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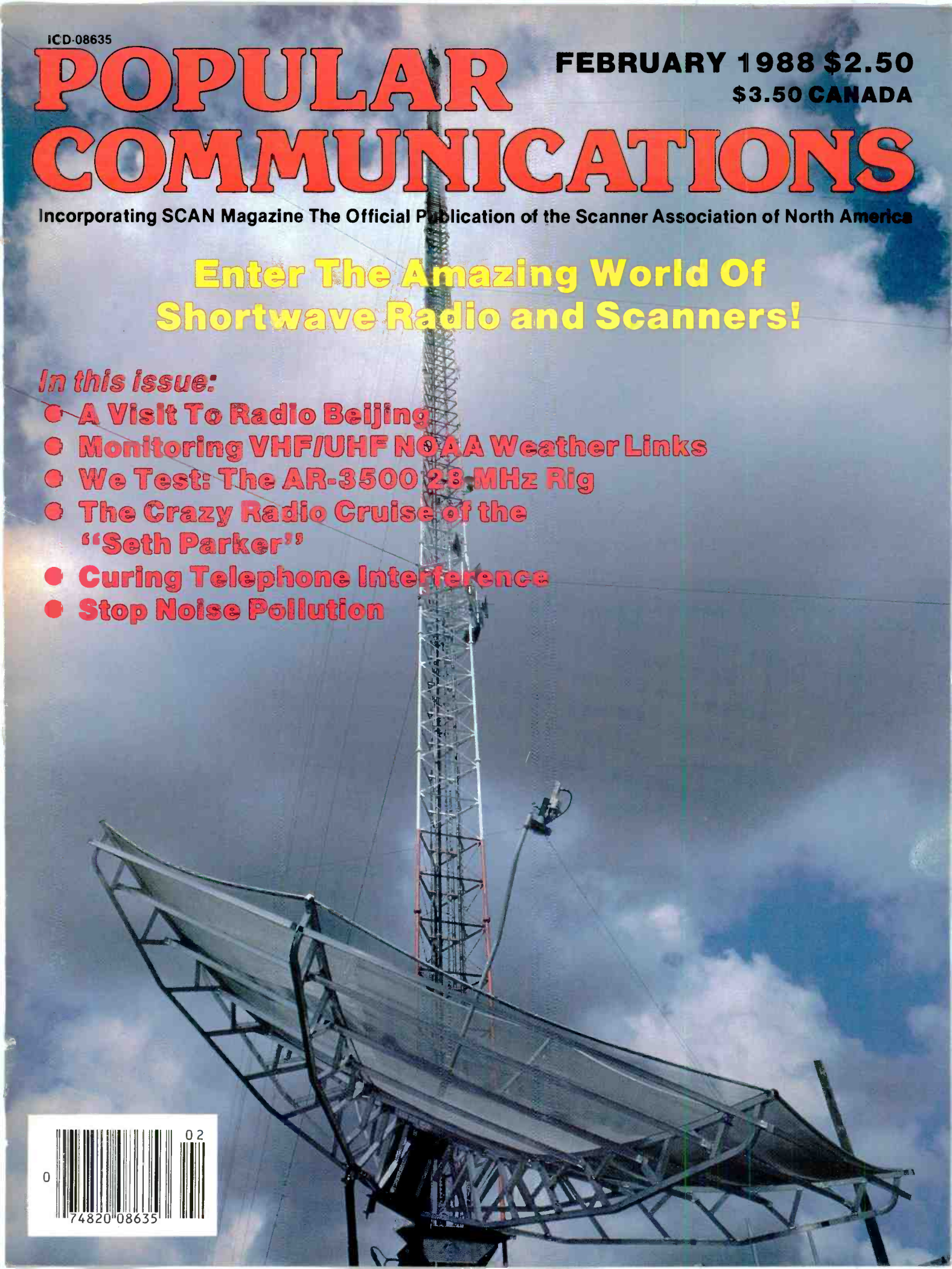
- A Visit To Radio Beijing
- Monitoring VHF/UHF NOAA Weather Links
- We Test: The AR-3500 2-8 MHz Rig
- The Crazy Radio Cruise of the "Seth Parker"
- Curing Telephone Interference
- Stop Noise Pollution



