS, 90.1, in Waycross/Valdosta; and WACG, 90.7, in Augusta. Others will be in Athens, Tifton and Valdosta. For you SCA buffs, they also carry the Georgia Radio Reading Service on 67 kHz. This info is from a PSPR employee, Walter Garrett.

So how does one go about DX'ing in the summer? The static is enough to drive one to FM! The sunspot cycle has apparently bottomed out so it should be but a year or so until we can expect the FM band reception to improve dramatically for E layer skip and other long distance reception (other than the ducting we've been discussing the past few months). There are many ways to DX in the car in the summer that I have mentioned in past columns. Another trick that has been used over the years is to put a strip of "magic tape" on a map near a city with one station or more. Then on the strip of tape using your finest hand print, list the frequencies of the stations in that city and the call letters next to the frequency. The tape allows changes to be made in call letters or frequency. If the map has to be used as a map the radio information may be erased without any damage to the map regardless of whether ink or pencil is used.

Another way would be to make your own strip maps. If you have access to a copy machine it would be an easy matter to photocopy the sections of the map you would need for your trip and add the stations along the side of the route using a color of pen that would contrast the color of the map and be easily seen. This is what I did for a trip I'm making into the central-western part of Virginia. There are several stations in that area I've not been able to hear, plus some new FM's which are recently on the air. As a matter of fact, that is the reason for the trip! I'm not in a position at this time to make a trip just to DX, although my wife might not agree, but I'm going to help solve a technical problem at one of these newer stations and resolve some lingering problems at an older station.

Recently in the *Baltimore Sun*, a story appeared which I thought might be interesting to the readers of this column. There is a daytimer in Zamora, Mexico, XEZM, which programs requests, written in from migrant workers travelling to the U.S., for their loved ones back in Zamora. The story goes on to mention that much of the Mexican popular music evolves around these people who spend their lives migrating back and forth, probably much like the American cowboy of the last century. The owners of the station make money selling ads around these requests with as many as a half-dozen ads per record! The show has been on the air over ten years. Let's hear it for the good ol' radio!

My mailbox has been over-flowing the last few months with a variety of mail; many are requests for some of the things I mention in the column and some just say 'keep it up.' Thanks for the comments and the support, I appreciate it very much. If you have any photos, send them along too! In the years I've been writing this column only a handful write on a regular basis. It's nice to know so many out there enjoy reading *POP'COMM* and *Broadcast Topix*.

Can an ol' Florida boy resist a Dixie flag?

One of the most exciting letters was one from Stan Harter, who is the assistant Chief Coordinator of EBS and RACES for the state of California. He brought up a national problem about the EBS which some old technology will solve. Many stations have trouble hearing the AM station they are supposed to monitor, due to distance from the station, local noises and other interference problems. He was asking if the loop antennas might solve this problem. The answer is difficult for me to formulate without knowledge of the specific cases, however, I have seen the box loop solve many EBS reception problems. Even where the key station was 50,000 watts and in the same city, there was difficulty in receiving it, though the monitoring station was an FM. The installation of my two-foot loop above the ceiling brought the key station in clear as a bell and resolved the problem. A ferrite loop might not work in a similar situation due to the possibility of the preamp being overloaded by strong nearby stations of other RF. For the EBS receiver the passive loop is the best bet.

For more information on loops send me a SASE and ask for "More about Loops." Should you want to have plans for a loop antenna they are as follows: Box loops, a two-foot and four-foot plan are $5.50 and plans for a ferrite loop with a preamp are

$7.50. See the address at the end of the column. A modification plan for the R-70 and 71 receiver to improve the sensitivity of the AM band is $2.50.

The other EBS story concerns a sad state of affairs which occurred this past week near here. A 50-kilowatt key station was called by several stations that monitor it, after they did not receive the weekly EBS test. I know of three stations which received the same reply; "We're not required to run EBS anymore and that equipment has been taken out!" While FCC deregulation has eliminated many requirements on broadcast stations, EBS monitoring and testing is one of the few requirements remaining in full force. The joke around TV hill in Baltimore is that one of the TV stations could be broadcasting on the other's channel and the first thing the FCC would ask upon arriving is, "Is your EBS receiver operating properly and may I see the date of the last test?" Needless to say, all humor aside, many are waiting to hear the next test from the "key" station and we'd love to know who authorized the discontinuance of the tests. Honest folks, it really happened! By the way, the FCC does know about it, so that side of the story will be interesting as well. Stay tuned.

Have you ever DX'ed on the land-line? Oh boy, you're thinking, this guy has finally lost it. Time for the great tower in the sky—I mean the big one! But, really, this can be done in a couple of ways . . . we could start a whole new fad. First way: Call as many businesses as you can and ask to be put on hold! Then listen to what you hear. If it's music, stick around long enough to see if it's a radio station. If it is, then log it and hang up. Then, same procedure with the next business. See how many stations you can log. For fun, try some 800 numbers the same way. This would be true DX . . . many miles from your location, right?

The second way is better, but more difficult. I called a place which sells to radio stations and was put on hold for about 10 minutes. They were listening to a Washington station whose signal in their cheap radio was not as strong as it should have been. They are located near an airport and I counted four airplanes either taking off or landing, doesn't really matter. During one, though, I was able to ID another station as the reflection from the plane faded the station from Washington. Now, every day or so this company will change stations so as not to offend their buyers, that means I have a chance to DX whild on hold! Of course you could call radio stations and asked to be put on hold. Chances are you will hear the station you called!

If you live near an airport or know a nearby one to visit where some big planes land, it can be an interesting DX experience for FM stations. You don't want to be right at the airport, maybe off the end of a runway to allow the planes to gain some altitude, say between one and two thousand feet. Pick a frequency where the station is not too strong or if you have a digital receiver then the frequency can be clear, but of a station that is not too far away. Some experimentation will be necessary.

Experiment first with a station of marginal strength and see what effect the plane has on the station's signal as it flies by. The plane does not have to be overhead, but it should be nearby and still appear "large" in the sky. In fact it should not be overhead for best results. Think of the plane as a large mirror, reflecting the FM signal from your antenna to the plane and then at the same angle off the plane to the desired station. This will work with TV signals as well. The position you pick on the ground with relation to the flight path must be studied with a map. The location that you pick should allow the airplane to come between you and the DX city of choice. If the planes were to bank in the sky your best angle would probably be such that the radio signal could reflect off the belly of the plane while it is banking (turning). Okay? Play with it and see what happens. I would think a portable Yagi antenna would

Station Update

Call				
AM				
KVIP	Redding, CA	540	5/0	NDA
WHOF	Wildwood, FL	640	.826/.979	NDA
WMOP	Ocala, FL	900	3.2/0	NDA
WSOL	San German, PR	1090	.25/.73	NDA
WBQN	Barceloneta, PR	1160	5/5	DA-2
WRMG	Red Bay, AL	1430	3/0	NDA
WNEL	Caguas, PR	1430	5/5	NDA
WPLW	Carnegie, PA	1590	5/0	DA-D
FM				
WYNU	Milan, TN	92.3	100	990′
WSSX-FM	Charleston, SC	95.1	100	985′
WRCM	Jacksonville, NC	98.7	12.1	220′
WFNX	Lynn, MA	101.7	1.66	441′
WZAT	Savannah, GA	102.1	100	1321′
WGUS-FM	Augusta, GA	102.3	3.0	328′
KEZK	St. Louis, MO	102.5	100	1026′
KCRR	Bullhead City, AZ	102.7	53.1	2398′

Key: D = Daytime, N = Nighttime, DA = Directional Antenna, DA1 = Same Pattern Day and Night, DA2 = Different Pattern/Power Day/Night, NDA = Omni Antenna Day and/or Night, * = Special Operation or Critical Hours, N/C = No Change.

Call Letter Changes

Location	Old	New	Location	Old	New
AM Stations			**FM Stations**		
Russellville, AL	WWWR	WJRD	Green Cove Springs, FL	WSVE	WPDQ
Pomona, CA	LWOW	KMNY	Atlanta, GA	New	WWKY
Salinas, CA	KXES	KTGE	Herkimer, NY	WYUT	WYUT-FM
Aurora, CO	KLSC	KYBG	Hyde Park, NY	WJJB	WCZX
Jacksonville, FL	WXOZ	WSVE	Williamston, NC	WSEC	WKKE
Hazard, KY	New	WYZQ	Lawton, OK	New	KQLI
Columbia, MS	New	WJHP	Tamaqua, PA	WCRN	WMGH-FM
Tupelo, MS	WELO	WWPR	Goose Creek, SC	WLNB-FM	WWHT-FM
Herkimer, NY	WLIR	WYUT	Saluda, SC	WSBP	WJRQ
Spring Valley, NY	WGRC	WLIR	Ozona, TX	KRCT	LTXX
Hughesville, PA	WTPS	WBUG	Pullman, WA	New	KPNP
Charleston, SC	WLNB	WWHT			
Oshkosh, WI	WCKK	WLKE			

really help with this type of DX'ing.

Unlike a Ham DXpedition, the BCL has to create new ways to DX in addition to new places. If you've done any unusual DX'ing let me know about it.

As scarce as the Sony SRF-A100 is, I had two letters in April from people who have found some. This is the only small AM stereo radio around and along with its little brother, the SRF-A1, have both been discontinued for some time. All I can say is keep your eyes open, especially around a flea market.

Have you ever seen a large tower being erected? Those living in Baltimore were able to see an 1200-foot tower being built 584 feet from the base of the existing candelabra on TV hill. The new tower, when finished, will be the home of WBFF-TV, Channel 45, and at least two FM's, from what I understand. The old WBFF tower southwest of Baltimore will be bought by WPOC-FM who will move their FM to the top of that tower when WBFF takes their old antenna down.

Working on TV-hill during the construction of this new tower was interesting, not only to watch the tower going up, but to hear the comments of the people who work for the stations already on the hill. Why is it so close? They shouldn't let them put two towers this close together. What happens if it falls? Does it bring both towers down? Will it interfere with this (existing) tower? I'll be interested to see what the summer lightning storms think of two targets to hit and how winter ice, falling from this new structure, dents my van. Our parking lot is right under the new tower, whereas the existing tower is way behind the building. The wind howl will be fun to "note" as well, since the candelabra is quite loud in the wind . . . we'll have a duet . . . and the nighttime sky over northern Baltimore will be ablaze with flashing strobe lights!

In the next month or so we'll hopefully have the story of the building of a satellite radio network, a first-hand account from yours truly! That's about the show for this month folks, send all correspondence to P.O. Box 5624, Baltimore, MD 21210. PC

CLANDESTINE COMMUNIQUÉ

WHAT'S NEW WITH THE CLANDESTINES

BY GERRY L. DEXTER

The Southwest Africa People's Organization (SWAPO) seeks an independent Namibia (Southwest Africa) free of the current government which is run by Johannesburg. SWAPO wants to run the show. A SWAPO political-military combination has been fighting and propagandizing to that end for many years.

SWAPO's radio propaganda effort does not take place through its own transmitters. Instead, the organization produces a regular program "The Voice of Namibia," aired by a number of official stations in Africa.

According to SWAPO, the program features news, commentaries and feature programs on SWAPO's "political and ideological position on events as they unfold in and about Namibia." Broadcasts are aired in all the major languages of Namibia, as well as in English and Afrikaans. SWAPO says that its programs are well heard in Namibia and that the main task of the broadcasts is to "thoroughly and constantly expose the nature of colonial oppression in our country and spell out the socio-political alternative . . . as well as awaken the Namibian people to humanity's common aspirations for peace, democracy and social progress." SWAPO claims that its broadcasts led South Africa to establish Radio Southwest Africa to counter listenership to the SWAPO program.

The actual day-to-day logistics and production of the Voice of Namibia are unclear. It appears that each of the stations carrying the program has it locally produced, with different Namibian announcers and presenters. That raises the question of how the programs are all able to speak the same political line, cover the same news items, etc. Perhaps they don't, but it seems unlikely each production unit has free rein and if that is true, there must be some sort of phone or radio link to coordinate things. Here's the approximate schedule of the Voice of Namibia broadcasts:

Via Radio Nacional de Angola is on 11955 at 1630-1730, Saturday to 1700, Sunday 1700-1800.

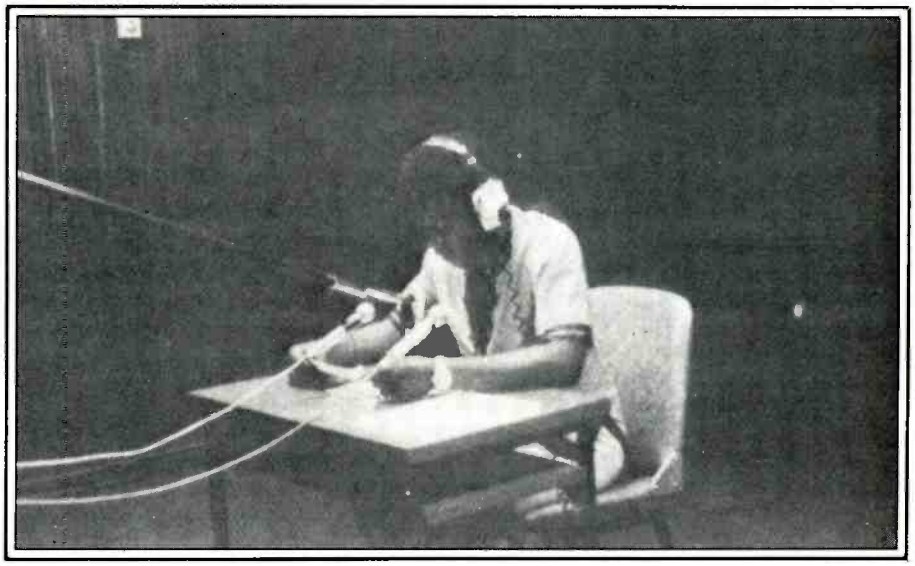
Via Radio Tanzania is on 9750 daily at 1630, Saturday at 1815, Sunday at 0415.

Via VORE, Ethiopia is on 9595 seven days per week at 1900.

Via RT Congolaise, 15190 is on Monday, Tuesday and Friday at 1745, Wednesday and Thursday at 1800. This station, though, is frequently inactive on shortwave.

Via Radio Zambia is on 9581 on Monday, Tuesday and Thursday at 1830, Wednesday at 1810, Saturday 1845, Sunday 1130 and 1830.

Via ZBC Zimbabwe is on Monday, Wednesday and Friday on 3396 at 1900 (highly unlikely to be heard in the U.S.).



Sackey Namugongo, supervisor of the Voice of Namibia in Luanda, Angola on the air from Radio Nacional de Angola.

The broadcasts via Angola (which is the headquarters and most extensively staffed program) and Ethiopia are sometimes heard here. Reception reports are occasionally verified. The address is The Voice of Namibia, P.O. Box 953, Luanda, People's Republic of Angola. Thanks to Ron Howard in California for the SWAPO material.

The Nicaraguan contra's new medium-wave station, Radio Liberacion, is being jammed by the Sandinista government, according to a story in the *Philadelphia Inquirer* spotted by Mike Brooker, sent to, and forwarded by Harold Sellers, Ontario DX Association. This and other news reports have mentioned that Radio Liberacion's signal in Managua is not very good, although reception in northern Nicaragua is good. Reports also say that the station is building an audience within Nicaragua.

Radio Quince de Septiembre, which some reports said Radio Liberacion would replace, continues to be well heard in the evenings on 5950. It is probably the unidentified Nicaraguan clandestine on 6215 (and earlier on 6264) heard by Mark Carleton in Massachusetts. The second transmitter of Quince has used both.

La Voz de la UNO (United Nicaraguan Opposition) was heard by Mike Nadeau in Oregon at 0217 on 5890 in Spanish. Yes, this is widely heard, too. There may be a name change soon as the name of the UNO umbrella group is supposed to be changed to simply the "Nicaraguan Resistance."

Theodore Miller in Chicago did some detective work and personally visited 323 South Franklin in Chicago—the address given out by the National Front for the Salvation of Libya which is responsible for the Voice of the Libyan People broadcasts. Theodore confirms that the directory in this small office building lists nothing remotely connected with Libya, Arabs or the Mideast. It's been assumed that 323 South Franklin was just a mail drop and it now seems virtually certain that someone listed on that lobby directory takes mail for this organization and sends it elsewhere.

Andy Johns in Texas reports hearing the anti-Sudan station Radio SPLA on its new 11710 frequency at 1300 sign-on with English to 1328, then into another language. There's an English ID just before 1400, also. Nothing was mentioned about an address and Andy wonders if a report via the Voice of Revolutionary Ethiopia might work, since it's pretty clear these are the transmitters being used. Well, it's been tried but without result. Nothing says you can't try it too, though. Ethiopia, to our knowledge, hasn't admitted that its facilities are used and that makes things more difficult. There is almost certainly an SPLA office in Addis Ababa but we haven't managed to dig out an address.

Tracking clandestines both on the air and from an information standpoint is one of the most fascinating things going on shortwave radio. We invite all you Sam Spades out there to join in. Your loggings, and other related clandestine information you may run across—background info, address leads, etc.—is invited. We can keep your name confidential if you so prefer. PC

PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS

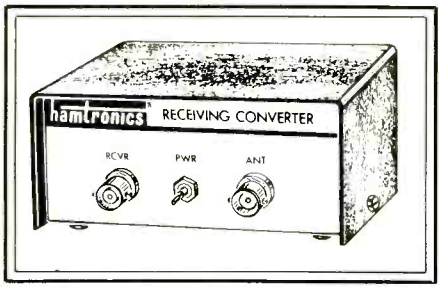
Coax Switch Surge Protector

Alpha Delta Communications, Inc. has announced the release of its model Delta-4 lightning surge protected 4-position RF coax switch with field-replaceable ceramic gas tube Arc-Plug® Cartridge Pill.

Specifications are as follows: power rating is 1500 watts RF; impedance is 50 ohms; connectors are type SO-239. The Delta-4 has four switch positions, two on either side of a "common" center connector. When the knob points to the center (ground) switch position, all antenna circuits are internally disconnected and grounded. When the knob is in an active position, the unused antenna parts are grounded. The active position circuit is continuously protected by the model D-4 Arc-Plug® Cartridge Pill.

For grounding, a separate external ground wire must be used from one set of user supplied mounting hardware (through either thru-hole on the base plate) to the station ground system (not the equipment chassis).

For more information, contact Alpha Delta Communications, Inc., P.O. Box 571, Centerville, OH 45459, or circle reader service number 104.



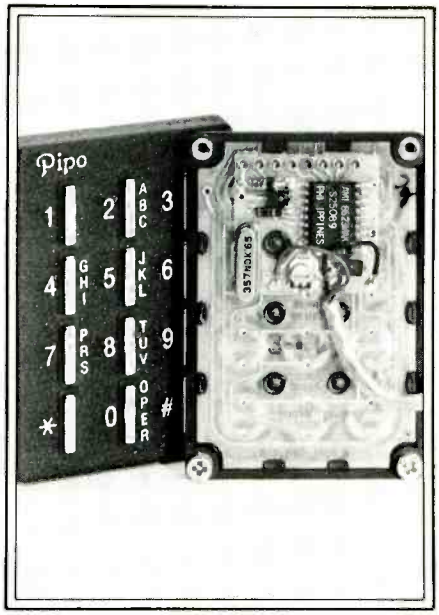
Weather Satellite Converter

Hamtronics, Inc. announced a new receiving converter designed for reception of weather FAX pictures transmitted from satellites operating in the 137 MHz band. Basically a modified version of the highly-regarded CA144 two-meter Amateur converter, the CA137-28 converter translates all signals received in the 136-138 MHz satellite band for reception on tunable 28-30 MHz wideband FM receivers. To make the conversion in dial frequency, simply subtract 108.000 from the frequency you want to receive. The receiver uses a low-noise front end to provide sensitivity of less than 0.2 μV. It operates on + 13.6 Vdc at 30 mA.

The Hamtronics™ CA137-28 converter is available in three versions. A wired and tested version is available in the 4″ × 4″ × 2″ cabinet shown at $69. The same unit in kit form is $49. A kit to build just the pc board module, less case, is $39. Shipping and handling is $3.

GaAs FET Preamps of various types are also available for this band if you like to take advantage of reduced cable loss by mounting a preamp at the antenna. An LNG-144 GaAs FET Preamp enclosed in a 2″ × 2″ metal case is $49, wired and tested. An LNW-144 Preamp, which is the same basic circuit without a case, is available for $34, wired and tested, or $19 in kit form. All three have a noise figure less than 1 dB. By using one of these preamps, the sensitivity of the converter can be made as low as 0.1 μV.

For a complete 40-page catalog of Hamtronics™ products by return first-class mail, please send $1 ($2 for overseas) to Hamtronics, Inc., 65-FP Moul Road, Hilton, NY 14468-9535. To order a converter by phone, call 716-392-9430.



Mini DTMF-Encoders

Pipo Communications addresses Amateur Radio and Land Mobile Applications with the P-7 and P-8 Series. These units have been fully tested and are ready for a custom installation on radios or systems that are exposed to harsh or abusive environments. These units are the first of their kind for this Industry specially designed with Steel Keys and Sealed Gold Dome Contacts to insure maximum reliability and long life.

The P-7 and P-8 Series have miniature electronics and miniature keyboards designed to fit most radios. The P-7 is a 12-key Touch-Tone Encoder and comes in vertical (P-7V) or horizontal (P-7H) format measuring 2.16″ × 1.9″ × 0.20″. The P-8 is a 16-key Touch-Tone Encoder and comes in a vertical (P-8V) format only measuring 2.16″ × 1.9″ × 0.20″. This series is available in black or dark brown (to match the Standard Communications HX series).

These units are immediately available upon ordering. For more information write to Pipo Communications, P.O. Box 2020, Pollock Pines, CA 95726-2020, or circle reader service number 101.

Novice Voice-Class 'Quick Course'

Gordon West's Radio School offers a custom-developed Morse Code and theory course, under $20, for the beginner Amateur radio applicant. Two long-play, stereo cassettes recorded by Gordon West cover learning the code in a humorous and educational manner. The cassette code learning course is designed for students with absolutely no background in code copy.