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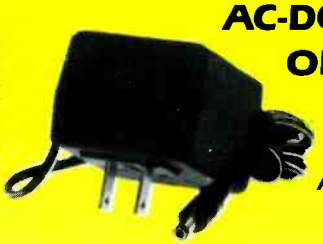

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FEBRUARY 1988 VOL. 6, NO.6

10

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41

FEATURES

This month's cover: *TV Station transmitting tower, Miami, Florida. Photo by Larry Mulvehill, WB2ZPI.*

DEPARTMENTS

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BEAMING IN

BY TOM KNEITEL, K2AES

AN EDITORIAL

It Was Such A Good Idea . . .

The NOAA's VHF weather broadcasts in the 162 MHz band were a great idea. For more than twenty-five years now this service has proven its value time and time again. Too bad that manufacturers of FM portables and car radios have never really gotten too excited about including a feature in their products that would bring up this service at the touch of a button.

Surprising, too, that the general concept of having a VHF channel available for local notifications of one sort of another never expanded past the NOAA's noble weather transmissions. At one point in the dim past, VHF-FM Channel 15 (156.75 MHz) in the Maritime Radio Service was set aside to be used to transmit NOAA-like environmental broadcasts for boaters. That's when the NOAA's 162 MHz broadcasts were primarily aimed at aviation interests. Eventually the NOAA broadcasts were redirected towards the general public, including marine users. That seems to have left 156.75 MHz high and dry—a frequency reserved for no practical purpose. It's still allocated for its original purpose, and it's still included as a receive-only frequency in all-channel VHF marine radios.

Think about the possibilities for other public notification services that might be started on 156.75 MHz and/or other VHF frequencies set aside for the purpose. For instance, municipal or county governments could have a frequency for direct reception by the public. Recorded and repeating transmissions could be routinely used for advisories on community services and events, the locations of road construction projects, information on refuse recycling, civil service tests and jobs, changed phone numbers or addresses of municipal/county offices, etc. It could also be used to flash notices of immediate importance such as traffic detours or tie-ups, emergency police/fire/health notifications, flood and civil defense bulletins, and other such messages for the convenience, safety and general interest of the community at large.

What about, in selected metropolitan areas, VHF one-way stations established to continually transmit the very latest sports scores and information by means of a recorded loop that is regularly updated? Such broadcasts could be sponsored by sporting goods manufacturers, also the teams, leagues, and federations connected with amateur and pro football, baseball, basketball, tennis, boxing, wrestling, motorsports, golf, horseracing, hockey, soccer, etc.

Sports fans would be able to purchase inexpensive pocket-sized receivers that would pick up the frequency set aside for this information. On a national basis, the programming would be compiled at one central location and then fed by satellite to local outlets maintained by area AM/FM/TV broadcasters holding franchises for their respective areas. Sports and municipal broadcasts could even be sent out via SCA subcarrier over existing FM broadcast station facilities.

The sports broadcasts would, of course, contain commercials. Late scores and important sports bulletins might be flashed to listeners at any time. There could also be time available for local stations to insert home town team scores and information about area sporting events, as well as commercials from local sporting goods stores.

These are only two examples of any number of similarly oriented programming ideas that could be developed for direct public consumption, one in the realm of public safety an the other strictly a commercial venture. There are other different areas that might be approached, too. I suppose you might consider it to be non-entertainment information radio, like Travelers Information Stations (TIS) or the several all-news broadcast stations that bypass the delights and talents of Michael Jackson and David Lee Roth to serve those who like their meat 'n 'taters minus the benefits of gravy.

Something along these lines could open up an entirely new manufacturing market for carry-along receivers designed to pick up such broadcasts, perhaps even switchable so that a person might check out all available information services in their local area—NOAA weather, municipal bulletins, sports scores, sport fishing news, stock market prices, entertainment news, livestock and agricultural information, etc.

And, speaking of taking radio along with you when you're on the move, several readers have written to ask why car radios in the U.S. and Canada aren't optionally available with at least a couple of shortwave broadcast bands. Apparently, in some overseas areas, this is a viable idea. There are, in fact, several multi-band European vehicle receivers that can be obtained here on special order at premium prices. But a look through the 254-page catalog of a major automotive product supplier like *Whitney* offers nothing of this type anywhere in its ten pages of radio/audio products containing what looks like several hundred items.