The fully illustrated Novice voice-class license preparation manual was written by Gordon West and Fred Maia. Every Novice class question is covered by a thorough explanation, plus a discussion of the right and wrong answers that may be found on the test. Several chapters cover a detailed introduction to the Amateur radio service, as well as an illustrated chapter on learning the International Morse Code with the accompanying cassettes.

Both the tapes and the book contain sections specifically for two Ham radio opera-

tors to review the latest procedures in giving the Novice test. An FCC Form 610 as well as a sample Novice examination is also part of this "quick course" packet. Also included is the full-color ICOM frequency-band chart.

"We make learning the code and theory fun with our 'quick course'," comments Gordon West, nationally acclaimed instructor and feature writer.

This Gordon West Novice voice-class "quick course" is available through your local Amateur radio dealer or directly from Gordon West Radio School, 2414 College Drive, Costa Mesa, CA 92626; price—$19.95 plus $2.00 postage and handling.

Desktop Scanner Radios With Multi-Band Digital Tuning

Two new multi-band desktop scanner radios with electronic digital tuning and user programmable memories have been introduced by the Cobra Consumer Electronics Group of Dynascan Corp. These highly sophisticated receivers mark Cobra's first entry into the growing scanner radio market.

Both of the new Cobra desktop scanners —Model SR-925 at $259.95 suggested retail and Model SR-900 at $159.95—feature 16-channel programmable memories. These units also provide instant access to National Weather Service broadcasts.

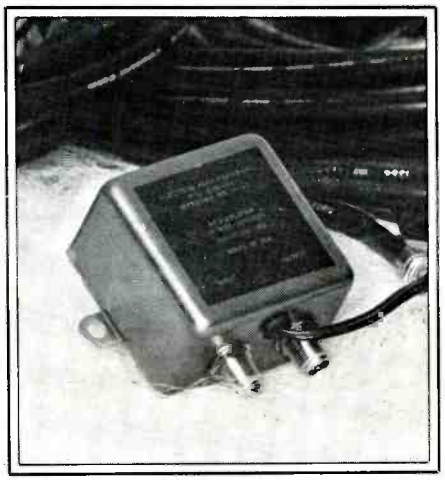
Frequency coverage for both models includes these 11 bands: Federal Government (406-420 MHz) and Military land-mobile (136-144 MHz); UHF (450-470 MHz) and UHF "T" (470-512 MHz); VHF Low (29.7-50.9 MHz) and VHF High (148-174 MHz); 10 Meter (29.0-29.7 MHz), 6 Meter (50.0-54.0 MHz), 2 Meter (144-148 MHz) and 70 cm (420-450 MHz) Amateur "Ham" Radio; and the weather broadcasts (162.4-162.55 MHz). Cobra's premium desktop scanner, Model SR-925, adds additional coverage with the Aircraft band (118-135.975 MHz).

Model SR-925 features eight operational modes, including normal scan, selective scan delay, priority, lockout, auto search, frequency limit, channel hold and manual selection. This model has an eight-digit backlit LCD display for frequency and channel readouts plus five operational-status indicators. Also included is a switchable scanning speed (16 or 5 channels per second) and an internal four-hour memory back-up.

Cobra's economical desktop scanner, Model SR-900, is a fully featured unit with seven operational modes. It has a large red two-digit LED display to show channel position; this display also can be used to review each of the memorized frequencies.

Both radios feature low profile, charcoal-gray consoles with telescoping antennas, soft-touch rubberized control buttons, and sliding volume and squelch controls. The units can be AC or DC powered; an AC adaptor plug is included, as are separate jacks for a DC power supply, an external earphone or speaker, and for an external antenna.

See your nearest Cobra dealer for more information or circle 107 on our reader service card.



Signal Intensifiers

Electron Processing, Inc., an established manufacturer of broadcast and professional studio equipment, is now introducing its line of Signal Intensifier™ RF amplifier modules. EPI Signal Intensifiers are low-cost wideband RF amplifiers suitable for almost all receiving applications. Radio Amateurs, CB'ers, fringe area TV viewers, FM audiophiles, shortwave listeners, or anyone needing a very low-cost yet high-performance receiving preamplifier can benefit from the new EPI Series RFA devices. In addition, Series RFA Signal Intensifiers can be used on the bench to improve the sensitivity of frequency counters and oscilloscopes.

Based on state-of-the-art microwave componentry, EPI's Series RFA preamplifiers feature 13 dB gain with very low noise figure (typically under 5 dB). Available in two versions for choice of MF/HF or VHF/UHF use, each features a built-in 117 VAC line operated power supply and appropriate connectors for easy attachment to receiver terminals or signal input ports. RFA-20 versions come with a pair of SO-239 female coaxial connectors and are specified for operation over the 300 kHz to 50 MHz range. RFA-16B versions accommodate 30 MHz to 1000 MHz signals and are equipped with choice of "F" connectors of "Motorola" connectors.

Other connector styles are also available, including RCA "phono," BNC, N, TNC, and SMA types. All Series RFA Signal Intensifier amplifiers feature rugged all-metal construction for maximum shielding and durability. Their compact size, ready-to-go applicability, and low price make them ideal candidates for a wide variety of typical applications. Pricing starts at $29.95 Amateur Net (configured with standard connectors) with quantity discounts available. For more details and ordering information, contact the Sales Department, Electron Processing, Inc. at (516) 764-9798, or circle number 102 on the reader service card.

Satellite TV System Security Alarm

Pico Products' Home Satellite Division has developed the PAL-100 "Picolarm" home satellite feed system security alarm. The Picolarm acts as a deterent to theft of a system's valuable outdoor antenna electronics by emitting a high-pitch Piezo buzzer when the cable connecting the device to the feed electronics is severed or disconnected.

The Picolarm can be installed on new or existing satellite system installations and can be connected to the existing home alarm system. Some insurance companies may offer reduced liability rates on satellite systems which have a Picolarm security device installed.

The Picolarm must have continuous electrical power in order to function properly. Newer model satellite receivers supply electrical power to the antenna's outdoor electronics even when the receiver's main power is off. Older model receivers, which do not power the feed system when the receiver is off, must use Pico's PS-15 power supply for proper Picolarm operation. The PS-15 is easily connected to the Picolarm using a minijack. The PAL-100's maximum power load capability is 750 mA 18 Vdc which can accommodate most types of outside antenna electronics.

For more information on the Pico's PAL-100 Picolarm, contact Pico Home Satellite, 103 Commerce Blvd., Liverpool, NY 13088 or 12500 Foothill Blvd., Lakeview Terrace, CA 91342. You may also circle reader service number 105 for more info.

BETTER SIGNALS

ANTENNAS AND SIGNAL IMPROVING ACCESSORIES

BY ED NOLL W3FQJ

The multi-band scanner antennas are upon the scanner scene. They are available in easy-to-erect, non-obtrusive single-staff form. They are omnidirectional, have good gain and a low wave-angle. Take a look at the eight-foot Austin Custom Antenna model of Fig. 1 which covers the scanner frequency range between 30 and 1200 MHz. It is designed for fixed station application. Also note the 18" 150/450 MHz duo-band mobile model of Fig. 2 which is equipped with versatile and durable fittings. It is a magnetic mount and the coaxial line exits from its side. A ground-plane mount is also available for home station use, Fig. 3. The same antenna proper fits both mounts. Use two separate antennas, or if your home station mount is easily accessible, you can interchange the same antenna between the car mount and the ground plane.

For the radio Ham there is a 2M/70CM version of the same antenna that can be interchanged at any time in the same manner. Many Hams are also scanner fans and they are able to use the same mount for either activity. All they need do is interchange antennas.

A close look at the magnet mount is given in Fig. 4. It consists of a magnetic vehicle male mount, a lower threaded adaptor and an upper locking nut associated with the antenna proper and its bottom ¼" screw. There are, of course, associated washers to provide a sealed fit. The lower threaded

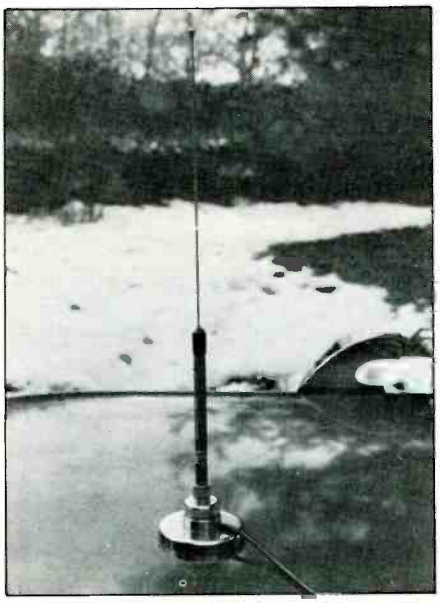


Figure 2: Austin VHF (Hi) and UHF (Lo) duo-band antenna on car roof showing the magnetic mount.

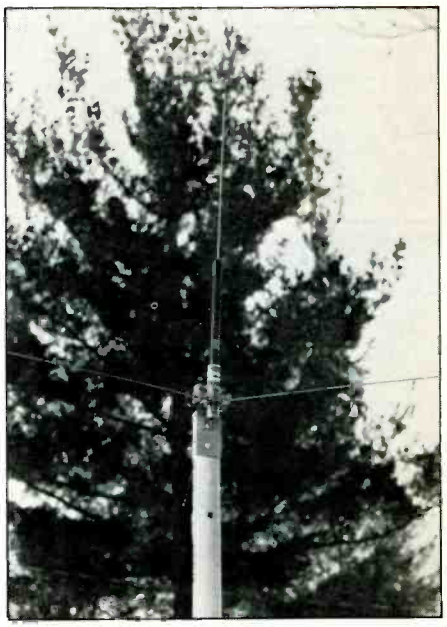


Figure 3: Duo-band VHF (Hi) and UHF (Lo) vertical with ground plane mount.

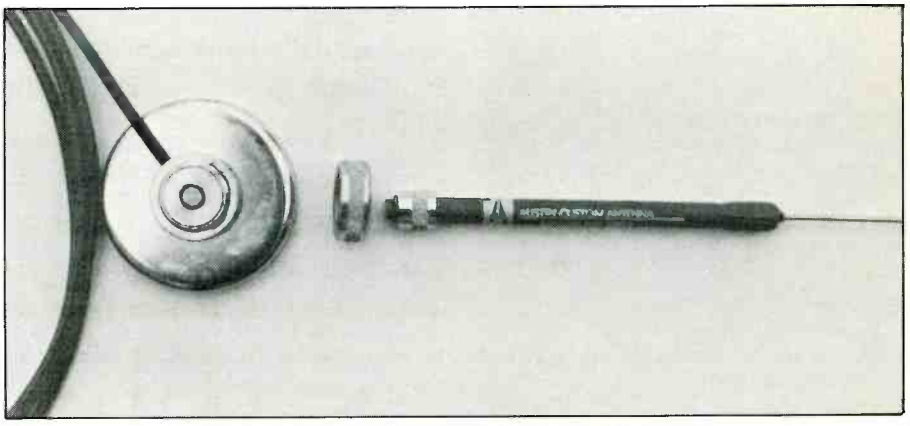


Figure 4: Essential components of magnetic mount.

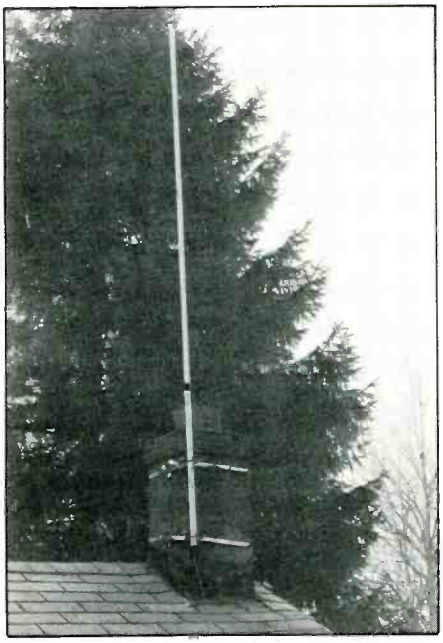


Figure 1: Shown here is the "ferret" multi-band scanner antenna.

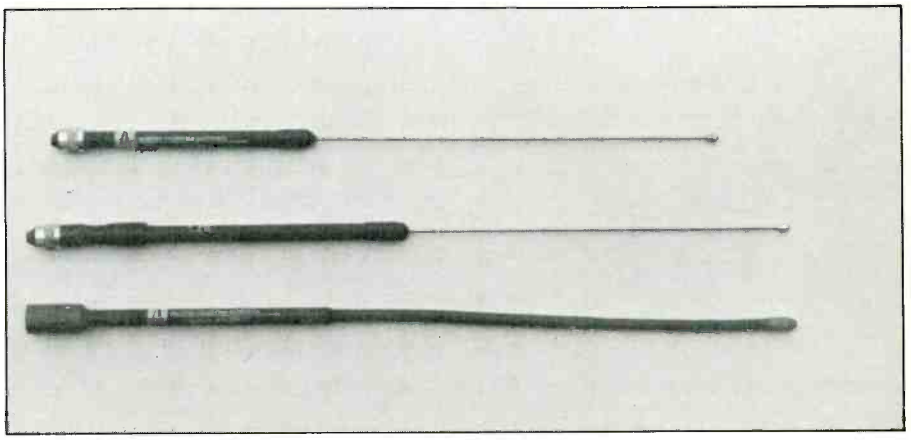


Figure 5: Sample of antennas that fit same mount. From top to bottom: duo-band scanner, duo-band Ham and duo-band scanner with BNC connector.

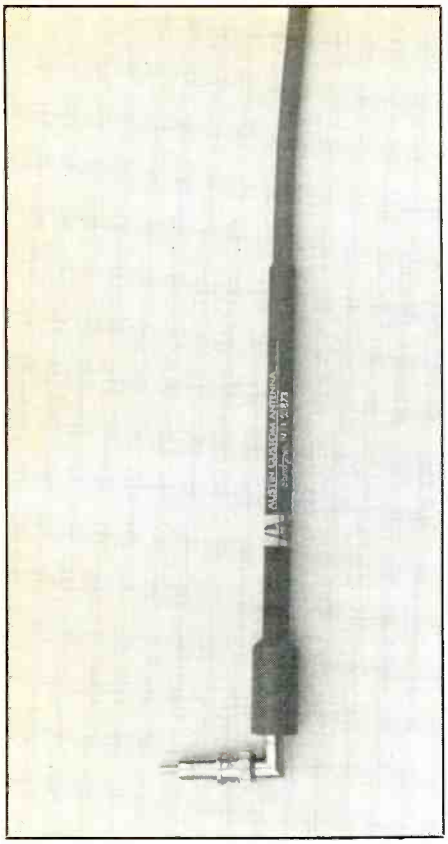


Figure 6: Elbow assembly for connecting directly to scanner.

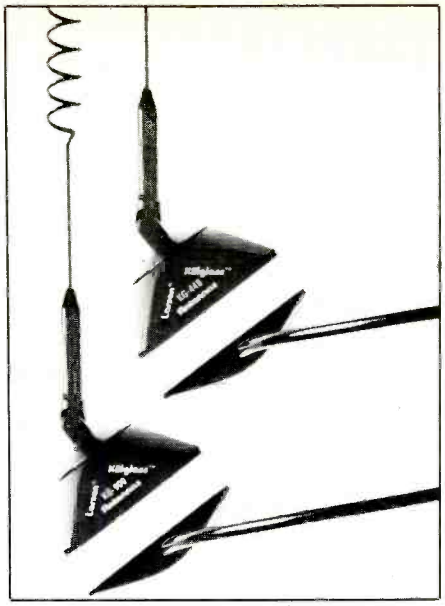


Figure 7: Larsen window mount.

adaptor screws down tight over the male mount. Then the aperture through the adaptor permits you to screw down the antenna and make contact with the male contact of the magnetic base. The upper locking nut is now turned for a tight fit.

The very same antenna can be screwed directly into the long-barrelled adaptor of the ground-plane mount using the locking nut, Fig. 3. The PL-259 plug of the transmission line connects to the opposite end of the adaptor.

A third soft top antenna (rubber duck construction) for scanner use, Fig. 5, also covers the same two bands but has a male BNC connector at its base that can be connected to a portable scanner. However, available with it is a BNC-to-magnet mount adaptor that permits its use with the magnetic base described above. In this case it replaces the lower threaded adaptor described previously. In addition, an elbow adaptor, Fig. 6, can be attached to the antenna. It has a Motorola male output that fits the antenna directly to the back of a fixed scanner.

The metal rod at the top of the duo-band model functions as an end-fed half-wave vertical antenna on 450 MHz band. The top rod and the base structure together operate as a quarterwave vertical in association with an available ground plane or with the ground plane supplied by a car roof. A patented cavity decoupler isolates the two band segments of the antenna.

Another relatively new concept, insofar as scanner and Ham application is concerned, is the antenna-on-glass mount, usually on the windshield, Fig. 7, but side or rear windows will do, too. First used in the landmobile and cellular two-way radio services, models are being designed for scanner and Ham radio applications.

Larsen has models for the 450 and 825 MHz two-way radio landmobile services and the 440 and 900 MHz Amateur bands.

Often such antennas are end-fed halfwaves and have some gain. A special tuning assembly is mounted outside the glass at the antenna base providing a low impedance capacitive feed through the glass to the coaxial line that is mounted inside the glass.

The antennas can be adjusted to a vertical stance regardless of the slope of the window. The halfwave design provides a proper match without the use of any ground plane.

The "ferret," Fig. 1, like the discone can be used for transmit and receive. However, if the antenna is to be used for *receive only*, you can also attach an antenna-mounted pre-amplifier that has a gain of 10 db. Wideband staff antennas that operate so well over such a wide span of VHF/UHF frequencies have a variety of internal elements such as multi-tuned resonant segments, dielectrically-tuned chokes, cavity couplers and so on despite their sleek appearance. The "ferret" has a diameter of 1.25". A very simple general plan is given in Fig. 8. Observe how its operation segments are spaced on each side of its center with appropriate decoupling among the various frequency spectra.

In recent times there have been significant changes in VHF/UHF antenna designs for the mobile services and you can expect more to come.

Austin Custom Antenna, PO Box 257, Sandown, NH 03873

Larsen Electronics, PO Box 1799, Vancouver, WA 98668 PC

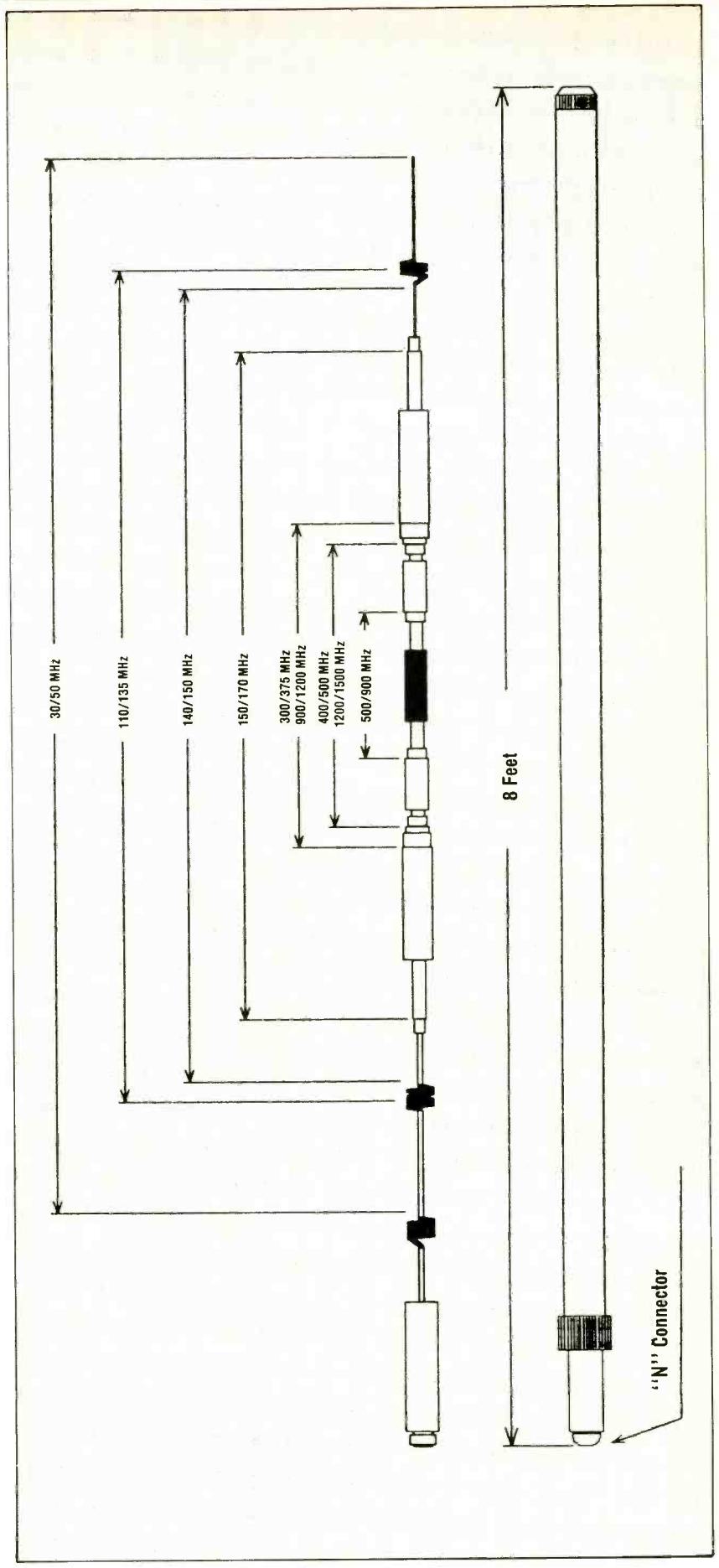


Figure 8: Austin "ferret" antenna.

PIRATES DEN

FOCUS ON FREE RADIO BROADCASTING

BY EDWARD TEACH

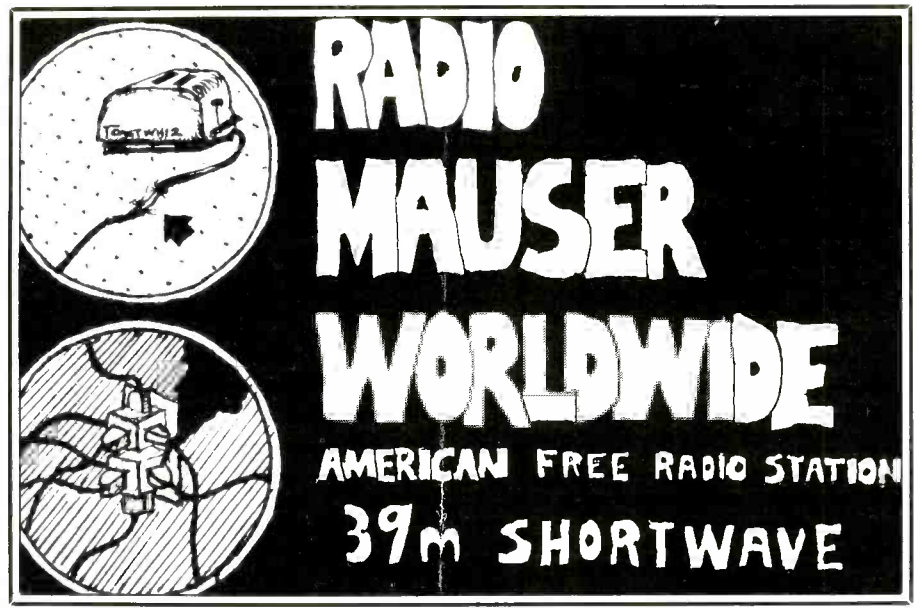
A couple of columns ago I wrote about Walter H. Dunn, Jr. and his unlicensed FM station, **The Black Rose**, which was based in the Fresno, California area. The station, which earlier had used such identifications as KSOS and Zoom Black Magic, was chased by the FCC through several locations over a period of some two years before finally being closed down last January. Dunn was threatened with jail if he didn't give up illegal broadcasting for good but Dunn vowed he would return to the air.

It seems he has, at least briefly. Reader Ed Needham sends a clip from the *Fresno* (California) *Bee* of March 15 which carries a story saying Dunn returned to the air on Saturday the 14th, broadcasting from an "ancient house trailer," on North Blackstone in Fresno, and daring the FCC to come and arrest him. The FCC didn't show but a local police officer did, asking Dunn to move the trailer because he was disrupting traffic. The trailer was covered with signs and Dunn was standing on top, broadcasting out in the open. It wasn't the soul-rap-blues-gospel mix which originally attracted the listeners. Instead, Dunn was apparently giving his views on the FCC, freedom of speech, the Constitution and such.

The broadcasts were from a much lower-powered transmitter than before, covering only a few hundred feet instead of several miles. Wind and rain put an end to the broadcasts that Saturday but Dunn was vowing to be back the following Monday.

Radio Mauser International wants to know "what's the matter with you guys?" The station sent in one of their QSL cards and is upset because they haven't seen it in the column yet. Well, it appeared in the May column so there's nothing too wrong with us guys! The station notes that it is "fast becoming America's alternative rock and roll shortwave station" and says further that, "We've been on the air for a long time and are here to stay." Tell you what guys, just to show you the heart's in the right place you'll find the other card you sent carried in this month's column.

Bob, from Connecticut, says he was visiting a friend in Norwalk and heard a station on 103.1 with a mixture of pop and dance music, calling itself **The Cool 103**. The station said it was broadcasting from the top floor of the Holiday Inn in Darien. Announcers Frank Stevens and Johnny Ray were offering a free breakfast to the fifth caller. Bob first noted the very strong signal at 0300 UTC and says it was still going strong at 1530! But it hasn't appeared since!



Bob also remarks that he'd like to see some photographs of pirate broadcasters. Echo that! So how about it pirates? The photos don't have to show faces of people or outdoor antenna installations but photos of equipment set-ups, backs of operators and so on, ought to be 100% secure. Let's hear from you!

Donna M. Cotter of Houston, TX wonders about a weird one she heard last Fall on 7160 at 2314 and then again during February on 7100 at 0120. It was announcing as **Sideline Radio** and during Donna's first logging, was giving advice on the best CB frequencies for broadcasts. The second time she heard the station it was with a discussion about FCC regulations. Donna wonders if anyone else has any information on this station or has also logged it. Nothing in the file here, Donna. Anyone?

Someone who signs himself or herself "No. 1" and writes from Elgin, Illinois reports hearing Radio Station **WIMP** on 19 February from 1800-1930 on CB channel 30 (27350 MHz). The station was playing rock music and the disc jockey said those call letters were used because "it's probably the wimpiest radio station because it runs four watts and a 20-foot antenna." This guy must be unaware of QRP Ham operators and their powers of half a watt!

John Smith (that's what it says!) writes in from Los Angeles with a combination complaint and observation. John says that, during the last year, he has heard nine pirate stations. He sent reception reports to each of the nine and followed the standard procedure of enclosing three units of postage with each report, sending them to the announced or listed addresses. John says he is "really bugged" because only one third of the stations have replied with QSL's. John wonders if he's at fault or what. Assuming the reports were correct, it's probably not your fault. Even pirate stations which are known to verify reports often do not do so at times or take a very long time to reply. Why? Your guess is as good as mine. Problems with the mail drop address? Maybe. Or simply disinterest on the part of station operators, or a "let's take care of it next week" approach. Certainly a pirate broadcaster can have a no-QSL policy if he or she wishes but requesting reports, promising or implying reports will be QSL'd and then not doing so is irresponsible, particularly since the reporter has invested his time and nearly a dollar's worth of stamps in each report he sends.

Activity was rather on the slight side over the past month. We need to know about what you are hearing—as well as from you station operators with info about your station, programming, future plans or any of you who are planning to put new stations on the air. News clips about pirates, copies of pirate QSL's or other pirate literature are always welcome and very helpful so let's hear from you frequently! PC

ON THE LINE

NEW AND EXCITING TELEPHONE TECHNOLOGY

BY JULIAN MACASSEY, N6ARE

New Trends and Telephone Equipment

The telephone and telegraph, the oldest audio and digital communications system, is in its second century and the innovation seems to be speeding up rather than slowing down. When seeing how far the telephone industry has come, it is hard to imagine what the computer industry will look like when it is well into its second century.

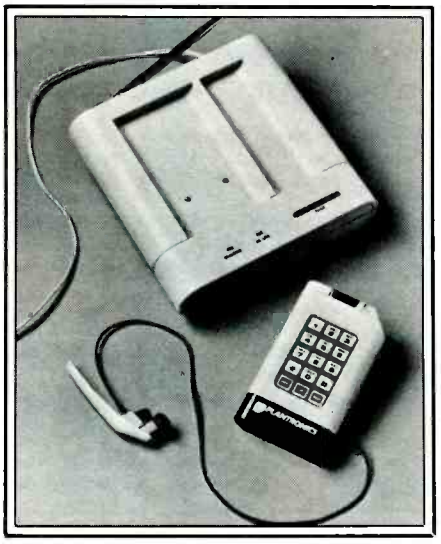
The telephone started life as a communications device for the privileged few—doctors, lawyers, real-estate agents. Phones were first for the rich and famous. They talked to each other, and from uncomfortable public places, the Hoi-Polloi could call the doctor for a house call. Queen Victoria had a telephone but was not amused by it. George Bernard Shaw considered the telephone "Stentorian." Despite the lack of utility and royal patronage, the telephone system has grown into the most-used machine made by man.

In the North American continent, nearly every home has a phone line and nearly every desk has a phone. Even in the depths of national parks and on the tops of mountains, there are phone booths waiting for your quarter or credit-card number. Cars have phones, trains have phones and domestic airliners have phones. There is some speculation as to whether the "AirPhone" service will continue, as they have not obtained a permanent license, but once a need is established, the FCC rarely refuses a license.

For the transatlantic traveller who just has to call his office as the jumbo jet turns south over Greenland, there is relief in sight. Travellers on British Airways transatlantic flights will be able to use a service called "Skyphone." The equipment, made by RACAL, is being installed now and the service will be run by British Telecom. The service will start using the Atlantic Inmarsat bird and will eventually also use the Indian Ocean and Pacific satellites for worldwide coverage. Current estimated cost per minute to call home will be about $8.00.

The uplink frequency (plane to satellite) will be in the L band (about 1 GHz). The downlink (satellite to ground station) will be at 4 and 6 GHz. It is believed that the audio will be compressed digital audio.

When the Skyphone service is in place on all the Inmarsat satellites, it will be possible to call home to make sure the fish have been fed from anywhere in the world at any time. While struggling through turbulence over Sumatra, the intrepid traveller will be able to call his doctor to get his travel-sickness pill prescription refilled.



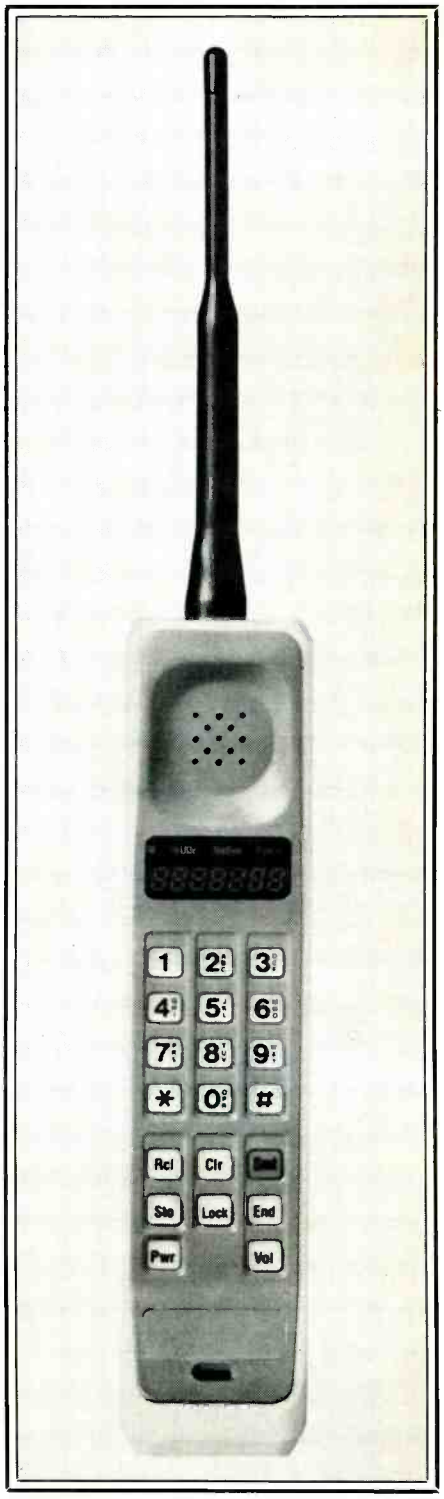
Plantronics LiteSet Cordless with base unit.

Some interesting things have happened to telephone headsets of late. One of the most exciting things is a new cordless headset. The other innovation is a headset for cellular phones.

The new cordless headset comes from Plantronics, the company that invented the lightweight headset. This new headset is called the "LiteSet Cordless." It will be available shortly and should sell for around $250. The idea of a cordless headset is not new. Prototypes of a cordless headset using infrared technology have been kicking around Plantronics for six or seven years. The first infrared telephone product was the Plantronics "Phone Beam" speakerphone that used infrared for the microphone to phone-line link.

All the development work for this device was done assuming that there would be an infrared version of the Plantronics headset. Engineering said "We need a cordless headset," while marketing said "We need a speakerphone." Possibly some people consider speakerphones executive toys and "sexy." Headsets are used by clerical staff and dispatchers, so apparently they are "not necessarily sexy."

The world had to wait six years for a product that would provide the advantage of a speakerphone—mobility—without the disadvantages—lousy acoustics and lack of



Motorola Triton 880 Portable Marine Cellular Phone.

Yes, it's me surrounded by my ever-so-modern miracles of telecommunications.

Motorola Triton 180 Transportable Marine Cellular Phone.

Sitting in the back of a limo talking on the phone with the *Wall Street Journal* spread out in front of you may be an interesting scenario, but most cellular phone users drive their own cars.

Some poor souls, including all those unfortunate Porsche and Ferarri owners, have to try to talk on the phone and shift at the same time. Shifting gears, going around a corner and talking on the phone at the same time is much more difficult than walking and chewing gum at the same time. It is also more dangerous. There are "speakerphones" for cellular use. They have all the normal problems speakerphones have with the added disadvantage that they work poorly or not at all in high noise environments such as Ferrarris and limos with the window open or the tape player running.

A company called Morrison Dempsey which specializes in accessories for cellular phones has come out with a couple of headsets specifically for cellular phones. The first model, the HS1, comes with a switch box to switch between headset, handset and speakerphone. The HS2 plugs directly into the cellular phone speakerphone jack. The advantage of headsets in cars is not only the ability to have both hands free, but also the audio is fed directly into the ear, helping combat the ambient noise problem.

Another item for the cellular fan is a new handheld unit from Motorola. This is the Triton 880 Portable Marine cellular telephone. It is made rugged for use in a marine environment. It is also probably just the thing when talking to your broker from the hot tub. For a bit more oomph and more battery power there is also the Triton 180 Transportable marine cellular telephone. This sort of rugged unit may appeal to farmers, country veterinarians and others who are out and about at all hours in all climates.

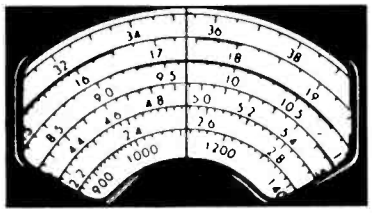
To return to the more mundane, the German company Siemens has released a series of phones called the "Euroset Plus." This is a line of phones with various features. The features include LCD displays, built-in dialers, speakerphones and a two-line unit. These are nice looking phones and Siemens is the world's third largest phone equipment manufacturer. One word of warning: The handsets are European standard (CCITT) and slightly longer and wider than the standard American handset. A different shape of handset may take a bit of getting used to, but is certainly is comfortable and can be cradled on the shoulder just like a regular American handset.

"privacy." Well, now the wait is over. Anyone can now wander around the room with both hands free and carry on a clear phone conversation. Anyone who now uses a headset, and many people who have yet to try a headset, will find this cordless unit a real boon. As the user is now without the hindrance of a cord and can wander from the base set, the cordless unit comes with a touch tone pad, so calls can be initiated wherever the unit will work.

For some bizarre reason, this headset does not use infrared. It is a 49 MHz RF unit. Therefore, it will be subject to interference and eavesdropping by anyone nearby with a scanner, exactly the same shortcomings as a cordless phone. It would be a shame if all of Plantronics' development time to come up with an infrared unit is wasted.

Plantronics should bring out another version of this handset—an infrared version. Security is one good reason to consider an infrared version. Infrared is pretty much confined to the room in which it is operating and requires special equipment to detect, so security is pretty good and interference is almost unheard of. Infrared will not work well with very high ceilings, but most offices, houses and lab-type rooms are ideal for this sort of equipment. PC

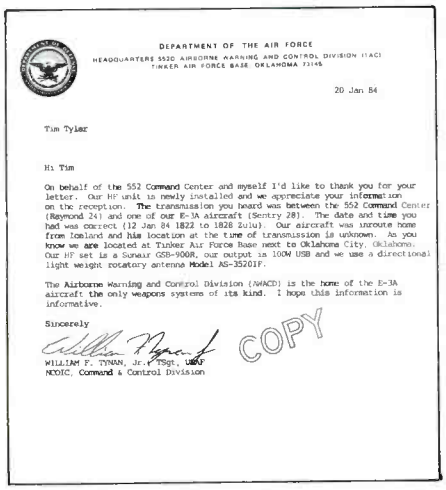
Siemens Euroset Plus Enhanced (left) and Euroset Plus Speaker Plus (right).



COMMUNICATIONS CONFIDENTIAL

BY DON SCHIMMEL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 552D AIRBORNE WARNING AND CONTROL DIVISION (TAC)
TINKER AIR FORCE BASE, OKLAHOMA 73145

20 Jan 84

Tim Tyler

Hi Tim

On behalf of the 552 Command Center and myself I'd like to thank you for your letter. Our HF unit is newly installed and we appreciate your information on the reception. The transmission you heard was between the 552 Command Center (Raymond 24) and one of our E-3A aircraft (Sentry 28). The date and time you had was correct (12 Jan 84 1822 to 1828 Zulu). Our aircraft was enroute home from Iceland and his location at the time of transmission is unknown. As you know we are located at Tinker Air Force Base next to Oklahoma City, Oklahoma. Our HF set is a Sunair GSB-900R, our output is 100W USB and we use a directional light weight rotatory antenna Model AS-3520IF.

The Airborne Warning and Control Division (AWACD) is the home of the E-3A aircraft the only weapons systems of its kind. I hope this information is informative.

Sincerely

WILLIAM F. TYNAN, Jr., TSgt, USAF
NCOIC, Command & Control Division

COPY

U.S. Air Force QSL which was received by Tim Tyler, MI.

The mailbag was overflowing this month with many new contributors joining us and lots of interesting information sent in by readers.

Domenic Mallozzi is fortunate in that he has two locations he uses for monitoring, one in Rhode Island and the other in Massachusetts, and he has various receivers to use as band and mode dictate.

Deanna Kratzer, WA supplied some fine loggings and said, "Please allow me to brag. My station has recently grown, partly as a result of the column! I'm currently running a Yaesu FRG8800, FRG9600, Panasonic RF2200, Realistic PRO-7B and a Hallicrafters S-38B. The antnenas for these include an 80-foot longwire, 180-foot longwire, and a Butternut SC3000 scanner antenna."

As I have said in the past, you gals should follow Deanna's example and write up your loggings and send them in.

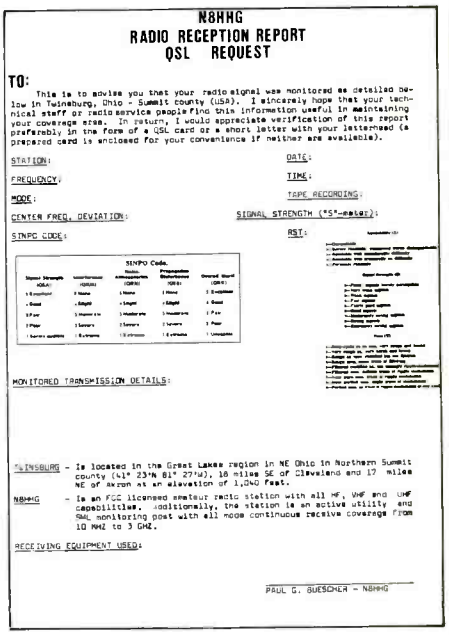
The Transmitter Plant Supervisor, Munich R.S., David M. Sites, supplied some background info regarding the February 1987 column item of 7478 kHz logged at 2025. "This VOA African service feeder is transmitted from the Liberia Relay Station by an AN/FRT 22 transmitter with a PEP of 35 kW. The antenna is a rhombic. It is unterminated giving it dual bearings of 126 and 306 degrees. Its target area is south-central Africa. This is one of the 'feeders' to our Botswana Relay Station, which operates on 621 kHz with a power of 50 kW." Thanks, David, for the explanation.

Having seen the March issue of *POP'COMM*, Sil Marini, FL says, "Have been a 'Hamband-only' SWL for 2½ years and your column is the first I've heard of anyone logging utes, let alone being fortunate enough to get a QSL from them." Sil went on to indicate he is very enthusiastic about this phase of the hobby and will be subscribing to *POP'COMM* "as soon as I get over the shock of laying out the bucks for a Kenwood R-5000."

For all those who have asked, here is the Voyager address for obtaining a QSL of the monitored communications –Voyager Aircraft, Inc., Hanger 77, Mojave, CA 93501. I do not know how long that address will be valid. Thanks to Robert Ross, Ontario for the address.

Darell Lingenfield, PA asked about some 5F traffic sent by a YL in an unidentified language on 6675 kHz at 2302. The traffic was preceded by drum music. Darrell, this frequency has been reported in the past with 5F groups in the Russian language.

A very professional appearing form was received from Paul Buescher, OH which he uses for making his reception reports. Paul commented that the use of the report form



N8HHG
RADIO RECEPTION REPORT
QSL REQUEST

TO:

This is to advise you that your radio signal was monitored as detailed below in Twinsburg, Ohio - Summit county (USA). I sincerely hope that your technical staff or radio service people find this information useful in maintaining your coverage area. In return, I would appreciate verification of this report preferably in the form of a QSL card or a short letter with your letterhead (a prepared card is enclosed for your convenience if neither are available).

STATION: DATE:
FREQUENCY: TIME:
MODE: TAPE RECORDING:
CENTER FREQ. DEVIATION: SIGNAL STRENGTH ("S"-meter):
SINPO CODE: RST:

SINPO Code.

MONITORED TRANSMISSION DETAILS:

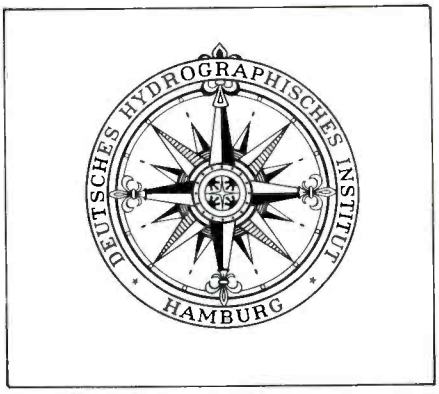
TWINSBURG - Is located in the Great Lakes region in NE Ohio in Northern Summit county (41° 23'N 81° 27'W), 18 miles SE of Cleveland and 17 miles NE of Akron at an elevation of 1,040 feet.

N8HHG - Is an FCC licensed amateur radio station with all HF, VHF and UHF capabilities. Additionally, the station is an active utility and SWL monitoring post with all mode continuous receive coverage from 10 MHz to 3 GHz.