Ask a new car dealer in Detroit iron if such a radio is available and he won't even know what you're talking about. What with CD's, CB's, scanners, radar detectors, tape decks, CMT's, and AM/FM receivers available in a multitude of styles and price ranges for vehicle installation, it does seem that you should be able to buy a popular priced AM/FM car radio that also covers at least the 19, 25, 31 and 49 meter shortwave broadcast bands. I'd buy one, wouldn't you?

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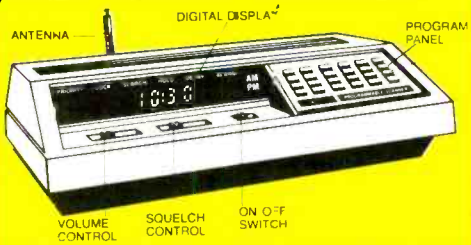

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MAILBAG LETTERS TO THE EDITOR

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.

An Unwelcome Guest

Being a fireman, I purchased a scanner for the sole purpose of monitoring the local fire department frequency, which is 33.70 MHz. The problem is that attempts to monitor this frequency are thwarted by the distorted sound of an area FM broadcast station, even though that station is operating on a frequency more than 60 MHz higher than the fire channel. Is there any way to remove this unwanted signal? The FM station says it's not their problem.

J. N. R.
Lancaster, MA

Sometimes it happens, just one of the vagaries of the stations and equipment used in communications. You might be able to knock out this unwanted signal by installing a low pass filter at the antenna terminal of your scanner. Nothing fancy, probably any 6 meter ham type will suffice and clear such unwelcome signals out of the 30 to 50 MHz range. With the filter in place, however, don't expect to use the scanner for receiving any signals in the VHF "high band" or the UHF bands—the set will pick up only the 30 to 50 MHz VHF "low-band." I don't guarantee that this trick will do the job, but it can't hurt. Check out the ads in this issue of POP'COMM *for communications dealers who can supply you with the filter.—Editor*

Bring 'Em Back To Life!

At a recent hamfest, I purchased a used Yaesu FT-101-E all-band ham transceiver from a fellow who told me that it had at one time been modified for use between 26.5 and 28 MHz. I didn't realize it at the time, but the frequency modification had been made at the expense of losing all but the high frequency end (29.5 to 30 MHz) of the 10 meter ham band. The reason I purchased this rig was to use it in the new 10 meter Novice/Technician band (28.3 to 28.5 MHz). How can operation on these frequencies be restored?

Bill N. Dougherty, Jr.
Los Angeles, CA

Countless Yaesu FT-101-E, FT-101-EE, and FT-101-EX transceivers were at one time user-modified for unauthorized operation between 26.5 and 28.0 MHz (or portions thereof). Much of this equipment is now turning up in the used market, and (once retrofitted for 10 meter operation) they make excellent rigs for the Novice—although they aren't any longer as "state of the art" as they were considered about fifteen years ago.

To restore the 10 meter band, all you need do is yank out and replace any bogus crystals that had at one time been installed in the rig. This should be a cinch as the crystal sockets are just in back of the front panel over to the right side of the chassis. Although in somewhat cramped quarters, you can probably reach them without pulling apart the set if you use long tweezers or needle-nose pliers. Check through all of the installed crystals, and remove any you see that are marked 32.52, 33.02, and/or 33.52 MHz, as these comprised the 26.5 to 28 MHz modification. These have to be replaced with crystals for the 10-A, 10-B, and 10-C bandswitch positions. These are 34.02, 34.52, and 35.02 MHz, respectively.

You may wish to replace only the 10-A (34.02 MHz) crystal for your own immediate needs, although they are probably less than $5 each. The 10-A crystal will get the rig operating between 28.0 and 28.5 MHz. The crystal socket that corresponds to the 10-A position of the bandswitch is the second one from the front in the righthand row of crystal(s), or you can check directly with Yaesu USA, 17210 Edwards Rd., Cerrito, CA 90701.—Editor

Way Out Power

In several past issues, *POP'COMM* has published information about Tesla's work and experiments. I am particularly intrigued by his early experiments in transmitting electrical energy through the air in order to power distant equipment. This concept seems to me to be very practical and I'm wondering about its current status.