RECEIVING EQUIPMENT USED:

PAUL G. BUESCHER - N8HHG

This form, devised by Paul Buescher, OH, has been a factor in his amazing 95% return rate for requested QSL's.



DEUTSCHES HYDROGRAPHISCHES INSTITUT
HAMBURG

DEUTSCHES HYDROGRAPHISCHES INSTITUT
Postfach 220, 2000 Hamburg 4
Federal Republic of Germany

Mr. George Osier 1983 November 18

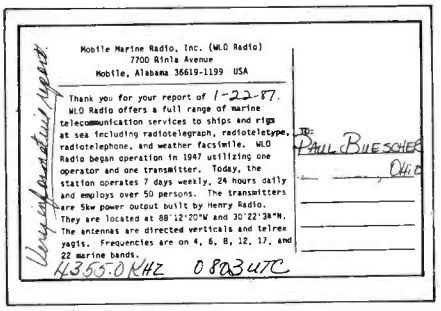
U.S.A.

Dear Mr. Osier,
Many thanks for your communication. This is to confirm your reception of our radio time-signal transmitted on 1983 November 9, 2355 - 2406 UTC.
The station heard was DAN (2614 kHz) with a power of 2 kW.
Best wishes for 1984!

Yours sincerely,
For Deutsches Hydrographisches Institut,

Dr. Enslin

A note from George Osier, NY brought this QSL from Station DAN. He added that this QSL and one from DAO were his favorites. They will never be heard again as the service was discontinued.



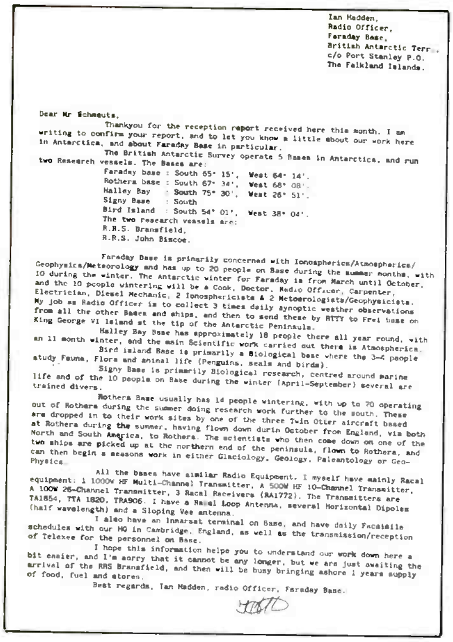
Mobile Marine Radio, Inc. (WLO Radio)
7700 Rinla Avenue
Mobile, Alabama 36619-1199 USA

Thank you for your report of 1-22-87.
WLO Radio offers a full range of marine telecommunication services to ships and rigs at sea including radiotelegraph, radioteletype, radiotelephone, and weather facsimile. WLO Radio began operation in 1947 utilizing one operator and one transmitter. Today, the station operates 7 days weekly, 24 hours daily and employs over 50 persons. The transmitters are 5kw power output built by Henry Radio. They are located at 88°12'20"W and 30°22'38"N. The antennas are directed verticals and telrex yagis. Frequencies are on 4, 6, 8, 12, 17, and 22 marine bands.

Very informative report.
4355.0 KHz 0803 UTC

To: PAUL BUESCHER
OHIO

Here is a QSL from WLO that Paul Buescher received.



Ian Hadden,
Radio Officer,
Faraday Base,
British Antarctic Terr.,
c/o Port Stanley P.O.
The Falkland Islands.

Dear Mr Schmauts,

Thankyou for the reception report received here this month. I am writing to confirm your report, and to let you know a little about our work here in Antarctica, and about Faraday Base in particular.

The British Antarctic Survey operate 5 Bases in Antarctica, and run two Research vessels. The Bases are:

Faraday base : South 65° 15', West 64° 14'.
Rothera base : South 67° 34', West 68° 08'.
Halley Bay : South 75° 30', West 26° 51'.
Signy Base : South
Bird Island : South 54° 01', West 38° 04'.
The two research vessels are:
R.R.S. Bransfield.
R.R.S. John Biscoe.

Faraday Base is primarily concerned with Ionospherics/Atmospherics/Geophysics/Meteorology and has up to 20 people on Base during the summer months, with 10 during the winter. The Antarctic winter for Faraday is from March until October, and the 10 people wintering will be a Cook, Doctor, Radio Officer, Carpenter, Electrician, Diesel Mechanic, 2 Ionosphericists & 2 Meteorologists/Geophysicists. My job as Radio Officer is to collect 3 times daily synoptic weather observations from all the other Bases and ships, and then to send these by RTTY to Frei base on King George VI Island at the tip of the Antarctic Peninsula.

Halley Bay Base has approximately 18 people there all year round, with an 11 month winter, and the main Scientific work carried out there is Atmospherics.

Bird island Base is primarily a Biological base where the 3-4 people study Fauna, Flora and animal life (Penguins, seals and birds).

Signy Base is primarily Biological research, centred around marine life and of the 10 people on Base during the winter (April-September) several are trained divers.

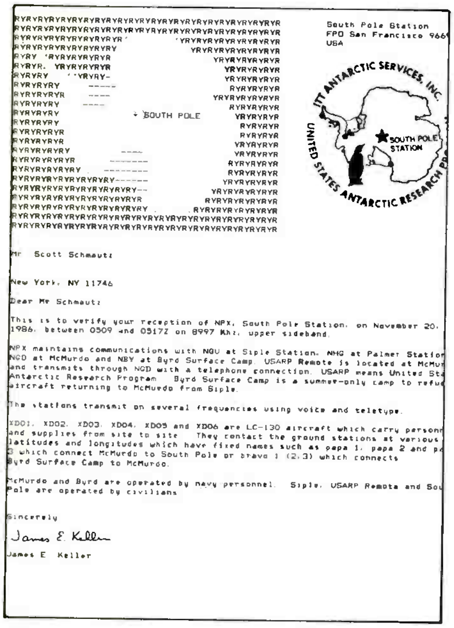
Rothera Base usually has 14 people wintering, with up to 70 operating out of Rothera during the summer doing research work further to the south. These are dropped in to their work sites by one of the three Twin Otter aircraft based at Rothera during the summer, having flown down durin October from England, via both North and South America, to Rothera. The scientists who then come down on one of the two ships are picked up at the northern end of the peninsula, flown to Rothera, and can then begin a seasons work in either Glaciology, Geology, Paleantology or Geo-Physics.

All the bases have similar Radio Equipment. I myself have mainly Racal equipment: 1 1000W HF Multi-Channel Transmitter, A 500W HF 10-Channel Transmitter, A 100W 26-Channel Transmitter, 3 Racal Receivers (RA1772). The Transmitters are TA1854, TTA 1820, TRA906. I have a Racal Loop Antenna, several Horizontal Dipoles (half wavelength) and a Sloping Vee antenna.

I also have an Inmarsat terminal on Base, and have daily Facsimile schedules with our HQ in Cambridge, England, as well as the transmission/reception of Telexes for the personnel on Base.

I hope this information helps you to understand our work down here a bit easier, and I'm sorry that it cannot be any longer, but we are just awaiting the arrival of the RRS Bransfield, and then will be busy bringing ashore 1 years supply of food, fuel and stores.

Best regards, Ian Hadden, radio Officer, Faraday Base.



South Pole Station
FPO San Francisco 966
USA

Mr Scott Schmautz

New York, NY 11746

Dear Mr Schmautz

This is to verify your reception of NPX, South Pole Station, on November 20, 1986, between 0509 and 0517Z on 8997 Khz, upper sideband.

NPX maintains communications with NGU at Siple Station, NHG at Palmer Station, NGD at McMurdo and NBY at Byrd Surface Camp. USARP Remote is located at McMurdo and transmits through NGD with a telephone connection. USARP means United States Antarctic Research Program. Byrd Surface Camp is a summer-only camp to refuel aircraft returning to McMurdo from Siple.

The stations transmit on several frequencies using voice and teletype.

XD01, XD02, XD03, XD04, XD05 and XD06 are LC-130 aircraft which carry personnel and supplies from site to site. They contact the ground stations at various latitudes and longitudes which have fixed names such as papa 1, papa 2 and papa 3 which connect McMurdo to South Pole or bravo 1 (2,3) which connects Byrd Surface Camp to McMurdo.

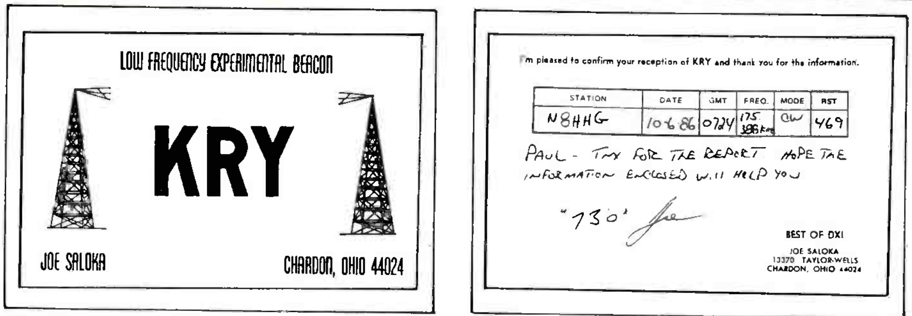
McMurdo and Byrd are operated by navy personnel. Siple, USARP Remote and South Pole are operated by civilians.

Sincerely

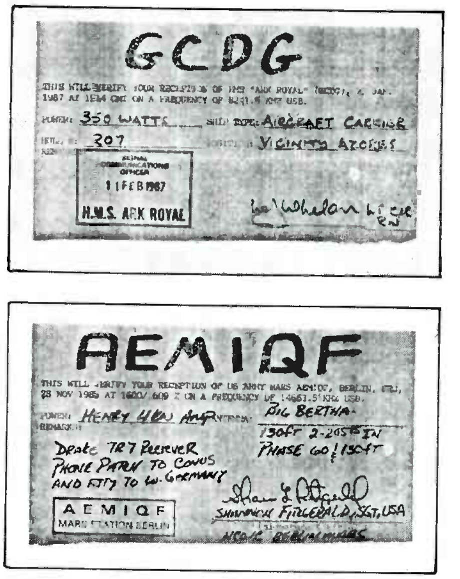
James E. Keller

James E. Keller

Here are two interesting QSL letters received by Scott Schmautz, New York, from Antarctic stations.



Paul Buescher, OH received this nifty QSL for his reception of a Low Frequency Experimental Beacon.



QSL cards from Patrick O'Connor, NH. GCDG, Ark Royal, is a veteran of the Falklands Island War.

along with providing return postage has resulted in an amazing 95% return rate. He added, "Interestingly enough, 50% of the return postage and IRC's were returned to me as 'Not needed'." That truly is a terrific return rate and I am sure other QSL seekers will make note of the procedures followed by Paul.

Being a district circulation manager for a morning newspaper, Steve Frame, WV works with about 30 paper carriers. "I passed around several back issues of *POP'COMM* and the boys were very interested in expanding their computer use to include SWL activity. Now they raid the newsstand each month as soon as the new *POP'COMM* is out. Several kids have picked up used receivers at local Hamfests while several more have bought and traded for scanners. We are starting an SWL club for carriers of the newspaper districts. I started out on an old RCA built in 1930. Later I used an old Hammerlund and then a DX-160 plus a Heath Kit SW 717. I recently purchased a used Yaesu FRG 8800 and I have a Bearcat 145XL. I have enjoyed SWL'ing for about 22 years." Steve, we wish you success with the SWL club for the youngsters.

Abbreviations Used For Intercepts

AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identifier/ied/ication
LSB	Lower Sideband mode
OM	Male operator
PP	Portuguese
SS	Spanish
tfc	Traffic
USB	Upper Sideband mode
w/	with
wx	Weather report/forecast
YL	Female operator
4F	4-figure coded groups (i.e. 5739)
5F	5-figure coded groups
5L	5-letter coded groups (i.e. IGRXJ)

Intercepts
All Times Are UTC

214: Beacon CHX, Choix, Mexico, Szalony, CA)
230: Beacon PD, Muni Apt., Pendleton OR at 0625 (Kratzer, WA)
238: Beacon MMK, Meriden CT at 1139 (Kneitel, NY)
241: Beacon SFZ, N. Central State Apt., Smithfield RI at 1914 (Mallozzi, RI)
251: Beacon UR, Burbank CA at 1401 (Szalony).
258: Beacon TBY, Oxford CT at 0338 (Kneitel)
278: Beacon NM, Matagami PQ at 0326 (Kneitel).
279: Beacon XSD, Tonopah (DGE) NV at 0258 (Szalony, CA).
290: Beacon AOP, Rocksprings WY (Szalony).
294: Beacon J, Jupiter Inlet LS, FL at 0420 (Pat O'Connor, NH).
306: Beacon R, St. Johns LS, FL at 0442 (O'Connor, NH).
329: Beacon CH, Charleston SC at 0422 (O'Connor)
331: Beacon PS, Tri Cities Apt., Pasco WA (Kratzer, WA).
334: Beacon STI, Mountain Home ID at 0343 (Szalony, CA).
341: Beacon SG, Santa Fe Apt., NM (Szalony).
342: Beacon ALM, Alamogordo NM at 1329 (Szalony, CA).
344: Beacon PCH, Fresno CA w.wx at 1332; Beacon XX, Abbotsford BC at 1338 (Szalony, CA); Beacon ZIY, Georgetown, Cayman Islands at 0455 (O'Connor, NH).
348: Beacon UHA, Havana, Cuba at 0459 (O'Connor, NH).
350: Beacon NY, Enderby BC at 1349 (Szalony)
351: Beacon NO, Reno NV at 1350 (Szalony, CA).
353: Beacon HOT, Higuerote, Venezuela at 0530 (O'Connor, NH).
356: Beacon AR, Green State Apt., Providence RI (Mallozzi, RI). Time not given-- Ed. Beacon PB, West Palm Beach FL at 0537 (O'Connor, NH).
357: Beacon BO, Boise, Idaho at 1351 (Szalony, CA), who also picked up Beacon EGE, Rocky Mtn. Airways, Eagle CO; time not stated-- Ed.
363: Beacon EZB, Oakland CA w/wx at 1347 (Szalony, CA).
365: Beacon ADT, Audubon IA at 1324 (Szalony).
367: Beacon HA, Hao Atoll, Tahiti at 1305 (Szalony, CA); Beacon YMW, Maniwaki PQ at 0329 (Tom Kneitel, NY).
371: Beacon YK, Yakima Air Terminal, WA (Kratzer, WA).
372: Beacon GT, Great Falls MT at 1410 (Szalony, CA).
375: Beacon SA, Sable Island NS at 0330 (Kneitel, NY).
376: Beacon HPL, Nucla CO at 1350 (Szalony, CA).
377: Beacon EMC, Winnemucca NV at 1408 (Szalony, CA).
382: Beacon LQ, Lynn MA w/wx at 1915 (Mallozzi, RI).
392: Beacon ML, Charlevoix PQ at 0319 (Mallozzi).
402: Beacon LKO, Billings MT at 0308 (Szalony).
406: Beacon FLR, Fall River MA at 0246. This seems to be a 2nd harmonic of this station listed 201 kHz but unaudible at this time on 201 or 203 kHz (Mallozzi, RI).
408: Beacon MW, Moses Lake WA (Kratzer, WA).
410: Beacon NZJ, El Toro MCAS, Santa Ana CA at 1358 (Szalony, CA).
413: Beacon OEG, Yuma PG, AZ at 1416 (Szalony, CA).
414: Beacon BC, Baie Comeau, PQ at 0331 'neath Beacon OGY, Rockaway NY (Kneitel, NY).
415: Beacon SLS, Salinas, Ecuador at 0325 (O'Connor, NH).
420: Beacon CEK, Crete NE at 0426 (O'Connor).
426: Beacon IZS, Montezuma GA at 0438 (O'Connor, NH).
436: CFH, Canadian Forces, Halifax NS in CW w/navigation reports 0233-0242. This sta is strong/reliable w/wx usually at 0200 (Mallozzi).
517: Beacon YWA, Petawawa ONT at 0549 (Kneitel, NY).

570: Broadcaster Radio Reloj in Cuba w/time sigs & CW ID at 0529 (Brooks, KY).

1610: KMB824, Illinois Highway Advisory Radio in AM mode, YL announcer re lane closings (Moran, IL).

1635: Cordless 'phones here & on 1645, 1735, 1755 & 1776 kHz (Robbins, GA).

2256.2: AAR7CC, Army MARS net including AAR7CG & others in LSB at 0104 (Kneitel, NY).

2385: 98BGL calling 95SPE in CW at 0311; probably Spanish Navy (Kneitel, NY).

2598: VCN, Grindstone Island CG, PQ in USB w/wx at 0450 (O'Connor, NH);VOK, Cartwright, Lab. in USB w/maritime wx at 0122 (Ross, ONT).

2670: NMW, USCG Astoria OR w/maritime wx at 0419; NMF, USCG Boston, MA at 0603 relaying Mayday for capsized vessel & 3 persons overboard (Ross, ONT); NMF w/warning that vessels off coast of Western Sahara were being fired upon w/mortars & automatic weapons. Heard at 0704 (Huston, TN).

2716: NDSD, USS BARNEY in USB at 2129 calling Norfolk Tug Control (O'Connor, NH).

2806: 5F gps in Polish read by YL, AM-mode at 0354 (Gulczynski, PA).

3016: Air France 018 in USB at 0549 to Shannon w/position report (Daryll Symington, OH).

3023: Plymouth Rescue, Plymouth, England, to Rescue 51 in USB at 0309 (Gulczynski, PA).

3172: Beacon X, unknown location, in CW at 2252 (Kneitel, NY).

4125: The "Endurance" calling the "Callihan" (YB 6138) in SSB at 0558 (Kratzer, WA).

4131.2: NNTR, USS THEODORE ROOSEVELT wkg WOM in USB at 0500 w/'phone patches (Symington, OH).

4221.2: GYU, RN Gibraltar in CW w/call marker (Jerry Brumm, IL).

4292: XFP, Chetumel, Mexico in CW at 0226 calling CQ (Brumm, IL).

4310: MTI, RN Plymouth, England w/VVV CW marker at 0325 (Brumm, IL).

4403.9: KMI, Dixon CA in USB at 0420 w/patches for vessel AMAZING GRACE (Brooks, KY).

4410.1: WGK Granite City IL in USB at 1320 w/patches & tfc for vessels on the Illinois River (Moran, IL).

4425.6 WOM, Miami FL in USB at 0615 w/patches for cruise liner FESTIVALE (Brooks, KY).

4428.7: NMN, USCG Portsmouth VA in USB at 0958 w/maritime wx, sked/freq info, & bulletin about Taiwanese fishing vessel (callsign: BZDW) in distress (Nrumm, IL).

4445: W0Y, un-ID w/5L gps in CW at 0212 ("J.M.," KY); NPO, USN SAn Miguel, Philippines in CW at 1330 w/wx (Moran, IL).

4582: KCC593, Profile 11 (NH CAP) at 2140 in USB to PICO 11 (VT CAP) w/SARCAP tfc re missing light plane (O'Connor, NH).

4585: KQD407, Lowland 40 (WV CAP net) in USB at 2230 (Symington, OH).

4742.8: Haven clg all stas w/flight wx using color codes yelloy/blue/etc., USB at 0350 (Frame, WV).

4746: CUW, Lajes, Azores w/coded tfc in USB at 0539 (Ross, ONT).

4780: C72F Chinook helicopters near Smyrna TN probably participating in 101st Airborne's Galden Eagle exercise. Also active on 5206 kHz. USB at 1858 ("J.M.," KY).

5060: 9MB6, Penang Naval R., Malaysia on CW at 1752 w/VVV (Hall, WA).

5125: Very odd noise, obviously machine generated. Like a cross between a Star Trek phaser zap & a hyperspeed burbling. Each burst is 5 secs long w/3 sec space until next one (Hall, WA).

5385: Gates Test wkg Seagull Control in USB at 0257. Seagull gave wx re testing fighters & possible icing problems. Dude Ranch also on this freq (Frantz, GA).

5398: "SFDK" sending VVV in CW at 0437 (Kneitel, NY).

5437: 5L gps in CW at 1350 (Moran, IL).

5438: K4Q, un-ID sta, w/5L gps at 0445 ("J.M.").

5547: KUA, Honolulu HI in USB at 1144 wkg Qantas 18 aircraft (Ross, ONT).

5550: Czech Airlines 577 ("Oscar Kilo 577") to New York Aeradio in USB at 0229 (Symington).

5658: Speedboat 54 to Cairo in USB at 0107. Also Nairobi calling Addis Ababa, Alitalia 6815 calling Khartoum, Tripoli calling Khartoum (Gulczynski, PA). Your Speedboat 54 is probably Speedbird 54, a British Airways aircraft-- Ed.

5696: AF Rescue 222 (a C-130 out of Suffolk County Airport, Westhampton Beach NY) enroute to site of a freighter capsized in rough seas. CG Rescue 1502 reported survivors in lifeboat plus others in water (Gulczynski, PA).

5710.5: SS/OM w/5L phonetic gps, USB at 1131 (Kneitel, NY).

5740: Rescue 458 to Rescue 302 in USB at 0412; apparent Australian. Rescue 302 replies that because of possible wave actian, people should camp on higher ground (Kratzer, WA).

5805: ZKLF, Aukland Meteo, New Zealand in CW at 0906 w/regional wx (Brumm, IL).

6027: Q7S & I9N, Ft. Campbell KY units w/personnel & medic reports to V1C, USB at 1958 ("J.M.," KY).

6221: KST, Tacoma WA wkg WJGO, M/V PHILADELPHIA in USB at 2340. Also worked KBGA, GULF near Triangle Island (Hall, WA).

6428.5: VHP3, Australian Navy, Canberra, w/weak CW at 1515 (Moran, IL).

6521: WRA8136, vessel CECIL GREEN in USB at 0110 wkg WSG8596. Both vessels south af Mabile AL & experiencing 10 ft. seas & gale force winds (Hall, WA).

6592: 2 OM/EE in USB at 0236 talking about "running in circles all night" & "bringing packages home" (Hall, WA).

6695: Crosscut (base) to XH192 in USB at 0450; apparent mil (Robbins, CA).

6714: Rescue W3 & others requesting "weather for the search area," USB-- faded out 1612 (Moran, IL).

6720: Halifax Military, NS to Rescue 301, USB at 0608 re search for fishing vessel (Brooks).

6750: SS/YL w/5F gps at 0501. Included 9+ mins of dead carrier w/assorted pops/crackles that sounded like rig was being tuned or repaired (Brooks, KY).

6761: 80 to Snowball in USB at 0416 w/request for "immediate" patch (Frame, WV).

6984: FUO, French Navy, Toulon, France w/CW VVV marker at 0257; unlisted freq (Kneitel).

7375: YL/EE in AM-mode sent sequence 222 222 222 1-0 a few times followed by 10 1-sec modulated tones followed by "count 181 count 181" then sequence of 2F & 3F gps. Heard 0009-0030. Some whistling & chatter heard in background (Mallozzi, MA).

7380: YL/EE in AM w/5F gps at 0016 (Lingenfield, PA).

7445: YL/EE in AM at 0017 sending "Kilo Delta Alpha 2" continuously for 5 minutes (Mallozzi, MA) These are reported as xmsns from Israeli Mossad; also heard at 0318 by Hoston, TN.

7589: YL/EE in AM at 0025 with 3/2F gps (Vendetti, NJ).

7983: Foxtrot Charlie, SAC aircraft, exchanging coded info w/Skyking on USB at 0158. A new SAC channel?? (Vendetti, NJ).

8160: Y5Z in CW at 0020 w/5L gps. Similar to xmsns on 4445 & 5438. Begins TPLOAD QRA DE Y5Z -P- and date/time group ("J.M.").

8173: YL/GG w/5F gps, each grp said twice; USB at 0309 (Kneitel, NY).

8204.5: DAWN TREADER in USB at 0211 w/patch thru KMI (Vendetti, NJ).

8291: WPE, Jacksonville FL at 1914 to tug DEFENDER (O'Connor, NH).

8295: WYH4108 wkg WOM in USB at 2226 (Lingenfield, PA).

8390: H9VR, Panamanian vessel M/V KARIN wkg WNU in CW at 0343. Enroute Peru, sending telegram to a Greek address (Halstead, WV).

8542: PKX in CW at 1717 calling CQ. This freq assigned to PKI in Jakarta so this may be at same location (Hall, WA).

8544.5: DZF, Bacoor, Manila, Philippines in CW at 1535 (Szalony, CA).

8822: Rockwell Flight Test Dallas wkg Navy 177 in USB at 1540-1830. Seemed to be testing antenna systems for data xmsns, etc. (Frantz, WV).

8861: D4B, Sal Aeradio, Cape Verde Islands at 2007 in USB wkg Cubana 493 (O'Connor, NH).

8864.1: Coast Guard 1713 working un-ID ground station (possibly Gander) in USB at 2110 (Frame).

8867: Nandi Aeradio, Fiji, w/tfc in EE, USB at 0715 (Brooks, KY).

8964: Hickam AFB (Hawaii), YJ111 & JRCC in USB from 0538-0604 re search for downed aircraft (Kratzer, WA).

8984: USCG Rescue 1501 (a C-130) in USB at 1650 w/patch for CNN for live interview via ComSta Portsmouth. Regarded search for 3 persons from sinking vessel that were eventually picked up by vessel COLUMBO (Frantz, GA).

8997: NPX, South Pole Station, Antarctica relaying tfc to McMurdo re automatic wx sta destroyed by wind. USB at 0620. McMurdo heard faintly ("J.M.," KY)

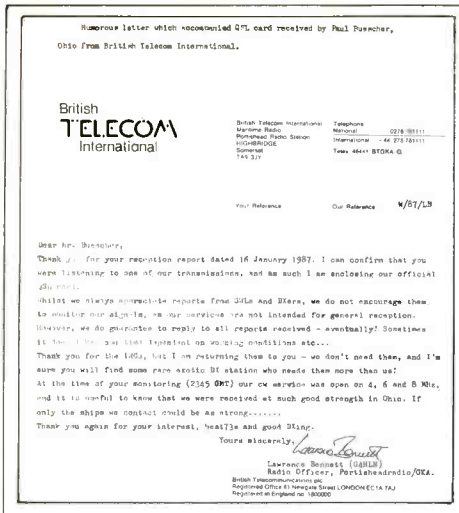
9419: CUA48, Lisban R., Portugal wkg ships in CW at 1850 (Moran, IL).

9615: Jammers B1 & D3 (presumed Soviet) doing their noise thing at 1942 (Kneitel, NY).

9844: YL/EE w/5F gps in AM at 2240 (Lingenfield, PA).

9880: Cricket chirp 2-tone sig every 2 sec, sig strength varied from fair to good (Hall, WA). Maybe FAX?-- Ed.

10075: Eastern Air 944 wkg Houston in USB at 1958 re wx for Orlando. This is a long distance operational channel (Lingenfield, PA).



Humorous letter which accompanied QSL card received by Paul Buescher, Ohio from British Telecom International.

British TELECOM International

British Telecom International
Maritime Radio
Portishead Radio Station
HIGHBRIDGE
Somerset
TA5 3JY

Telephone
National 0278 781111
International +44 278 781111
Telex 46441 BTGKA G

Your Reference

Our Reference W/87/L9

Dear Mr. Buescher,

Thank you for your reception report dated 16 January 1987. I can confirm that you were listening to one of our transmissions, and as such I am enclosing our official QSL card.

Whilst we always appreciate reports from QSLs and DXers, we do not encourage them to monitor our signals, as our services are not intended for general reception. However, we do guarantee to reply to all reports received - eventually! Sometimes it takes time for us to obtain operating conditions etc...

Thank you for the IRCs, but I am returning them to you - we don't need them, and I'm sure you will find some rare exotic DX station who needs them more than us!

At the time of your monitoring (2145 GMT) our CW service was open on 4, 6 and 8 MHz, and it is useful to know that we were received at such good strength in Ohio. If only the ships we contact could be as strong.....

Thank you again for your interest, health and good DXing.

Yours sincerely,

Lawrence Bennett (G4HLN)
Radio Officer, Portisheadradio/GKA.

British Telecommunications plc
Registered Office 81 Newgate Street LONDON EC1A 7AJ
Registered in England no. 1800000

Humorous letter which accompanied QSL card received by Paul Buescher, OH, from British Telecom International.

10125: USCG Rescue 1710 in USB at 0240 in contact with M/V SIX KIDS re loss of its power & lights (Frantz, GA).

10562: FTK56A, St. Assise, Paris, France in CW w/FF nx at 1945 (Moran, IL).

11182: King 65, RCC & AF Rescue Center in USB at 2025-2128 w/tfc (Kratzer, WA).

11234: Haven to Ascot in USB at 0325 requesting signal report then gave flight wx (Frame, WV).

11407: SAM 26000 in USB at 1648 to Andrews AFB for comms check (Symington, OH).

11455: LBA10, Stavanger Naval R., Norway in CW at 1720 w/VVV marker (Margolis, IL).

11770//11805: Jammer SU, presumed Soviet, on the job at 1947 (Kneitel, NY).

12435: WFZ, Morgan City LA receiving wx info from a vessel in USB at 2058 (Vendetti, NJ).

12709: 8PO, Barbados in CW at 2121 w/marker (Ross, ONT).

12729: UMV, Murmansk USSR in CW at 1258 wkg LPD, Gen. Pacheco, Argentina (Vendetti)

12974.2: IQX, Trieste R., Italy in CW at 2245 w/VVV marker (A. Nonymous, MO).

12978: ICB, Genoa, Italy in CW at 1246 calling CQ (Vendetti, NJ).

13018: GKC, Portishead, England in CW at 2130 w/tfc list (Mallozzi, MA).

13023: D3E62, Luanda, Angola in CW at 1832 calling CQ (Lingenfield, PA).

13040: PJC, Curacao in CW at 2133 calling CQ (Mallozzi, MA).

13046: PZN, Paramaribo, Surinam in CW calling CQ at 0019 (Vendetti, NJ).

13244: Un-ID aircraft w/unsuccessful attempt at patch to USDAO, Guatemala City in USB at 1635; moved to 8993 kHz (A. Nonymous, MO).

13676: Un-ID sta in CW at 1455 w/coded tfc usng #'s, letters & punctuation marks (Margolis, IL). Last year I heard this same type of tfc this freq. All letters of the alphabet, #'s from 1-0 + 5 punctuation marks were all used in the cipher text. My intercept was at 0140 & had a very bad echo-- Ed.

13984: Possibly CLP1, MFA Havana, Cuba in CW from 1930-1955. SS plaintext tfc (Brumm, IL). This freq has been noted used in the past by MFA Havana-- Ed.

14445: VXN9, Canadian Forces Affiliated Radio Services (CFARS-- similar to MARS in the USA), Nicosia, Cyprus w/patches in USB at 1621 (O'Connor, NH).

14622: YL/GG in USB at 1410 running 3/2F tfc & repeats (Margolis, IL).

14934: NNN0CRK, MARS sta aboard USS PONCE in USB at 2049 w/patches via NNN0YBU (O'Connor, NH).

15110: Jammer A5, presumed Soviet, grinding away at 1950 (Kneitel, NY).

15290: Jammers TW, SU, & D3, presumed Soviet, all simultaneous at 1952 (Kneitel, NY).

15548: CW sta at 2139 slowly repeating X ENIN DE ENIN/2 BT FOXTROT ONE FOXTROT ONE BT ENIN DE ENIN/2. This went on for 20 mins (Hall, WA).

15985.5: PCQ1, MFA The Hague, Netherlands in CW at 1600 w/call marker (Margolis, IL).

16807: DZJ, Bulacan, Philippines in CW at 1700 w/nx in EE. Repeated at 2100 (Margolis, IL).

17105: IRM, International Medical Radio Center, Rome, Italy in CW w/marker at 1751 (Brumm)

17131: UJQ7, Kiev R., USSR in CW at 1304 calling "4LA" (Kneitel, NY).

17169.6: ZLB2/3/4/5/6, Awarua, New Zealand in CW at 1953 w/marker (A. Nonymous, MO).

17184.1: EAD5, Aranjuez, Spain in CW at 1949 w/call marker (A. Nonymous, MO).

18060: CLP1, MFA Havana, Cuba in CW to CLP55 at 2000 w/encrypted tfc ("J.M.," KY).

19436: 9RE365, PTT Lubumbashi, Zaire in USB at 1530 running patches (Margolis, IL). PC

SCANNER SCENE

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

There's been a lot of mail coming into *Scanner Scene* lately, so let's take a look at some of your comments.

Jon Bond of Boulder, CO writes in asking about the frequencies used for cellular telephones in the Denver area. While there is a federal law prohibiting listening to cellular phone calls, we certainly aren't about to tell you what you can or can't listen to in the comfort of your own home or car.

First of all, Jon, there are two cellular bands in use in the United States. One band is reserved for use by what are called wireline cellular carriers. Wireline carriers usually are telephone companies that are providing an extension of their land-based telephone service to mobile customers. The wireline carriers use the 880-890 MHz band for cellular phone repeater transmitters. You can hear both sides of the conversation of these frequencies, and the mobiles transmit on a frequency 45 MHz lower than the output channel.

The other set of frequencies, 870-880 MHz, are reserved for use by what are known as non-wireline carriers. These are companies that generally are engaged only in providing cellular telephone service. Each metropolitan area usually will have both a non-wireline and a wireline system in operation, thus providing competition. However, if you attempt to monitor cellular calls, often the conversation is switched in the middle of a phone call to another frequency and/or cell site. When a cellular user gets out of range of one cellular transmitter, the call will be picked up by the next cell site down the road while the conversation goes on.

Jon also asks about what scanners will cover the 225-400 MHz band for monitoring military aircraft. Several models will receive this range, in which transmissions usually are in AM. Models such as the Regency MX5000 and MX5500, the AOR AR2002, the Yaesu FRG9600, the ICOM IC-R7000 and Radio Shack's 300-channel PRO-2004 scanner all cover the 225-400 MHz band. While Regency has stopped selling their models that cover this band, some of the radios are still available, even used, if you look around. The Yaesu and ICOM receivers are top-of-the-line communications receivers. Thus, the Radio Shack PRO-2004 probably is the only receiver available that covers that band and carries a pricetag somewhat lower than the communications receivers. The Radio Shack PRO-2004 sells for about $400 and, according to reports we're getting here at *Scanner Scene*, is probably the best scanner Radio Shack has ever marketed. The radio is super sensitive and very selective. If you're looking for a good scanner that covers many of the out-of-band ranges, the PRO-2004 is a good bet. And even though Radio Shack has eliminated cellular coverage on this scanner, a quick snip of a single diode restores the cellular bands.

If you have a friend who wants to get into scanning, but doesn't want to have to deal with programming frequencies and searching for new channels, the new Regency Informant INF-5 scanner is the answer. You select the service you want to listen to (state police, local police, fire, medical and weather) and tell the scanner what state you want to listen to and the scanner does the rest. It will search all authorized frequencies in a given area at a rate of 50 channels per second.

Erling A. Gruel, WB9OJD, reports from Fond du Lac, WI about how he took *Scanner Scene*'s advice and checked out the 46 and 49 MHz bands and found all types of cordless telephone calls going on in his neighborhood. Erling asks whether the ECPA protects these cordless phone calls. While you shouldn't go around telling others what you are hearing on the cordless bands (not only does the Communications Act prohibit the divulging of your intercepts to third parties, it's just good common sense for the hobbyist), the law does not prohibit anyone from specifically monitoring such calls. Congress made the distinction in its recent boondoggle legislation because older cordless phones can be heard on AM radios, just above the broadcast band.

If you're searching for cordless calls, check out the base station transmitters on frequencies between 46.61 and 46.97 and the handheld phones between 49.67 and 49.99 MHz. If you listen to the base station channels, you'll generally hear both sides of the conversation; however, you may hear the originating station a bit better on the handset channels. The older cordless phones worked with the phones on the 49 MHz band and the base stations on the following three frequencies: 1695, 1725 and 1755 kHz. The frequency may vary a bit, however, as I notice one of my neighbor's teenagers using 1727 kHz for her phone. Listen in the AM mode on the frequencies just above the AM band, and listen in the narrowband FM mode for the 46 and 49 MHz bands. You might just be amazed at what your neighbors are discussing!

Cameron Bailey of Mount Wolf, PA writes in with a tip for those who like to record their scanner comms. Cameron suggests using a voice-activated portable cassette recorder (such as General Electric's 3-5322 model) and an attenuation patch cord (Radio Shack part No. 42-2152). Connect the cable from the speaker or earphone jack on the scanner to the microphone input jack on the tape recorder. Adjust the volume on the receiver or mic sensitivity to activate the recorder to switch on only during transmissions. Then, plug an external speaker into the earphone jack of the tape recorder to monitor the transmissions. It eliminates the need for an external box and allows taping off of handheld scanners as well. While recording transmissions of certain events for posterity (five-alarm fires, etc.), you'll also be able to listen as it happens. Good tip, Cameron!

Todd E. Heuer of Hales Corner, WI inquired about GMRS—the General Mobile Radio Service. This is a set of eight channel pairs in the 460 MHz band that generally anyone over the age of 18 is eligible to be licensed in. In addition to individuals, businesses and governmental entities also can use these frequencies after being licensed. The eight channels were known several years ago as the "Class A" Citizens Band. However, equipment was costly and bulky and hardly anyone used these frequencies unless they were desperate. In recent years, though, two-way radios that can operate on UHF have fallen drastically in price and now almost anyone who can afford a scanner also can afford two-way radio on GMRS.

Generally, you have to license yourself on one of the channel pairs. However, the FCC does allow licensing on more than one channel if the need is shown, and any channel can be used by any licensee in a real emergency. REACT teams and public-service oriented radio teams across the nation have adopted 462.675 MHz as their official channel for emergencies, motorist assistance and team activities. However, in more crowded areas, you may hear radio teams

running on several of the eight channels. You'll also hear normal, everyday folks and businesses using GMRS channels.

Getting licensed on GMRS costs $30 for the license from the FCC. If you have a need for communications in your family, and Ham radio isn't what you're looking for, then GMRS is where you can operate. Listen to the eight available channels—462.550, 462.575, 462.600, 462.625, 462.650, 462.675, 462.700 and 462.725 MHz—to find the quietest output channel and then check the mobile repeater input frequency 5 MHz higher as well to make sure there aren't mobile or handheld operations on that channel.

As far as using tone squelch, most radio teams use 141.3 Hz (tone 4A) on 462.675 MHz. If they don't use that tone for their everyday operations by members, they still may have that tone capability at their repeater so that transient motorists can call in emergency reports. Individual users can use any tone frequency they want (there generally are 38 available) so they don't have to monitor other stations on their channel. However, make sure no one else is using the tone squelch you pick before you start transmitting with it. Monitor the channel for several days, if not longer, to be sure. Let us know what you're hearing on the GMRS channels.

Ken Windyka checks in from Elmendorf Air Force Base in Alaska with some frequencies in our 49th state:

460.075	Anchorage police
154.785	Anchorage International Airport security/fire
155.790	State police
154.430	Anchorage fire
154.250	Anchorage paramedic/ambulance
155.160	Ambulance to hospital

Ken is also interested in setting up a special interest group on one of the computer services (such as CompuServe) for scanner and shortwave listeners. He'd like to hear from any *POP'COMM* readers interested in setting up such a group on one of the services. You can write to Ken Windyka at 1-700C 7th St., Elmendorf AFB, AK 99506.

Philip J. Smith of Monee, IL passes along a tip that is quite clever. Many scanner listeners probably don't use their priority channel because they don't like the constant "blipping" back and forth while they're trying to listen to other communications. It can become quite annoying when the scanner starts sampling that priority channel in the middle of an urgent bulletin. Thus, Philip suggests putting your local weather channel into the priority channel. Then, whenever you need to check on the weather, all you have to do is push one button—your priority switch. Within a second or two, your scanner has locked in on the priority channel and you're hearing the local weather forecast. Push the priority switch again, and you're back to routine scanning. An excellent tip, Philip!

And finally, a repeater notification group has started in the Philadelphia area. The group uses two-way radios to keep in contact with other members in order to keep informed about what they may be hearing on their scanners. Several groups already operate in the New York City-North Jersey and Boston areas and the new group covers Greater Philadelphia and South Jersey. If you're interested in keeping in the know with other scanner users and you're willing to purchase a two-way UHF radio, you're invited to find out more about Philadelphia Notification Network—or PNN. Send a self-addressed, stamped envelope to Philadelphia Notification Network, P.O. Box 144, Rosemont, NJ 08556-0144.

We're interested in hearing from you here at *POP'COMM*. We welcome your letters and comments and wouldn't mind it if you sent in frequency lists, tips and photographs that would be of interest to other scanner users. Write to: Chuck Gysi, N2DUP, *Popular Communications*, 76 North Broadway, Hicksville, NY 11801-2909. PC

RTTY

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

BY ROBERT MARGOLIS

Rare is the occasion when one can monitor RTTY from a U.S. Navy warship in the clear over HF radio. The majority of messages are encrypted for security reasons. Satellite communications are frequently used. The best chance of monitoring a naval ship is usually via the MARS station aboard the vessel.

Not long ago this writer happened to pick up a RTTY transmission in the clear from NOGB, the *U.S.S. Mount Whitney* (LCC 20), the flagship of the Second Fleet. It was a test of "quick brown foxes" being sent to the naval communications stations at Norfolk, Virginia. The content of the RTTY transmission is nothing to brag about, I agree; it's the sender that's worthy of note.

There were problems with the ship's HF radio transmitters and help was being sought to make the gear operate properly. Voice communications with Norfolk were on 10711 kHz, USB. I came across the voice traffic at 1424 UTC, and stayed with it until sign-off at 1605. During this time, tests were made repeatedly of the local and remote CW, FSK, LSB, ISB, AM and RTTY modes. The "foxes" test was sent at 75R on 10713.4 kHz. Two transmitters were used and adjustments were made.

The *Mount Whitney* is a Blue-Ridge-class amphibious command ship and is part of the fleet of amphibious warfare ships, or "amphibs," as they are called. Those ships are used to carry troops and tanks to invasion beaches, where smaller craft then put the troops ashore. *Mount Whitney* serves as the headquarters for task force commanders and landing force commanders of the Second Fleet. It has extensive communications equipment and a helicopter landing platform.

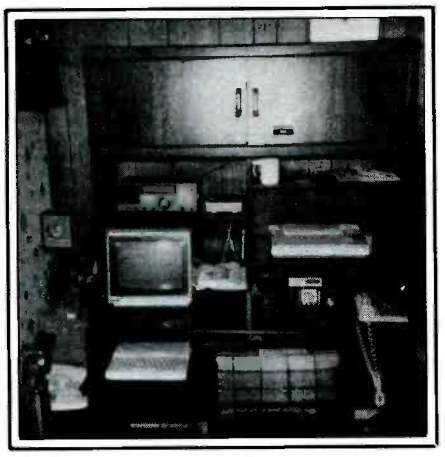
Another interesting catch was made just a day earlier—RTTY traffic from the Kremlin. It was at 1436 UTC when I came upon the station on 14690 kHz sending RY's with no ID at 75/425N. At 1400 came "CQ DE RCF," the callsign of MFA, Moscow, USSR.

The test tape continued with, "FOR JUA RXX RZJ CAZ FRU TRP FJN RKG RAG PTF URM NR 65" on one line, "FOR FQX BLA BNV NR 64 NR 66" on another line, and "FOR NVM QRU" on another line.

Then came three messages (nos. 64-66) containing groups of five digits. Sign-off was at 1449 with "QRU SK."

This frequency normally is used to broadcast TASS news items. Here we see how governments sometimes use assigned frequencies for traffic other than what is intended.

From time to time, RTTY monitors report seeing messages sent between Kitts Peak National Observatory (KFK92) near Tucson, Arizona, and the Cerro Tololo Interamerican Observatory (XQ8AFI) in Chile. Transmissions are around 20875 kHz in ASCII mode.