Dr. B. Y. Singh
New Delhi, India

Supposedly, the USSR is in the process of drawing up plans to construct large space satellites that would convert sunlight into electricity for cities and industries here on terra firma. The ultimate goal, according to one expert on Soviet space efforts, is to beam microwave energy to earth from the satellites. This isn't exactly Tesla's original approach, but it seems inspired by and derived from his basic concepts. Tesla's brilliant concepts have long been researched in the USSR, although few other nations seem to be especially interested in his work.—Editor

Service With A Sneer?

Not long ago I received a renewal notice from the FCC for a license I held in the Business Radio Service. They wanted $30 for the renewal so I sent them their fee and returned all of their paperwork containing thousands of words printed tiny little type using light green ink. Shortly thereafter they sent me back a notice saying that because I had forgotten to date the renewal form, they had dismissed the whole matter and kept my $30! A pretty sleazy way of doing business—if they were a private company they'd have the Federal Trade Commission investigating them. When I read about how the agency handled the *Radio Newyork International* "bust," it made me realize that the agency seems to have an attitude problem on many different levels. In honor of RNI, I have now decided that since they graciously accepted my $30, I now regard my license to be fully renewed. Let them catch me, too.

G. M. D.
Bay Area, CA

I'd have to say that, based upon our incoming mail, the FCC has impressed a number of folks in recent months. It's truly unfortunate.—Editor

Power Package

I have a piece of portable electronics equipment that requires batteries. The manufacturer recommends the use of alkaline batteries, but I understand that manganese batteries are better. Is that true? What's the difference between the two types?

Lester Harewood
Mound Bayou, MS

For starters, if the equipment manufacturer specifies the use of one type of battery, then that is the only type you should use unless you check with that manufacturer. There may be several reasons beyond "which is better" that determined the use of certain type batteries. This could include available sizes, temperature considerations, voltage stability, leakage problems, and so on. Manganese refers to a chemical in an alkaline manganese dioxide battery. A manganese battery, therefore, is another name for an alkaline battery. For the record, in the cheaper zinc-carbon batteries, the cathode material is a mixture of manganese dioxide, electrolyte and carbon black. The anode is usually the zinc container itself. In an alkaline (manganese) cell, the cathode is a mixture of electrolytic manganese dioxide and graphite; the anode is powdered zinc, which is then highly compacted. An alkaline (manganese) battery is of higher quality since it's made from more expensive materials and has a more sophisticated design/construction. In the alkaline (manganese) battery, the anode doesn't have to double as part of the cell structure but is instead formed from zinc powder. It lasts up to six times as long as a carbon battery, depending upon the type of device it is used in.—Editor

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CIRCLE 23 ON READER SERVICE CARD

FCC Steps In To Protect GMRS From "Frequency Grab"

As proof that the FCC is deadly serious about its proposal to return General Mobile Radio Service (GMRS) to its original purpose of providing communications to individuals, the FCC has stepped in to prevent abuse of the "grandfather" provisions of the proposed new rules.

Under the "grandfather" provisions, existing systems used by corporations would be allowed to continue at current levels for an indefinite period of time after the new rules take effect. No new GMRS authorizations would be allowed for those eligible for other frequencies, such as conventional business band. Some people saw an opportunity in the grandfather provisions . . . just get your license authorization for those GMRS frequencies before the new rules are finalized and go into effect, and you'd lock up those coveted frequencies for your own corporation and avoid the coming ban on new corporate users. And, if you already had an authorization, why not go for double or triple the number of mobile units authorized—and higher power, too, while you were at it—before the new rules froze you to current levels? Of course, a wholesale onslaught like that would make the GMRS frequencies much more crowded with those the FCC wants to eventually remove altogether from GMRS. But in love, war, and frequency battles, everything is fair, isn't it?

The FCC, alerted to what was going on, doesn't think so. They have now issued interim policies for GMRS that will cut these frequency bandits off at the pass. Any of these new licensees who got their license after July 30, 1987, will not be able to renew those licenses. In other words, when their current license expires they will not be "grandfathered," they will have to move! And here is the real clincher: any licensee who would be eligible for the grandfather provisions who has his license modified to increase power, increase the number of mobile units, increase antenna height, or even change any land station location will be treated like a new licensee. In other words, they will lose for all time their GMRS grandfather privileges! Yes, the FCC is very serious about the restructuring of GMRS to its original purposes.

As we mentioned in a previous column, much of the credit for the awakening of the FCC to the true potential of a GMRS reserved for individuals goes to the Personal Radio Steering Group and dedicated people like Corwin Moore and Benn Kobb. It is through years of dedicated volunteer effort that they have brought this about. Just as SCAN has represented scanner users in many battles—including the defeat of many proposed state anti-scanner laws—the Personal Radio Steering Group (PRSG) has been the voice of the individual GMRS user. If you'd like to find out more about them, or GMRS in general, write to: PRSG, P.O. Box 2851, Ann Arbor, MI 48106. I'm sure that they would appreciate a stamped, self-addressed, business-size reply envelope.

Major Overhaul On The Way For FCC Part 15 Regulations

What is Part 15 anyway? Well, it is the regulation that governs a whole myriad of low power radio "transmitters" . . . even if they weren't intended to be transmitters! It restricts how much RF "stuff" can radiate from a computer, for instance. But it also regulates how much power an unlicensed walkie-talkie can radiate. So it is really a broad and all-encompassing regulation of low power signals. Over the years, however, the FCC has permitted many exceptions to the regulations as new devices were invented, from radio controlled garage doors openers, to theft alarms, to cordless phones. Many were able to convince the FCC that they needed the rules "bent just a little" for their application.

Now the FCC has decided it wants to bring order out of this disarray. It will not be any easy task. There will be some tightening of radiation limits, we're told, but also massive liberalization of frequencies that can be used. The problem that many see with the FCC proposal is that it will allow low power transmissions, with any type of modulation, on any frequency. Yes, they will be very low power transmissions . . . but who knows for sure what problems they could cause on top of police, fire, and even aviation channels. The fact is that many of these signals are very weak when received. A nearby low power transmitter might indeed override the signal of a police walkie-talkie on a stakeout, for instance. Amateur Radio operators who are engaged in weak signal work are not likely to be very pleased either. On the other hand, finding a place for low power unlicensed transmissions could give us many new products, from video recorders that transmit to any TV in the house to who-knows-what. We'll keep you posted as the battle over the Part 15 overhaul takes shape.

CTIA Continues To Push For Scanner Radio Ban

With more resources than SCAN could ever hope to command, the Cellular Telephone Industry Association (CTIA) continues to push for an outright ban of scanners and other devices with continuous frequency coverage. With a Washington office and experienced lobbyists on staff, CTIA recently made a presentation before the FCC. CTIA is opposing a proposal to require labeling of scanners to inform purchasers of the Electronic Communications Privacy Act (ECPA). In a summary letter to the FCC, CTIA said:

> "Mr. Maher reviewed the CTIA position that manufacturers should not be able to shift their responsibility under the Privacy Act onto the consumer. . . ."

Isn't that nice? They are just out there to protect us poor consumers of scanner radios. Never mind that a continuous coverage device is primarily for listening to other frequencies and is therefore perfectly legal. That is what ECPA says, you know. It is what SCAN fought so long and hard to get incorporated into the Privacy Act. ECPA says that devices which are *primarily* designed to intercept cellular frequencies are banned; others are definitely NOT. It is clear to us that a continuous coverage receiver is not *primarily* designed to receive cellular phone frequencies.

Apparently ECPA isn't good enough for Mr. Maher and the CTIA. Now they want the FCC to regulate beyond what the law says . . . all in the name of protecting us poor consumers. Better watch out radio hobbyists! If they succeed we may see all sorts of products with very legitimate uses banned. How about frequency converters that depend on the receiver they are used with to determine the frequency ultimately received. Banned! How about continuously variable receivers to check transmitter harmonics, etc. Banned! It could happen if we let CTIA prevail in their very narrow focus of who should be protected. And all because the cellular radiotelephone system was not designed for privacy in the first place.