Frederick Roberts of Florida likes to get comfortable in front of this setup: Apple IIC computer, Magnavox RGB monitor, Yaesu FRG-880 receiver, Epson LX-80 printer, Kantronics UTU-XT modem, Hayes 300 Smart modem, and Realistic DX-400 receiver. Of equal importance to all-night RTTY monitoring is the bottomless coffee cup on the top shelf.

The employer of one of the research groups at Kitts Peak is the Vatican, according to the *Los Angeles Times*. Six Jesuit priests form the Vatican Observatory Research Group and have been at the Arizona facility since 1981. Part of their research is studying double, or binary, stars. The group's headquarters is the Vatican Observatory (Specola Vaticana), which has its telescopes at the papal summer residence at Castel Gandolfo.

At the Chilean observatory earlier this year, confirmation was made of the violent explosion of a supernova, which has been named supernova 1987A. The sighting originated at the nearby Las Campanas Observatory in Chile.

Again I must stress that this column is devoted to RTTY and FAX stations and the loggings you readers receive from them. It is not about microcomputers or the hardware/software used for RTTY purposes. Therefore I am sorry to say that I cannot answer any questions related to microcomputers; please refer your questions to dealers who handle them. Always remember to ask questions before you buy anything to be used for RTTY monitoring. That way you will know beforehand whether or not a product is suited to your needs.

To Harvey Rudoff of Colorado: I would not recommend using the SONY ICF-2010 to receive RTTY; suffice it to say that this excellent portable radio was not designed with the purpose of RTTY reception in mind.

Quality receivers for RTTY reception are made by Japan Radio, Ten-Tec, Yaesu, Kenwood, ICOM, and others. Talk to dealers of these products to find one that best suits your needs. Inquire at the same time about the various RTTY demodulators and video monitors on the market. Check out ads in *POP'COMM*, too.

To "Peter" of England: Some time ago you sent us loggings from a station using "UBD" call letters. A recently-received reply from fellow Briton George Sassoon explains what you saw.

Those call letters are used by Territorial Army units, which consist of part-time soldiers based in Great Britain. Every September they hold exercises to determine their readiness.

Last September, for instance, they held "Exercise Square Leg," which simulated the effects of a nuclear attack on Britain, Sassoon says. "Square Leg," for those Americans really wanting to know, is a fielding position in cricket.

Anyway, part of the exercises included the sending of "drill" messages, much like the ones we see on this side of the Atlantic coming from the Canadian military, which are done probably to determine who serves in the secretarial pool the following month. (The best typist gets the assignment.) The British Drill messages, however, are much more imaginative than the Canadians are, judging from Teletype printouts sent to me. One message pertained to the sighting of a "leg-shaped" UFO that landed behind a 14th-century barn. Aliens, shaped like "anklets," disembarked the vehicle and communicated with a farmer using telepathy. Another drill message dealt with the sighting of two beautiful girls. Sorry, I don't have room to print that one.

To Curt Weida of Indiana: Thank you for the batch of loggings. But, whoa! I couldn't use them because the photocopies had only the last two digits of the frequencies! (The photocopier frame blocked the front digits.) Would you resend the list for use here at a later date? What we saw looked good!

To Barney Fontenot of Texas: Nice list of loggings even though you admit to being a novice at RTTY monitoring. Much of what you show is garbling caused either by what you're doing now—monitoring the maritime and Amateur Radio bands—or by trying to tune in some of what is listed in these pages. Try to obtain the clearest text possible. You'll find your reward. Also provide more details about what you've seen; detail

similar to what's used here; transmission details, RTTY settings, time, etc.

Jeff Tunnell of New Jersey asks if there are any good books for learning about RTTY. A list of books ran in the November '85 *POP'COMM* and was repeated in the June '86 issue. Back copies may be purchased from the magazine's office at 76 N. Broadway, Hicksville, NY 11801.

We have no objection if some of you wish to remain anonymous or use an alias when you submit loggings to these pages (as long as I have your real name on file if there's ever a need for correspondence). But I cannot accept using a location distant from the one where the loggings were made. "W.H., Austria," I have you listed in the loggings section as "W.H., USA." I hope this meets with your approval.

More and more loggings are arriving at my desk with incomplete information, i.e., missing times, incomplete or no RTTY settings, incorrect frequencies (because RTTY was monitored on USB or LSB), and with generally scant information.

Be detailed with your loggings, because then your fellow hobbyists will be able to use what you have to offer. Make sure contributions show *all* pertinent information, if possible, including a gist of what the stations were sending, before mailing them to us. If you check your submissions for detail, it will make my job much easier.

One of our contributors returns to us this month after suffering awesome damage to his monitoring system, including a computer, and having to spend megabucks for repairs. Lightning entered his equipment either through a power transmission line or a telephone line and zapped them. Mention of this is made to warn all readers to employ lightning arresters on antenna systems and also to unplug all their equipment from wall sockets whenever a thunderstorm is brewing. I keep all my monitoring equipment plugged into a power strip. That way I only have to unplug one plug from a wall socket instead of several plugs.

Harold Van Daveer of Kansas requests that RTTY loggings be listed by the times they occur, and not by frequency as is presently done, because "it would be easier to see what was active and available at a given time." Although this suggestion might look good on the surface, I find a few drawbacks to it. Basically, most monitors of utility stations twirl the tuning knob to see the doings on the HF radio spectrum. They don't sit down and say, "Well, it's 7 p.m. I think I'll tune in a Spanish-language numbers station. Or, better yet, let's see what the VOA is broadcasting right now over RTTY."

Like the pioneer aviators early in this century, the ute monitor "flys by the seat of his pants." He looks for the unexpected rather than the commonplace. Just look at the first few paragraphs of this article. What was mentioned there didn't occur at set times. They were found with a great amount of luck. That couldn't have happened if a set schedule was adhered to. These are the loggings that make this hobby fascinating.

If the time element is important to anyone because of jobs or other activities, then it would be best to go after the frequencies above 10 MHz if you're a day-time monitor and below 10 MHz if your monitoring time is at night.

Extending the welcome mat to these first-time contributors: Tom Hartley, OH; Frederick Roberts, FL; Barney Fontenot, TX; "J.M." (full name not given), KY; "W.H.," USA; Mark Urban, a part-time operator of the MARS station at Camp Humphreys, South Korea, about 50 miles south of Seoul; and Paul Spurlock, WA4FHY, who was working in Riyadh, Saudi Arabia, when he mailed his loggings to us.

A nice selection of FAX loggings was sent to us from Patrick Sullivan of California. You'll find them listed after the RTTY loggings. Thanks, Pat, for the info. May it spur other readers to share their FAX loggings with us. He also sent some RTTY logs, which we'll use next month.

This month marks the second anniversary of my editorship of this RTTY column. I find great delight in writing it and want to thank each of you for giving me that pleasure. Now on to the third year!

Time to get out of the heat of the "dog days" of August. Come inside where the air conditioning is, turn on the RTTY gear, and try to get what these other readers have logged.

Abbreviations Used In The RTTY Column

AA	**Arabic**
ARQ	**SITOR mode**
BC	**Broadcast**
EE	**English**
FEC	**Forward Error Connection mode**
FF	**French**
foxes	**"Quick brown fox..." test tape**
GG	**German**
ID	**Identification/ied**
MFA	**Ministry of Foreign Affairs**
nx	**news**
PP	**Portuguese**
RYRY	**"RYRY..." test tape**
SS	**Spanish**
tfc	**traffic**
w/	**with**
wx	**weather**

RTTY Loggings
All Times Are UTC
Shift/Baud Rate/Polarity is Shown

2307: AA2NY, Army MARS net w/bulletin bc at 0129, 170/45N (Tom Kneitel, NY).

2468.8: Marker of UBDAE, QTH unknown at 1737, was 50R (Peter X, England). See the accompanying text for an explanation-- Ed.

2656: NNN0ASZ, USN MARS bulletins & telegrams at 2240, 170/54R. Mentioned other freqs 4015, 6970, 7380 & 14480 kHz (Kneitel, NY).

2727: DAN, Norrdeich R., FRG in working vessels in ARQ at 2250 (Kneitel, NY).

3196: Prague Meteo w/coded wx at 0515, 425/50N (Kneitel, NY).

3288: AAA3USA/O Army MARS net included AAR2HD, AAR1ON & others at 2315, 170/45N (Kneitel, NY).

3312: AIR, USAF MARS, Washington DC at 2339, 850/45R w/RYRY, foxes & 1-0 count. Also noted AFF1MA at 0338 in contact w/AIR via USB & 170/45R (Kneitel, NY).

3999: HZJ, Jeddah Aeradio, Saudi Arabia w/RYRY at 0224, 425/50N (Kneitel, NY).

4032.5: AAA6USA, Army MARS, Ft. Sam Houston TX w/telegrams at 0228, 170/75R (Kneitel)

4271: CFH, Canadian Forces, Halifax NS spotted at 0330 w/freqs & sked, 75 bauds (Barney Fontenot, TX). You listed freq as 4272.6 so I suspect that you were calibrating the freq while your receiver was tuned to the "incorrect" sideband. I made the correction to the actual RTTY freq here & elsewhere-- Ed.

4510: 9GC, un-ID station w/RYRY at 2230-0200, 425/50N (Daryll Symington). That's Accra Aeradio, Ghana-- Ed.

4519: DHJ48, Ramstein, FRG w/foxes to 5MT at 0100, 75/85N (Fred Hetherington, FL). DHJ48 is the FRG AF, I assume 5MT is a tactical ID-- Ed.

4549.5: LRO9, DyN Buenos Aires, Argentina at 2338 w/SS nx, 850/75R (Kneitel, NY).

4623.6: NNN0MPI, USN/USMC MARS, Parris Island, SC at 1213 in contact w/NNN0MCL, 170/75R (Kneitel, NY).

4632: XTU, Ougadougou, Burkina Faso in TDM 96/395 w/coded wx at 0130 (Hetherington, FL).

4632.5: GMP, INTERPOL West Wickham, England w/IPUK marker in ARQ at 2258 (Kneitel, NY).

4965.5: FIT75, Paris Prefecture, France w/RF marker in ARQ at 0410 (Kneitel, NY).

5160: IER20 w/tfc in Italian for IER50, 50N at 2100 (Peter X, England). IER20 is General Guardia Finanza, Rome, Italy. Nice catch!-- Ed.

5315: BZJ27, Hangzhou Meteo, PRC w/CQ & RYRY at 1200, 50 bauds (Mark Urban, S. Korea).

5457.1: LZF9, Sofia Meteo, Bulgaria w/RYRY at 2315, 525/50R. Slightly off listed freq (Kneitel).

5460: WWV45, USIA Rabat, Morocco w/nx in EE, 425/75N (Frederick Roberts, FL). Note that I have corrected your freq to the actual RTTY freq-- Ed.

5742.5: RPFNN, Portuguese Naval R., Lisbon at 0226 to s/off 0230 w/RYRY, foxes, counting while calling RPTIH. Was 850/50N. S/off with "ZNR UUUU ZGN ZGN ZGN LQCVL QRX PROX OSO AR AR" (Kneitel, NY).

5733: HZJ, Jeddah Aeradio, Saudi Arabia at 2327, 425/50N w/coded wx (Kneitel, NY).

5740: HZN, Jeddah Meteo, Saudi Arabia w/coded wx at 0157, 850/50N (J.M., KY).

5859: Y2V3, ADN Berlin, GDR w/nx in SS, 425/50N at 2334 (Kneitel, NY). Also logged by Roberts, FL (time not given) and incorrectly thought to be EHM8 in Spain on 5861.5, but the printout supplied showed it to actually be Y2V3 that had been tuned in while receiver was set to the incorrect sideband-- Ed.

6252: 98OQJ w/RYRY & SGSG to 95XRA at 0335, 850/75R (J.M., KY). My broker sez when it gets to 100, sell! Remember when this was just AME3, a novel twist on its actual callsign of EBA? Wha happen, baby? Stay tuned to more from the Spanish Navy, Madrid-- Ed.

6865.7: D4B, un-ID w/RYRY at 0221, 170/50R (Michael Walker, TX). It's Sal Aeradio, Cape Verde-- Ed.

6887: ARA, Karachi Aeradio, Pakistan w/CQ, 50N at 0036 (Peter X, England).

6905: What INTERPOL station sends "IPUP" marker here. In ARQ at 0108 (Kneitel, NY).

6982: Coded wx from un-ID sta at 0250, 170/50N (Kneitel, NY).

7402.6: JMG3, Tokyo Meteo, Japan w/coded wx at 1448, 850/50R (Walker, TX).

7520: BZP57, XINHUA Beijing, PRC w/nx in EE at 0200, 425/50R (W.H., USA).

7752.5: Foxes at 50 bauds, 2215 (Fontenot, TX). Listed as WFA57, ITT New York, NY-- Ed.

7972: XVN, PTT Hanoi, Vietnam w/RYRY at 1205, 495/50N (Hetherington, FL).

8006: Y7L36, MFA Berlin, GDR w/RYRY. 200/100N at 1228 (Kneitel, NY).

8457: NMA, USCG Miami, FL w/plaintext wx at 2135, 170/75R (J.M., KY).

8715: AP nx in ARQ at 1145, 1215 & 1315 (Fontenot, TX). You logged WCC, Chatam Radio, MA-- Ed.

9070: 6VU, ASECNA Dakar, Senegal w/NOTAM from ATC Houston, TX re flight tests of a trailing wire antenna, then coded wx. At 2321 in 425/50N (Jerry Brumm, IL).

9276: Foxes & count at 1244, 170/75N, no ID. Sometimes the foxes got shortened down to a simple "FOX Y DOG" (Kneitel, NY).

9277: Canadian Forces station at 1902, 270/75N w/RYRY & foxes (Kneitel, NY).

9353: OLX5, CTK Prague, Czechoslovakia w/nx in EE at 1837, 425/50N (Ted Moran, IL).

10116.2: AP/UPI nx via AFRTS, 1100-1230 850/50N (Hetherington, FL).

10221: BAY57, PTT Beijing, PRC w/RYRY & foxes at 1920, 425/50R (Moran, IL).

10390: Un-ID INTERPOL station in ARQ at 2014 w/IPZV marker (Kneitel, NY).

10423.8: YMA8, Ankara, Turkey at 1010 w/coded wx, 720/50N (Hetherington, FL).

10440: Y3A5, Deutsche Press, Berlin, GDR w/RYRY & QRA's at 1351, 425/50R (Brumm, IL).

10491: "Esta es una cinta de prueba de 5KM, QRK," 425/75R at 1935 (Moran, IL). Esta es Bogota Navrad, Colombia-- Ed.

10587: Un-ID sta w/tactical ID's such as COBRA

& JAGUAR w/encrypted tfc & RYRY, 425/45R, 2330-0015 (Walker, TX) It's Cuban MFA-- Ed.

10819: BAL21, PTT Beijing, PRC w/RYRY to East Berlin. Calls for a QSY to BAL32 on 17403 kHz. Was 425/50N (Wolfgang Palmberger, FRG).

11494: SOL249, PAP Warsaw, Poland at 1230 w/nx in Polish, 425/50R (Hetherington, FL).

12222.7: ROI75, APN Moscow, USSR w/nx in AA at 0930, 425/100R (W.H., USA).

12260: HGX21, MFA Budapest, Hungary calling HGX52 w/RYRY at 1642 & sending encryption at 1645. Was 425/50R (Polmberger, FRG).

13400: LZG3, BTA Sofia, Bulgaria w/RYRY at 1254, 425/50R (Kneitel, NY).

13538: Y7A54, MFA Berlin, GDR at 1510-1535 w/5L tfc, Telexes in GG, RYRY, & nx in GG (Steven Jones, NY).

13585: 5L gps in ARQ at 1330 (Kneitel, NY).

13900: CLP1, MFA Havana, Cuba to Embacuba Nigeria w/"urgente" tfc consisting of 5F gps, 425/50N at 2309 (Kneitel, NY).

13995: USIA Monrovia, Liberia w/USIA circulars at 0110, 75 Bauds (Harold van Daveer, KS).

14362: SOO236, PAP Warsaw, Poland w/nx in Polish at 1214, 425/50R (Kneitel, NY).

14367: BZP54, XINHUA Beijing, PRC w/nx in EE at 1333, 425/50R (Kneitel, NY).

14373: YIL71, INA Baghdad, Iraq w/nx in EE at 1310, 425/50R (Kneitel, NY).

14393: AFA2XO, USAF MARS sta w/telegrams at 2100, 850/75R (Kneitel, NY).

14418: KUNA nx in EE from Safat, Kuwait. Was 425/50N (Kneitel, NY).

14428: 5L gps at 1336, 525/75N (Kneitel, NY).

14458: ARA, Karachi Aeradio, Pakistan w/aero tfc at 2048, 425/50N (Palmberger, FRG).

14460: GYU, RN Gibraltar w/foxes & count at 1342, 500/50R. On another day, at 1240 5L gps 425/100N then into GG text 425/50N-- obviously another sta on GYU's freq (Kneitel, NY).

14510: RIC75, TASS Moscow, USSR at 1340 w/RYRY & into EE nx, 425/50R. Announced //RVW57 RCG77 & RNK36 (Kneitel, NY).

14547.5: 5L gps ending w/QSL QSL IMI ET VAI VAI KKK. In ARQ at 1321 (Kneitel, NY).

14605//14619: Y7K30/Y7A59, MFA Berlin, GDR w/GG text at 1249, 425/50N (Kneitel)

14632: YZC2, TANJUG Belgrade, Yugoslavia w/nx in EE, 525/50R (Kneitel, NY).

14700: RGD22, TASS Moscow, USSR w/nx in EE at 1253, 425/50R (Kneitel, NY).

14760: CNM61, MAP Rabat, Morocco w/nx in EE at 1254, 425/50R (Kneitel, NY).

14795.7: FTO79AH3, AFP Paris, France w/nx in FF at 1725, 425/50N (Kneitel, NY).

14810: 2-way duplex circuit, lengthy SS tfc hand keyed w/each word sent twice. Was at 2107, 525/50R. Similar to logging on 18690 kHz (Kneitel, NY).

14883.9: IRL58, IINA Rome, Italy w/nx in EE at 1347, 425/50N (Kneitel, NY).

14978.4: FPP97F, AFP Paris, France w/nx in FF at 1236, 425/50N (Kneitel, NY).

15480: APS El Djaza'ir, Algeria w/nx in EE at 1304, 850/50N (Kneitel, NY).

15705: YZJ6, TANJUG Belgrade, Yugoslavia w/nx in FF at 1254, 500/50R (Kneitel, NY).

15942: CLP1, MFA Havana, Cuba at 1932 to Embacuba Zambia w/5F gps sent as 5L (1-0 sent as QWERTYUIOP), hand keyed. Was 525/50N (Kneitel, NY).

15978.4: FPP97F, AFP Paris, France w/nx in FF at 1316, 350/50N (Kneitel, NY).

16001: CLP1, MFA Havana, Cuba w/5F tfc at 1630, 50 Bauds (Van Deveer, KS).

16107.5: HBD20, MFA Berne, Switzerland w/FF text & nx at 1321, ARQ (Kneitel, NY).

16117.4: PANA Dakar, Senegal w/nx in EE & FF (Tom Hartley, OH). Time & RTTY settings not given-- Ed.

16136: BZR66, XINHUA Beijing, PRC w/nx in EE at 1254, 425/50R (Kneitel, NY).

16194: NBA, USN Balboa, Panama w/RYRY & SGSG at 1650, 75 Bauds (Van Deveer, KS).

16210: SOQ221, PAP Warsaw, Poland w/RYRY at 1523, 425/50R. Mentioned SOG284 on 6848 kHz, also SOL349 on 11497 kHz (Kneitel, NY).

16224: 3MA55, CNA Taipei, Taiwan w/nx in EE at 1430, 50 Bauds (Urban, S. Korea).

16234: 4UZ, UN Geneva, Switzerland w/nx in EE re INTERPOL conference about narcotic trafficking. At 1324, 425/75R (Kneitel, NY).

16302: Telexes from Belgrade, Yugoslavia in Croatian at 1740, 425/75N (Kneitel, NY).

16348: CLN530, TASS Havana, Cuba w/nx in EE at 1543, 425/50R. Announced //CLN451 (Kneitel, NY). Logged same at 1659 (Van Daveer, KS)

16354: TASS nx in EE at 1247, 170/50R (Kneitel).

16397.5: FTQ39, DIPLO Paris, France w/nx in FF at 1345, 425/50N (Kneitel, NY).

16951: 9MR calling JULL at 1355 & sending RYRY/SGSG. Was 75 Bauds (Urban, S. Korea). 9MR is a station in Malasia but I can't locate the town. JULL appears to be a ship, but I don't know its name-- Ed.

17363: 5YE, Nairobi Meteo, Kenya w/coded wx at 1557, 850/75N (Kneitel, NY).

17422: SS text from un-ID sta in ARQ at 1602 (Kneitel, NY).

17510: RGW23, TASS Moscow, USSR w/nx in FF at 1309, 425/50R (Kneitel, NY).

17623: KUNA Safat, Kuwait w/nx in EE at 1510, 425/50N (Kneitel, NY).

18040: TCY4, AA Ankara, Turkey w/nx in EE at 1312, 850/50R (Kneitel, NY).

18220: CNM76X9, MAP Rabat, Morocco w/nx in FF at 1326, 425/50R (Kneitel, NY).

18282: 9KT351, KUNA Safat, Kuwait w/nx in AA at 1330, 425/50N (W.H., USA).

18496.1: CMM80X11, MAP Rabat, Morocco at 1330 w/nx in EE, 425/50R (Kneitel, NY).

18690: Probably MFA Havana, Cuba w/RYRY & hand typed SS text about JAGUAR w/each word repeated twice. Mentioned "NRO 5578" "NRO 5610" "NRO 5636" & others including "CHACAL." Repeated "URG" & "GRD" often in text. See 14810 kHz logging (Kneitel, NY).

18697: DPA Hamburg, FRG w/nx in EE at 1530, 425/50N (Dallas Williams, CO). The callsign here you're seeking is DFS70-- Ed.