Well, it might not be that easy for CTIA to prevail, despite all of their resources. If the labeling requirement fails, and CTIA files a petition for equipment bans, we should all be ready to act. It might not be a bad idea to start composing a letter now. In the meantime, we have received a letter from the National Legal Foundation that says they are investigating the history of ECPA's enactment and its

(Continued on page 74)

NEW! CB Radios & Scanners

Communications Electronics,™ the world's largest distributor of radio scanners, introduces new models of CB & marine radios and scanners.

NEW! Regency® TS2-RA

Allow 30-90 days for delivery after receipt of order due to the high demand for this product.

List price $499.95/**CE price $339.95**

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

Frequency range: 29-54, 118-175, 406-512, 806-950 MHz.

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-RA** is a 35 channel version of this radio without the 800 MHz. band and costs only $239.95.

Regency® Z60-RA

List price $299.95/**CE price $148.95/SPECIAL**

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.

Regency® Z45-RA

List price $259.95/**CE price $139.95/SPECIAL**

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.

Regency® RH256B-RA

List price $799.95/**CE price $329.95/SPECIAL**

16 Channel • 25 Watt Transceiver • Priority

The *Regency* RH256B is a sixteen-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 16 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 RH256 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 **RH606B-RA** is available for $459.95. A UHF 15 watt, 10 channel version of this radio called the **RU150B-RA** is also available and covers 450-482 MHz. but the cost is $439.95.

Bearcat® 50XL-RA

List price $199.95/**CE price $114.95/SPECIAL**

10-Band, 10 Channel • Handheld scanner

Bands: 29.7-54, 136-174, 406-512 MHz.

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.

PC 22

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. All Fox directories are $14.95 each plus $3.00 shipping. State of Alaska–**RL019-1**; Baltimore, MD/Washington, DC–**RL024-1**; Chicago, IL–**RL014-1**; 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**; Houston, TX–**RL023-1**; Indianapolis, IN–**RL022-1**; Kansas City, MO/ KS–**RL011-2**; Los Angeles, CA–**RL016-1**; 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**; Pittsburgh, PA/Wheeling, WV–**RL029-1**; Rochester/ Syracuse, NY–**RL020-1**; Tampa/St. Petersburg, FL–**RL004-2**; Toledo, OH–**RL002-3**. A regional directory which covers police, fire ambulance & rescue squads, local government, forestry, marine radio, mobile phone, aircraft and NOAA weather is available for $19.95 each. **RD001-1** covers AL, AR, FL, GA, LA, MS, NC, PR, SC, TN & VI. For an area not shown above call Fox at 800-543-7892 or in Ohio 800-621-2513.

Regency® Informant™ Scanners

Frequency coverage: 35-54, 136-174 406-512 MHz.

The new *Regency* Informant scanners cover virtually all the standard police, fire, emergency and weather frequencies. These special scanners are preprogrammed by state in the units memory. Just pick a state and a category. The Informant does the rest. All Informant radios have a feature called *Turbo Scan*™ to scan up to 40 channels per second. The **INF1-RA** is ideal for truckers and is only $249.95. The new **INF2-RA** is a deluxe model and has ham radio, a weather alert and other exciting features built in for only $324.95. For base station use, the **INF5-RA** is only $199.95 and for those who can afford the best, the **INF3-RA** at $249.95, is a state-of-the-art, receiver that spells out what service you're listining to such as Military, Airphone, Paging, State Police, Coast Guard or Press.

Regency® HX1500-RA

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-RA

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.

★★★ *Uniden CB Radios* ★★★

The *Uniden* line of Citizens Band Radio transceivers is styled to compliment other mobile audio equipment. Uniden CB radios are so reliable that they have a two year limited warranty. From the feature packed PRO 540e to the 310e handheld, there is no better Citizens Band radio of the market today.

PRO310E-RA *Uniden* 40 Ch. Portable/Mobile CB . . . $85.95
NINJA-RA PRO310E with rechargeable battery pack $99.95
B-10-RA 1.2V AA Ni-cad batt. for Ninja (set of 10) $20.95
PRO520E-RA *Uniden* 40 channel CB Mobile $59.95
PRO540E-RA *Uniden* 40 channel CB Mobile $119.95
PRO710E-RA *Uniden*40 channel CB Base $119.95
PC22-RA *Uniden* remote mount CB Mobile $99.95
PC55-RA *Uniden*mobile mount CB transceiver $59.95

★★★ *Uniden Marine Radios* ★★★

Now the finest marine electronics are available through CEI. The *Unimetrics* **SH66-RA** has 50 transmit and 60 receive frequencies with 25 or 1 watt power output. Only $169.95. The *Unimetrics* **SH 88-RA** is a deluxe full function marine radiotelephone featuring 55 transmit and 90 receive channels and scanning capability for only $259.95. The *Unimetrics* **SH3000-RA** is an excellent digital depth sounder, good for 300 feet. It has an LCD continuously backlit with red light display and a 5 ft. or 10 ft. alarm. Only $189.95. Order today.

Bearcat® 800XLT-RA

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

Panasonic RF-2600-RA Shortwave receiver $179.95
RD55-RA *Uniden* Visor mount Radar Detector $98.95
RD9-RA *Uniden* "Passport" size Radar Detector . . . $169.95
***NEW!* BC 70XLT-RA** *Bearcat* 20 channel scanner . . . $168.95
BC 140-RA *Bearcat* 10 channel scanner $92.95
BC 145XL-RA *Bearcat* 16 channel scanner. $98.95
BC 175XL-RA *Bearcat* 16 channel scanner $156.95
BC 210XLT-RA *Bearcat* 40 channel scanner. $196.95
BC-WA-RA *Bearcat* Weather Alert™ $35.95
R1080-RA *Regency* 30 channel scanner $118.95
R1090-RA *Regency* 45 channel scanner $148.95
UC102-RA *Regency* VHF 2 ch. 1 Watt transceiver . . . $117.95
P1412-RA *Regency* 12 amp reg. power supply . . . $189.95
MA549-RA Drop-in charger for HX1200 & HX1500 . . . $84.95
MA518-RA Wall charger for HX1500 scanner $14.95
MA553-RA Carrying case for HX1500 scanner $19.95
MA257-RA Cigarette lighter cord for HX12/1500 . . . $19.95
MA917-RA Ni-Cad battery pack for HX1000/1200 . . . $34.95
SMMX7000-RA Svc. man. for MX7000 & MX5000 . . . $19.95
B-4-RA 1.2 V AAA Ni-Cad batteries (set of four) $9.95
B-8-RA 1.2 V AA Ni-Cad batteries (set of eight) $17.95
FB-E-RA Frequency Directory for Eastern U.S.A. . . . $14.95
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TSG-RA "Top Secret" Registry of U.S. Govt. Freq. . . . $14.95
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A60-RA Magnet mount mobile scanner antenna. . . $35.95
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USAMM-RA Mag mount VHF ant. w/ 12' cable. . . . $39.95
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Add $3.00 shipping for all *accessories* ordered at the same time.
Add $12.00 shipping per shortwave receiver.
Add $7.00 shipping per radio and $3.00 per antenna.

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A Visit To Radio Beijing

Let's accompany this DX'er on a visit to the PRC.

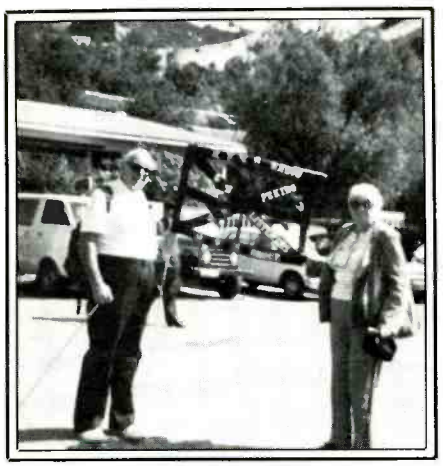
BY GERRY L. DEXTER

Nothing compares to being able to visit the places and stations you hear on shortwave, but only a fortunate few actually get that opportunity.

One who did was Radio Beijing listener Paul Hale of Colorado Springs, CO. In fact, Hale has visited China several times at the invitation of Radio Beijing's English Section.

On one such trip Hale and 19 others spent nearly three weeks touring the People's Republic of China with Radio Beijing personnel acting as tour guides. Representatives of the local broadcasting station met them in each of the several cities they visited.

Hale toured both Radio Beijing's main installation in the capital as well as the radio station in Shanghai. He notes that the two stations were remarkably similar except that the Beijing operation was, as might be expected, much larger since it also involves the many foreign language overseas services.