18785: FTS78, DIPLO Paris, France w/nx in FF at 1340, 425/50N (Kneitel, NY). Same at 1600 (Hartley, OH).

19178: IINA Jeddah, Arabia w/nx in EE at 1342, 425/50N (Kneitel, NY). At 0930 w/xmsn sked as follows: Nx in EE to Far East 0800-1300 on 19178, & 1300-1500 on 14882.5 kHz. Nx in AA to Middle East 1200-1400 on 20187 kHz & 1400-1600 on 11027 kHz. Nx in AA to N. Africa 1600-1900 on 9443 (Paul Spurlock, Riyadh, Saudi Arabia). Thanks for sharing this with us, Paul!-- Ed.

19313: 4UF, UN Economic Comm. for Africa, Addis Ababa, Ethiopia w/Telex in EE at 1454, 425/75N (Williams, CO).

19405.1: AYA, INTERPOL Buenos Aires, Argentina w/marker in ARQ at 2135 (Kneitel, NY).

19448: TASS nx in EE at 1323, 425/50R (Kneitel).

19905: RYRY marker, no ID. At 1347, 425/45R (Kneitel, NY).

20078.4: FTU8, DIPLO Paris, France w/nx in FF at 1600 (Hartley, OH). RTTY setting not provided-- Ed.

20327.5: 6VK221, PANA Dakar, Senegal w/EE nx at 1551, 425/50R (Kneitel, NY).

20350: NBA, USN Balboa, Panama w/RYRY & SGSG at 1548, 850/75R (Kneitel, NY).

20430: IRS24, ANSA Rome, Italy w/RYRY at 1548, 425/50N (Williams, CO).

20471.5: CXR, Montevideo Navrad, Uruguay w/RYRY, foxes & 1-0 count "Ejercicio" tfc in SS at 2000, 525/75R (Kneitel, NY). With RYRY & SGSG at 1825, 850/75N (Brumm, IL).

FAX Loggings
From Patrick Sullivan, California

5765.5: JBK3, Tokyo, Japan w/data charts at 0727, 120 RPM (that is, drum rotations per minute).

5768.8: JBK3, Tokyo, Japan w/JJ text at 0730, 120/576.

6328.1: CFH, Canadian Forces Halifax, NS w/ocean wx analysis at 0800, 120 RPM.

6944: CKN, Canadian Forces, Vancouver BC w/sea surface temps at 0200, 120 RPM.

8077.8: SMA8, Norrkoeping Meteo, Sweden w/surface wx maps at 2200, 120 RPM.

8617.1: JJC, Tokyo, Japan w/Kyodo nx in JJ at 0801, 60 RPM.

9395.8: NPM, USN Pearl Harbor, HI w/map of Pacific Ocean wx at 0143, 120 RPM.

9438: JMJ3, Tokyo Meteo, Japan w/wx maps at 0823 & 0939, 120/576.

13751.2: Reuters press photos sent at 0000, ??? RPM.

18130.1: JMJ5, Tokyo Meteo, Japan w/wx maps at 0145, 120 RPM.

18433: Reuters press photo at 2100, 60 RPM.

21036.7: NPM, USN Pearl Harbor, HI w/Pacific Ocean wx conditions at 2130, 120 RPM. PC

RADAR REFLECTIONS

RADAR DETECTORS AND THEIR USE

Would-be Thieves Foiled

Two 20-year-old men apparently picked out the wrong vehicle from which to steal a radar detector recently—an unmarked Troy, Michigan police car!

According to Sterling Heights police, a Troy police officer drove and parked his unmarked patrol car in the lot of a bowling alley on 16 Mile Road west of Dequindre recently and followed some people into the facility.

Police said a car with the two suspects pulled up next to the police car. One of the men opened the door of the police car and allegedly took a radar detector.

The pair was observed by two other Troy policemen parked in the lot. Troy police followed the pair out of the lot, pulled them over and called in Sterling Heights police to make the arrest.

Alabama Supreme Court Says Radar Detectors Are Legal

The court's decision came in a Crenshaw County case involving District Judge William R. King, who had a standing rule that any speeder using a radar detector had to pay a fine $50 higher than other speeders.

James E. Ellis was convicted of speeding in King's Court in August, 1985, and the judge fined him $117—including $67 in normal fines and the $50 radar fine.

Testimony from an Alabama State Trooper revealed that a disconnected radar detector was found on the floorboard of Ellis' car. The trooper wrote "radar detector in use" on the citation.

Prosecutors justified King's policy by contending that drivers using radar detectors are intentionally attempting to violate state traffic laws. The higher fine discourages use of the devices to flout Alabama law, state attorneys argued.

The Alabama Supreme Court, however, ruled that King's policy was wrong and overturned Ellis' speeding conviction. The court, in effect, further ordered King to end the extra fines.

We commend James Ellis for his bull-dog determination and for restoring constitutional rights to the motorists traveling through Crenshaw County.

New Jersey Will Set Standards For Police Who Use Radar

The state of New Jersey will implement standards for the use of radar equipment used by police, as a way to make speeding charges stand up in court, Attorney General W. Cary Edwards said recently.

"This will ensure that anyone who uses a radar gun will be properly trained and certified," said North Plainfield Patrolman Ed McBride, traffic safety chairman of the New Jersey Police Traffic Officers Association.

The standards are included in a voluntary certification program set up by the Division of Criminal Justice and the Police Training Commission.

The commission establishes police officer training programs and is made up of law enforcement officials, representatives of federal agencies and educators.

The commission has been certifying radar instructors to train officers in the use of the radar equipment, but there have been no statewide standards for radar gun operators.

Janice Lee is the Editor of Monday, A.M., *the newsletter of Electrolert, Inc.*

PC

EMERGENCY
COMMUNICATIONS FOR SURVIVAL

BY GORDON WEST, WB6NOA

Part 15—49 MHz Communications

RF power output levels less than one-tenth of a watt certainly doesn't sound promising for any great range. However, distances greater than 3 miles may be covered under the right conditions with this type of power at 49 MHz.

The FCC permits low-power, no-license communications on these frequencies:

49.830 MHz
49.845 MHz
49.860 MHz
49.875 MHz
49.890 MHz

These five frequencies may be used by anyone, anywhere, in the United States, for any type of voice transmissions (FCC Parts 15.117, 15.118, and 15.119).

These five channels are part of the ten channels presently assigned to the new 46 MHz/49 MHz cordless telephones. Cordless telephone handsets may broadcast on any one of the following ten frequencies:

Channel No.	Actual Frequency
1	49.670 MHz
2	49.845 MHz
3	49.860 MHz
4	49.770 MHz
5	49.875 MHz
6	49.830 MHz
7	49.890 MHz
8	49.930 MHz
9	49.990 MHz
10	49.970 MHz

The first inhabitants of the 49 MHz band were kids with their walkie-talkies. The FCC closed down the sale of cheap walkie-talkies on 27 MHz Citizens Band, and created the 49 MHz band specifically for these junk-type radios.

Surprisingly, these "junk radios" did much better up here at 49 MHz than they did on CB 27 MHz. The FM signals had better fidelity than the old AM CB sets, and the FM sets were also not plagued with AM heterodynes. With FM and capture effect, a signal is either there, or not there.

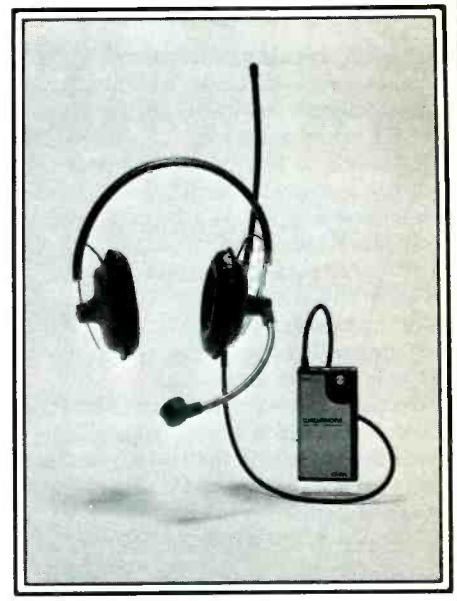
The switch from 27 MHz to 49 MHz for these junk radios also gave them a band free from powerful interference, and also free from most man-made noise. It was no surprise that manufacturers of low power radio devices began to study 49 MHz as a good place to put low power communication sets.

When the cordless telephones were kicked off 1.7 MHz/49 MHz to 46 MHz/49 MHz, they were given five additional channels to spread out the load. This now gives you, with the new cordless phone, one chance out of ten you'll be on the same exact frequency as your neighbor. The better cordless phones will give you up to ten channels to select from.

The Maxon 49-HD.

Then came the headset communicators. They're still popular now—the majority operating VOX on just one channel. The more expensive headset communicators might give you two channels to select from. The very elaborate full duplex headsets require two channels for simultaneous talk and listen. These sets were produced by Ohra and Nady. I don't see them offered anymore, and that's too bad—the full duplex simultaneous talk and listen feature with a headset was nice. No ker-chunk from the VOX circuits.

Now enters Maxon with headset communicators plus a nice little handheld transceiver that's a definite cut above a kiddie talkie. The handheld, 5-channel, 49 MHz transceiver offers surprising range on a line-of-sight basis. The FCC rules restrict the power output not to exceed 10,000 microvolts per meter measured at 3 meters. They further regulate any handheld falling under Part 15 type acceptance not to exceed 100 milliwatts of power input. This handheld shall also consist of a single element one meter or less in length antenna that is permanently mounted on the enclosure. If the microphone is separate, the mike cord cannot be any longer than 1½ meters.



Special headsets available for better 49 MHz communications sets.

The new GE 49 MHz headset contains all of the radio circuitry in the headset itself.

Obviously, the FCC wants to limit the potential range of this set. They have done this quite nicely by limiting power input, as well as maximum amount of power output. However, little is said about hooking the set up to an external antenna for added gain in both directions. This could boost your effec-

Full duplex OHRA communicators eliminate VOX circuitry.

Hunter using a 49 MHz headset communicator. One mile range is possible under most conditions.

tive radiated power by as much as 6 db (a 4× power increase). One-quarter watt at 49 MHz, in the clear, might help you establish communications over quite some distance. Even the handsets alone without any type of external antenna or "souped up" talk nicely up to a mile or so away.

The key to good range is no obstructions between you and the other station. Both of your antennas must also be in the same plane. Vertical polarization works the best and is least hazardous to anyone standing around you. Tipping the antenna 45 degrees from center cuts your range down dramatically.

A 5-channel 49 MHz set will also allow you to pick a frequency that's clear. Chances are, in the city, or around your home, you will find a neighbor or two using one of the five channels for their cordless phone set. Choose another channel—you don't want to listen to them, and they don't want to listen to you.

This time of year, August and September, sporadic E skip is most common. This means you will pick up stations using the same type of equipment possibly thousands of miles away. The rules do not address the issue as to what the maximum range is that you may communicate over 49 MHz, so I would be interested to feature any user that has established a two-way communication on a 49 MHz handheld over any great distances. On the Ham bands, I once worked Hawaii from California running less than one-quarter watt into a TV antenna.

An inexpensive field strength meter will give you a clue as to how much power your set is putting out. Don't even think about "souping up" these sets for more power output—they're running full bore now, and there is little to be done to squeeze out any more milliwatts. You would need to four times the power output in order to see any real change in communications distance. Jacking up the battery voltage won't help, either. You could even burn up your set, so limit your modifications to the antenna circuit.

Grounding the chassis of your 49 MHz transceiver will also help range. It acts as the other half of your yard-long antenna system. Try placing your unit on top of a car roof for added range to a distant station that is beginning to break up. Chances are you'll hear a dramatic improvement.

Your best improvement will be with the antenna, so give it a try, and let's hear from you on the range you are getting from a 49 MHz transceiver. **PC**

LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Herald Broadcasting's WCSN, operated by the Christian Science Publishing Society, began regular broadcasting over a 500-kilowatt transmitter at Scott's Corner, Maine. During weekdays the programming features news and current events in two-hour blocks, but during the evening hours (in the U.S.) programs are religious in nature. It shouldn't be hard to hear the station if you check 7365, 9465, 9815, 9840, 15270, 15280 or 17640.

KYOI on Saipan, which the organization purchased to serve as an Asian outlet, is continuing with its old rock format for the time being, waiting a final decision on what to put on the KYOI airwaves and arrangements for a satellite relay.

The other new U.S. station which had been close to getting on for several months finally got going. Adventist World Radio's KSDA in Guam is now on with regular programs using 100-kilowatt transmitters.

After ten years without one, Ghana now has an "external service" although, for most of us, reception will likely be just as easy on the 4915 home service channel. The new service includes English to West Africa at 0645, then in French at 0800. Another English broadcast goes on at 1845, followed by French at 2100. All of this is on 6130.

Finland should have decommissioned its old transmitters at Pori by now, bringing its new 500-kilowatt units into full play, from a site very close to the old one.

If not the French, then the Swiss? Various sources are reporting that Switzerland and China will enter into an agreement much like the short-lived one that France and China had last year. Swiss shortwave facilities would thus be used to relay Beijing's broadcast while Swiss Radio International could use Radio Beijing's facilities.

Radio Discovery in the Dominican Republic is now up to one kilowatt, a substantial increase over its initial wattage. Try during the afternoon hours on 15045 or evenings on 6245. Programs are in both English and Spanish.

Let's check the mail: Bob Eichenholtz in Corapolis, PA needs the address of the SABC in South Africa which he doesn't spot in the *WRTH*. It's there, Bob; P.O. Box 4559, Johannesburg 2000.

Warren Gilbert in Sherman Oaks, CA wonders why certain stations such as Radio Moscow and the VOA can be heard on shortwave frequencies outside the international broadcast bands which are not listed in the *World Radio TV Handbook* nor announced by the stations.

If those you are hearing are broadcasting in single sideband, Bob, then they are "feeder" outlets, used to get a program from one station (usually the main transmitter facility) to a relay station for rebroadcast. They are not broadcast stations in the strict sense of the word—even though they are carrying a broadcast signal—and thus are not announced. They are listed, though, in *Radio Database International*. You might find it interesting to check 7651 evenings for a feeder at VOA Greenville. It carries two programs simultaneously, one on upper sideband, one on lower.

Sudwestfunk, in Baden-Baden, West Germany sent this sticker to William Durant in Albany, NY. SWF operates on 7285 with 20 kw. Broadcasts are all in German.

In Texas, Andy Johns wants an opinion on whether the folder Radio Kuwait sends in response to reports is a QSL, since there's no reference on it as to date, time and frequency heard. That's called a "no data" card, Andy, and Radio Kuwait's reply is widely accepted as a QSL. A similar question comes from Daniel Bauche in Manitoba who got a reply from the CBC Northern Quebec Service. The reply said they no longer send QSL cards but thanked Daniel for "letting them know he heard them." Under the circumstances, most DX'ers would consider the letter you received as constituting a verification, Daniel.

This pair of oldies is used by Bill Cribbs of Houston, TX.

Where's Radio Polonia these days? Ken Dietz of Chicago wonders and so do others. Poland does have a North American Service, on at 0200-0400 on 6095, 6135, 7195, 7270, 9525, 11815 and 15120. But many of these are blocked by stronger stations, as Ken notes. There's no law against that of course, nor of two stations using the same frequency at the same time in English to the same area! The Eastern bloc nations, in general, don't seem as well heard as they were years ago. Probably that's due in some degree to not keeping up from a power standpoint and not adjusting frequencies to clearer channels. This is one of those situations in which listeners have an opportunity to be of real service to a broadcaster by letting the station know that a problem exists.

R.C. Watts in Kentucky would like the schedule for the program "U.S. Rock," which issues its own QSL card. It was aired at 2200 Saturdays over WINB-15185, but the program was supposed to move to WRNO. If it has, we don't know the new time. Anyone run across it?

Deanna Kratzer in Virginia reports a new equipment set-up which now includes a Yaesu FRG-8800, an FRG-9600, Panasonic RF2200, Realistic PRO-7B and a Hallicrafters S-38B. Very nice!

Let's hear from you next month. We need your loggings, schedules, spare QSL's, clippings, questions and comments. With loggings, be sure to list by country with your last name and state abbreviation after each. And leave room so they can be cut into strips.

A couple of additional reporting notes. It is very rare for a large broadcaster to operate consistently "off frequency." If you have more than one instance of, for example, the Voice of America on 9761.5, there's either something wrong with your radio or the way you are tuning it.

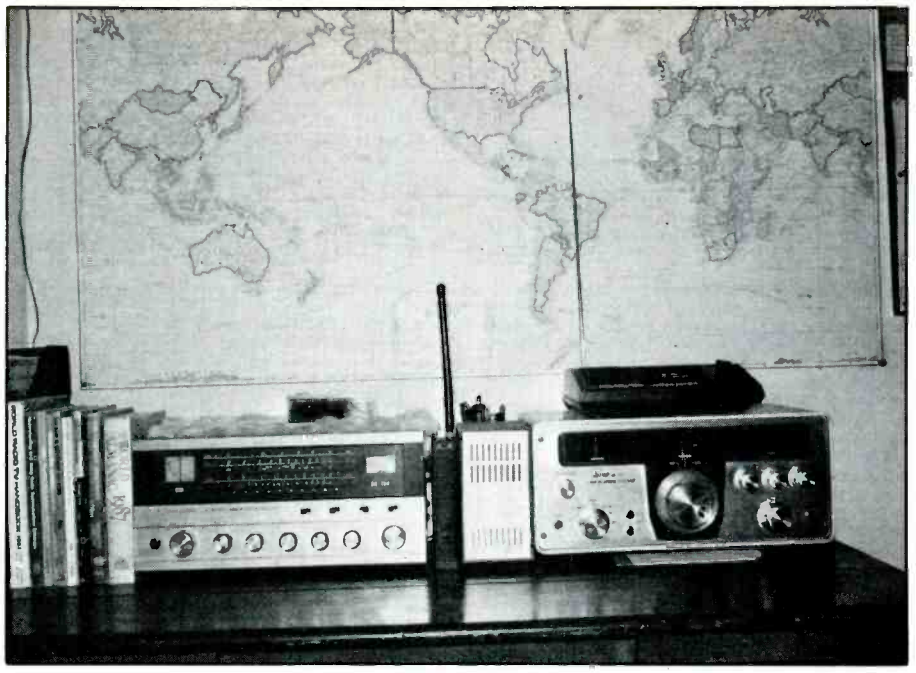
All logs are listed in UTC. Be sure you report in UTC. We have a few reporters who make a practice of using only three numerals in reporting times. It slows us down! Report times in the accepted fashion.

Some other reminders: We don't need to know the broadcast was in "AM"; that goes without saying, unless it wasn't in AM. Please use only one side of the paper. If you don't type, make your printing or writing legible. And please don't cram into one item a whole mess of logs at various times and various frequencies from an ordinary, widely-

heard station. Your cooperation on these points will make things move a lot smoother here. Thanks!

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/n
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



Here's the shack of regular Listening Post *reporter Jim Ross in Vancouver, WA.*

SWBC Loggings
(All Times Are UTC)

ALASKA: KNLS at 0115 w/EE lessons on 9710 (Willie, ALB.); Beamed to Central USSR (Cribbs, TX).

ALBANIA: R. Tirana, 7065 at 0239 w/nx then mx to 0300 (Ross, WA); 0253 in EE (Gilbert, CA); 1830 in EE on 9480 (Willie, ALB); 9500 at 2324 in PP (Gilson, MD).

ALGERIA: R. Algiers, 9510 at 1900 w/nx in EE, pop mx, sometimes //17745 (Carlsen, MA); 9640 in AA at 1928 (Hartley, OH).

ANGOLA: R. Nacional, Luando in PP at 2100 on 9535; heard daily 2100-2125 when Swiss R. is silent (Carlsen, MA); 2103 w/local mx, QRM from Netherlands Madagascar relay on 9540; lost out to Switzerland at 2125 (Eichenholtz, PA); At 2115 (Hartley, OH).

ANTIGUA: DW relay on 6040 at 0118 w/mailbag (Green, GA).

ARGENTINA: RAE 9690 at 0134 in EE (Gilson, MD); EE & SS ID's at 0400 (Groner, BC); 11710 at 0100 in EE (Willie, ALB).

ASCENSION ISLAND: BBC Relay 15400 at 1517 w/sports (Moser, PA).

AUSTRALIA: R. Australia, 5995 at 0801 (Kratzer, WA); 6060 at 1338 (Eichenholtz, PA); 9580 at 1000 (Moser, PA); At 1415 (Watts, KY); 15240 at 0628 (Beard, AL); 15320 at 0100 (Ross, WA); 15580 at 1228 (Neff, OH); 17795 at 0235 (Reese, TN).

AUSTRIA: R. Austria Int'l. at 0030 w/ID on 6155 (Groner, BC); At 0130 (Gilson, MD); At 0430 (Gilbert, CA); On 15230 at 1200 (Linville, ALB).

BELGIUM: BRT at 0030 on 9925 w/IS, s/on, nx (Gilbert, CA); 15240 at 1320 w/African svc, 15590 at 1505 (Northrup, MI).

BELIZE: R. Belize, 3285 at 0524 w/YL DJ running American & Caribbean mx (Robbins, CA).

BOLIVIA: R. Los Andes, 4775 at 1511, poor level but readable (Ross, WA).

BOTSWANA: R. Botswana, 4820 at 0428 (Moser, PA); 0355 on 4820//7255 w/barnyard IS, anthem, s/on at 0400 (Gilbert, CA).

BRAZIL: R. Universo, Curitiba, 11905 at 2249 in PP w/mx, ID at 2301 (Eichenholtz, PA).

R. Global, Rio, 11805 at 2237 in PP. Mostly mx; ID's at 2300 & 2303 (Eichenholtz, PA).

Radiobras, 11745 at 0200 beginning in EE (Gilbert, CA).

R. Nacional Amazonia, 15200 in PP at 2153 (Ross, WA).

BULGARIA: R. Sofia, 6070 in EE at 0006 (Moser, PA); 7115 at 0418 (Gilbert, CA); 11720 at 0036 (Hartley, OH).

BURKINA FASO: R. Burkina, in FF at 2232 on 4815 (Lingenfield, PA).

BURMA: Burma BC Svc. on 4725 in Burmese at 1444 (Ross, WA).

CAMEROON: R. Garoua, 5010 at 0537 in FF & vernaculars (Lingenfield, PA).

CANADA: RCI on 5960 at 0200 (Green, GA); 0123 on 9535//11845 (Northrup, MI); 11945 at 2100 (Neff, OH); 11955 at 1415; 17820 at 1330 (Northrup, MI).

BBC Sackville relay on 15260 at 1708 (Moser, PA).

CBC Northern Quebec Svc., 6195 at 0455 in un-ID language; into EE at 0500 (Gilbert) CFRX relaying CFRB Toronto, 6070 at 0245 (Gilbert, CA); At 1930 (Beard, AL).

CHAD: Tentative RNT on 4960 at 2155 w/anthem before s/off 2200 (Carlsen, MA). Could be, they've been hopping around to avoid Libyan jamming-- Ed.

CHILE: R. Sistema Nacional, 15140 at 2200 w/mx, nx in SS, bank commercials (Watts, KY); At 0114 (Groner, BC).

CHINA: CPBS Beijing 1 home service, 7935 at 2245 in Chinese (Lingenfield, PA); 12200 at 2355 in Chinese (Ross, WA).

Yunon PBS, Kunming, 4760 in Chinese at 1449 (Ross, WA).

Guangxi PBS, Nanning on 4915 at 1506 (Ross, WA).

R. Beijing, 9535 at 1242 in EE (Neff, OH); At 1100 (Everly, VA); 11980 at 0332, repeated around 0400 (Johnson, AZ).

COLOMBIA: R. Nacional, 9635 at 2230, mx of the theatre, in SS (Eichenholtz, PA).

R. Sutatenza, 5095 to 0401 s/off w/anthem (Groner, BC).

COSTA RICA: R. Lira, 15460 in SS at 2103 w/rx pgm (Lingenfield, PA).

TIFC, 5055 at 0315 w/EE rx pgm (Moser, PA).

R. Impacto, 6150 at 0501, mx pgm in SS (Gilbert).

CUBA: R. Havana Cuba, 6090//6140 at 0214 in EE (Gilson, MD); 6100 at 0529; 9525 at 0740 (Kratzer, WA); 9550 at 0117 (Hartley, OH); 9740 at 0545 (Willie, ALB); 11760 at 2345 in SS SS (Ross, WA); 11815 in SS at 0116 (Gilson, MD); 11970 in SS (Kratzer, WA).

R. Rebelde w/soccer at 2230 in SS on 5025 w/0000 (local midnite) s/off (Watts, KY). Whoa-- what time system are you using??-- Ed.

CZECHOSLOVAKIA: R. Prague, 5930 at 0302, in SS at 0215 (Groner, BC); 0335 w/mailbag (Gilbert, CA); 7345 at 0309 (Reese, TN); 9740 at 0125 (Willie, ALB).

DOMINICAN REPUBLIC: R. Clarin, 11700 at 0035 in SS (Hartley, OH); 1250 w. Voz del CID pgm (Neff, OH).

EAST GERMANY: RBI on 6080 in EE to NA at 0004, Naven xmtr site (Lingenfield, PA).

ECUADOR: HCJB on 6130 at 0747; 6230 at 0629; 9745 at 0747 (Kratzer, WA); 9870 w/DX Party Line at 0630 (Beard, AL).

R. Nac. de Ecuador via HCJB on 15270 at 2200-2215 w/talk re earthquake recovery (Watts, KY).

EGYPT: R. Cairo, 9475 at 0232 w/talks in EE, AA mx (Johnson, AZ); 0118 on 11715 in SS (Hartley, OH); 15210 at 1415 (Gilson, MD).

ENGLAND: BBC (various relays included) 5975//6005//6175//9590 at 2340; also 6120 at 0210 (Gilson, MD); 9510 at 0535 (Willie, ALB); 7325 at 2048 from Daventry (Lingenfield, PA); 9825 at 2146 (Lingenfield, PA); 9915 at 0050 (Johnson, AZ); 15070 at 1702 (Moser, PA).

EQUATORIAL GUINEA: R. Nacional, 9553 at 2046 w/rx pgm in EE (Eichenholtz, PA).

FINLAND: R. Finland Int'l., 11945 at 1419 (Reese, TN); 15400 at 1429 (Moser, PA).

FRANCE: RFI on 5950 at 0156 in FF (Gilson, MD); 9550 in EE at 0415 (Neff, OH); 9795 at 0451 (Kratzer, WA); 11670 in FF at 1430; a 2nd xmtr w/same pgm fading in on same freq w/slight time lag (Watts, KY); 11995 in FF at 0042 (Hartley, OH); 15300 in FF at 1325; 17845 at 1340 (Northrup, MI).

FRENCH GUIANA: RFI Relay, 9715 at 0126 in SS (Hartley, OH); 9800 at 0313 (Reese, TN).

GABON: Africa #1, 15200 at 1335 w/mx (Northrup, MI); 1403 w/C&W mx (Gilson, MD); 15475 in FF at 2059 (Lingenfield, PA); EE nx 1900 (Yohnicki, ONT).

GHANA: GBC on 4915 in FF at 2230, EE 2245 (Eichenholtz, PA); At 0610 (Ross, WA); 0700 nx in EE (Gilbert, CA).

GREECE: V. of Greece, 9420 at 2342 in EE (Reese, TN); 0135 in EE (Gilbert, CA); Greek at 0310 (Groner, BC); 11645 in EE at 1549 (Ross, WA)

GUATEMALA: AWR Union R., 5980 in SS w/rx pgms at 1145 to 1230 fade (Watts, KY).

R. Cultural TGNA in SS at 0518 on 3300, ID & mx (Yohnicki, ONT).

GUINEA: R. National, Conakry, 4900 in FF to s/off 0000; clear ID at 2355 (Carlsen, MA); 0610 in FF w/many ID's (Gilbert, CA).

GUAM: KTWR on 9590 at 1400 in CC (Hartley, OH); 11715 at 0714 w/chimes & EE s/on (Johnson)

HONDURAS: HRVC on 4820 at 0313 w/rx in EE (Moser, PA).

Sani R., Puerto Lempira in EE w/anti-drug pgm at 2358 in EE, SS & Miskito (Watts, KY).

HUNGARY: R. Budapest, Hungary, 6025 w/nx & commentary (Gilson, MD); 9835 in EE at 2102 (Eichenholtz, PA).

ICELAND: Icelandic State BC, 11855 at 1300-1330 in Icelandic (Lupi, FL).

INDONESIA: RRI at Surakarta, 4932 at 1528 in Indonesian (Ross, WA).

RRI Ujung Pandang at 1436 in EE on 4719 (Ross, WA).

V. of Indonesio, 11790 at 1500 w/nx in EE (Gilbert, CA).

IRAN: VOIRI, 9022 at 1944 in EE, talks about mideast & Gulf hostilities (Moser, PA); 15085 at 1605 in Farsi (Johnson, AZ).

IRAQ: R. Baghdad, 9875 at 2100 changing from GG to EE (Carlsen, MA).

ISRAEL: Kol Israel, 7465 at 0004 in EE (Moser, PA); At 0209 (Ross, WA); 9435 at 2023 (Beard, AL); At 0000 (Green, GA).

ITALY: RAI, 9575 w/EE to NA w/OM reading nx (in contrast to usual YL) Everly, VA); 0110 w/mx, comment by YL (Willie, ALB).

JAPAN: R. Japan (direct, via Canada, via Gabon-- Ed) 5960 at 0310 (Green, GA); 2300 on 9645 (Willie, ALB); 2350 on 9650 (Reese, TN); 11955 at 0457 (Kratzer, WA); 17810 at 1340 in presumed JJ (Northrup, MI); 17755 in JJ at 2200 (Linville, ALB).

KUWAIT: R. Kuwait, 9930 at 1916 (Hartley, OH); 11675 at 1836 in EE (Moser, PA); 11865 in AA on 11865 (Ross, WA).

LEBANON: R. Voice of Lebanon at 2130 on 6550 in AA w/mx (Carlsen, MA).

LESOTHO: R. Lesotho, 4800 at 1523 (This is UTC??-- Ed.) weak, w/drums, mx, fade (Ross, WA).

LIBYA: R. Jamahiriyam 7245 in EE from around 2215. Announces only 11815 (Carlsen, MA).

LITHUANIAN SSR: R. Vilnius (via R. Moscow-- Ed.), 7165 at 2326 w/sked & freqs (Beard, AL); 11860 at 2300-2330 (Robbins, CA).

LUXEMBOURG: R. Luxembourg, 15350 in FF at 1940 (Lingenfield, PA).

MADAGASCAR: R. Netherlands relay, 9540 at 2108 in EE (Moser, PA); at 1942 in FF, tentative (Hartley, OH).

MALI: RTV du Mali, 4834 in FF at 2327 (Hartley).

MALAYSIA: R. Malaysia, Kuching, Sarawak on 4835 at 1530 in local language; On 4950 at 1431 in EE (Ross, WA); 1515 in EE (Gilbert, CA).

MALTA: DW Relay, 6085 at 0103 in EE (Moser, PA); 9565 in EE tp s/off 0149 (Gilson, MD).

R. Mediterranean, 6110 at 2245 in EE, YL w/nx & commentary (Carlsen, MD); 2158 in FF, into EE after 2233 (Eichenholtz, PA).

MAURITANIA: ORTM, 4845 at 0650 in AA (Johnson, AZ); 0642 in AA (Hartley, OH).

MONACO: TWR, 7105 at 0957 in EE (Moser, WA).

MOROCCO: RTM on 15335 in AA to Europe at 1940, //15330 QRM'd by AFRTS (Lingenfield, PA).

NAMIBIA: R. Southwest Africa, 3295 at 0255 in EE w/mx (Robbins, CA); At 0400 (Yohnicki).

NETHERLANDS: R. Netherlands, 6020 at 0322 (Reese, TN); 9895 at 0745 in Dutch (Gilbert, CA); 2106 in EE (Moser, PA).

NETHERLANDS ANTILLES: R. Netherlands relay, 6165 at 0312 (Green, GA); 9590 at 0230 (Hobbs, ONT); 9715 at 0615 (Groner, BC).

TWR, 9535 at 0430 w/Caribbean Night Call (Neff, OH); 11815 at 1135 w/"Unshackled" (Beard)

NEW ZEALAND: R. New Zealand, 15150 at 0345 w/sparts (Northrup, MI); 17705 at 0512 w/classical mx (Johnson, AZ).

NIGERIA: V. of Nigeria, 11770 in EE at 1730 (Johnson, AZ).

R. Nigeria, Lagas, 7255 at 0456-0530 (Cribbs, TX).

FRCN Kaduna, 4770 at 0606 (Gilbert, CA); 0541 in vernaculars (Lingenfield, PA).

NORTH KOREA: R. Pyongyang, 15140 at 0005 in EE (Ross, WA); At 0418 (Jahnson, AZ).

NORWAY: R. Norway Int'l., 9590 at 1645 (Willie, ALB); 11850 at 1629 ending up EE pgms (Gilbert, CA); 11870 at 1735 in NN, 1740 in SS (Groner, BC); 15300 at 1432 (Moser, PA); 15305 at 1601 (Linville, ALB); 15310 in presumed NN (Gilson, MD).

PAKISTAN: Azad Kashmir R. (via Islamabad-- Ed.), 4790 at 1442 in dialect (Ross, WA).

R. Pakistan, 11615 at 1600 w/YL reading nx (Carlsen, MA); 12025 at 1335 (Northrup, MI).

PAPUA NEW GUINEA: NBC Port Moresby, 4890 at 0900, nx in EE (Gilbert, CA).

PARAGUAY: R. Nacional, 9735 at 2355 w/mx, OM announcer (Willie, ALB).

PERU: R. Union, Lima, 6115 at 0652 w/pop mx (Groner, BC).

PHILIPPINES: R. Veritas Asia, 9540 at 1522 in CC, skeds/freqs in EE & s/off, IS (Gilbert, CA).

PORTUGAL: R. Portugal, 6100 at 0300 s/on, anthem. QRM from Havana (Gilbert, CA); 9680 at 0030-0100 (Lupi, FL); 9705 at 0300 w/nx, mailbag (Linville, ALB).

ROMANIA: R. Bucharest, 5990 at 0255 in EE (Gilbert, CA); 15250 at 1355 w/nx & ID in un-ID language (Northrup, MI).

RWANDA: DW relay, 9640 at 0000 s/on in FF, into GG (Gilbert, CA).

SAUDI ARABIA: BSKSA at 1955 in AA on 9870 (Eichenholtz, PA).

SEYCHELLES: FEBA in EE at 1553 on 11865 (Ross, WA).

SINGAPORE: BBC Far Eastern Relay, 0930 s/on in EE on 11950 (Gilbert, CA).

SOLOMON ISLANDS: SIBC, 5020 at 0832 in EE (Hartley, OH); 0702 an 9545 in EE & Pidgin, gospel & instrumental mx (Johnson, AZ).

SPAIN: Spanish Foreign R., 9620 at 0100 in EE (Gilbert, CA); 9630 at 0032 w/Panorama (Gilson, MD); 0022 w/Radio Club (Green, GA); 11880 at 1940 in SS (Groner, BC); 11970 in RR at 2012 (Lingenfield, PA); 15375 in EE at 1841 to s/off at 1930 (Johnson, AZ); 17770 in SS at 1255, at 1340 on 17845//17890 (Northrup)

SOUTH AFRICA, REP. OF: R. RSA, 4990 in EE at 0300 (Hobbs, ONT); 0406 (Jahnson, AZ); 6010//6185//9615 at 0200 s/on & Africa Today (Gilson, MD); 9610 at 0211 w/mailbag (Green, GA); 11900 at 2132 w/Africa Today (Neff, OH).

R. Orion, 3955 at 2100 in EE (Hartley, OH); 0415 in Afrikaans (Groner, BC).

R. Five, 4880 at 0410 in Afrikaans (Lingenfield, PA); 0500 in EE (Cribbs, TX).

R. Oranje, 3215 at 0425 in Afrikaans & partial EE (Johnson, AZ).

SOUTH KOREA: R. Korea, 7275 at 0639 in EE (Johnson, AZ); 9570 at 1420 w/Seoul Calling (Gilbert, CA); 15575 at 2346 w/headlines (Beord, AL); 2230 s/an (Willie, ALB); At 0005 (Ross, WA).

SWAZILAND: TWR, 9550 in EE at 1939 s/on, into FF (Willie, ALB).

SWEDEN: R. Sweden Int'l., 11925 in USB mode w/Swedish to South America (Lingenfield, PA); 15345 w/nx at 1403 (Reese, TN).

SWITZERLAND: Swiss R. Int'l., 6135//9625// 9725//9885 at 0110 w/IS, ID in EE (Gilsan, MD); 9725 at 0425, into GG at 0430 (Beard, AL); 9885 at 1534 w/EE nx (Gilbert, CA); 11955 at 2100 (Neff, OH); 12035 at 2119 (Ross, WA); 15570 at 1355 w/Dateline (Reese, TN).

SYRIA: R. Damascus, 9530 at 2123 (Hartley, OH); 9950 in PP at 2314, into AA (Ross, WA); 2330 in SS (Gilbert, CA); 12085 at 2049, mideast mx, mx in EE, anthem & aff (Moser, PA).

TAHITI: R. Tahiti, 9687//11825 in FF, 0400-0500 (Robbins, CA); 11825 in Tahitian at 0602, FF at 0700 (Johnson, AZ).

THAILAND: R. Thailand, 9655 at 0200 (Robbins, CA).

TOGO: RTT Lome, 5047 in FF at 2333 (Hartley, OH).

TUNISIA: RTT Tunis, 15450 at 1418 in AA (Eichenholtz, PA); 17610 at 1330 (Northrup, MI); to 1554 s/aff (Carlsen, MA).

TURKEY: V. of Turkey, 9560 at 2304 w/News About Turkey & The Turkish Press (Moser, PA); 15220 at 1557 in Turkish (Johnson, AZ).

UKRAINE SSR: R. Kiev (via Moscow-- Ed.), 6200 at 0300 in EE (Hartley, OH).

UNITED ARAB EMIRATES: V. af the UAE, Abu Dhabi, 9990 in AA at 0049 (Hartley, OH).

UAE Radia, Dubai, 15320 at 1330 w/nx (Northrup).

UNITED STATES: WCSN, Herald BC, 7365 at 2355 w/Kaleidoscope (Reese, TN).

VOA 5995//6130//9815//11740 at 0108 w/nx (Gilson, MD); 6125 at 0623 (Kratzer, WA); 6190 at 2320 in SS; 11895 at 0159 in SS (Gilson, MD); 9455 at 0250 (Neff, OH); 9575 at 0524; 9670 at 0528 (Kratzer, WA); 9650 at 0204 (Reese, TN); 15410 at 1719 (Rass, WA); 17800 at 2051 (Lingenfield, PA).

WRNO, 6045 at 2140 (Hobbs, ONT); 6185 at 0430 (Neff, OH); 7355 at 0058 (Moser, PA); 15420 at 1700 (Hobbs, ONT).

KVOH, 17775 at 2140 (Neff, OH).

R. Marti, 9525 in SS at 2332 (Gilson, MD).

WYFR on 6065 at 0742 (Kratzer, WA); 6105 at 1326 (Beard, AL); 9555 in PP at 0145; 9660 at 0118 in PP; 11855 at 0131 in PP (Gilson, MD); 11830 at 1920 (Reese, TN); 21525 at 1920 in PP (Linville, ALB).

VOFC (via WYFR), 5985 at 0240 (Neff, OH); At 0705 (Beard, AL).

KCBI, 11735 at 1910 (Neff, OH); 11790 at 2044 (Beard, AL).

WHRI, 0301 on 7400 w/R. Earth (Neff, OH); 11790 at 1440 (Gilson, MD).

AFRTS, 6030 at 0400 (Hobbs, ONT).

USSR: R. Moscow, 5905 at 2323 in SS; 6000 at 0157; 6115 at 0210 in SS; 11750 at 1434 (Gilson, MD); 5915 at 2253 in SS (Reese, TN); 7110 at 0028 (Green, GA); 7150 at 0005; 11840 at 1645 (Hobbs, ONT); 9580 at 0527; 9760 at 0511; 0459 on 12030 (Kratzer, WA); 13790 at 1330 (Northrup, MI); 15475 at 1536 (Moser, PA).

Arkhangelsk at Vladivostok, 5015 in RR at 1642 (Ross, ONT).

4060 kHz, un-ID site, in Polish at 0428 (Lingenfield)

R. Orbita III svc., 7380 in RR at 2252 (Lingenfield)

Ufa, 4485 at 1512 in RR (Ross, WA).

VATICAN: Vatican R., 0105 on 6030//9605 w/Newsdesk (Reese, TN); 6250 at 0058 (Hartley, OH); 0058 on 9605; 11845 at 0600 in EE (Johnsan, AZ); 9645 at 2055 (Willie, ALB).

VENEZUELA: R. Nacianal, 11860 at 0147 w/rock mx (Gilsan, MD). Frequency tends to vary a bit-- Ed.

VIETNAM: V. of Vietnam, 10010 at 1445 in CC (Gilbert, CA); 10060 in Vietnamese at 0006 (Johnson, AZ); 15010 at 1856 in FF (Ross, WA).

WEST GERMANY: DW, 5960 at 0535 w/GG lessans (Reese, TN); 6145 at 0104 (Moser, PA) 6185 at 0257 (Gilson, MD); 7465 at 0220 (Linville, ALB); 9545 at 1508 in GG (Gilbert, CA); 9700 in GG at 0109 (Hartley, OH); 15275 at 1250 in GG (Northrup, MI).

YEMEN: R. San'a, 9779.3 at 1933 in AA (Eichenholtz): At 1923 (Hartley, OH).

YUGOSLAVIA: R. Yugoslavia, 7240 at 2218 in EE, ID at 2222, classical mx (Eichenholtz, PA).

ZAIRE: La. V. du Zaire, 15245 in FF at 2210, tentative (Lingenfield, PA).

ZAMBIA: R. Zambia, 4910 at 0333 w/IS under heavy QRM (Moser, PA).

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SCANNING TODAY

(from page 8)

papers. That way it won't be overlooked by you or your family. The second way to be excluded from benefits is to let your membership lapse. Practically every month we must inform a SCAN member or a family that a claim is not valid because the membership has expired. This is painful for us to do, but the policy is valid ony for current SCAN members. There is nothing we can do to make exceptions. Many have confused the fact that they are continuing to receive *Popular Communications* as evidence that membership is still in force. That is often not the case. It may be a "grace" issue that was sent in anticipation of your renewal, for instance, so that no issues are missed. Or you may be one of the many members who has a separate subscription and membership which expire at different times. Whatever the case, if we cannot prove that you were a member at the time of the incident, the claim must be denied under insurance laws. We recently had an unfortunate case where a membership renewal check was apparently in the mail at the time of the accident. However, the membership had expired some two months earlier. Please, please keep your membership up to date if this insurance coverage is important to you. Remember that by the time you receive a "second" renewal notice, your membership may have already expired. SCAN

USE YOUR FREE INFORMATION CARD

SCAN Photo Contest

(from page 23)

are used to dub onto additional cassettes.) The recorders can store up to 5½ hours of listening on one video cassette so Dick can review an entire afternoon or evening's activity later at his convenience.

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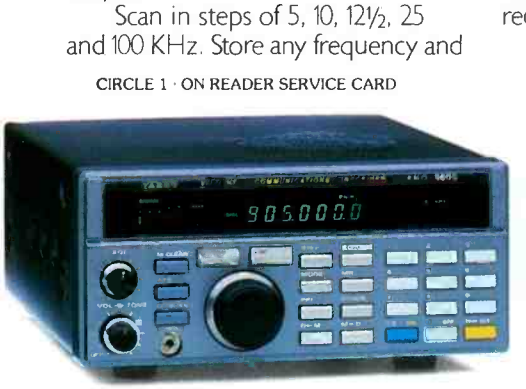

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