Mr. Hale and tour member Elaine Ross with Radio Beijing listener's group banner.

Paul Hale

Hale reports that the studios are "on the primitive side," appearing to be some 30 to 50 years old and not originally built for the purpose for which they are now used. Hale speculates the buildings may once have been government offices or perhaps hotels. He notes that the high ceilings are finished in hard plaster, which results in considerable reverberation. "Sound deadening is one of the ever-present problems that Chinese radio contends with," says Hale.

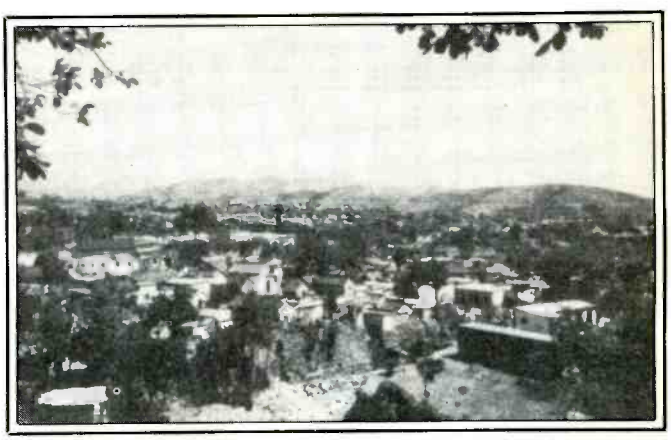
All of the studios Hale was shown were multi-purpose, with moveable walls. Many studios featured portable control rooms.

Like the buildings in which they are housed, the studio equipment was also rather old. Hale says that most of the studio equipment such as microphones, mixers, amplifiers and the like are at least twenty years old and that old-fashioned ribbon-type microphones were much in evidence. He didn't see any of the newer type cardioid microphones. Hale notes, though, that more modern equipment may in fact be in use in larger scale radio and TV productions but he wasn't able to observe any of this activity. And indeed more recent visitors to the station report seeing considerably modern equipment. So it appears radio in China is being technically upgraded.

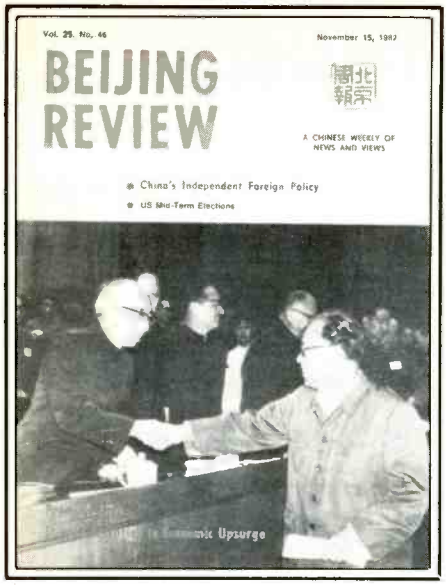
The Chinese seem to have at least one thing in common with many Americans—an affinity for Japanese made electronic products! Hale tells of an incident in which a portable megaphone had to be purchased. It seems that any model was "OK"—so long as it had been made in Japan! Given a choice, Chinese radio engineers would choose Japanese products over their own.

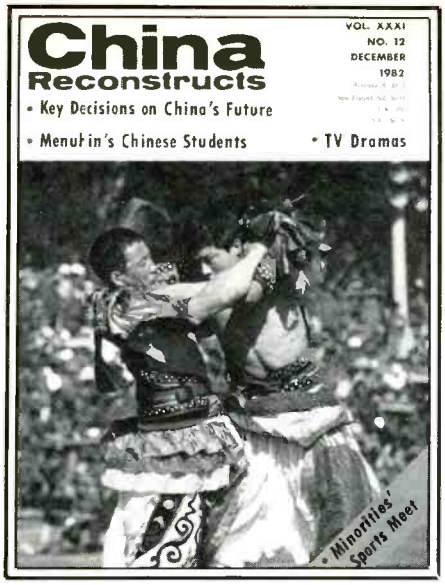
The invitation to visit China was extended by Chinese radio in order to have an opportunity to get in-person input on Chinese radio programming from American listeners. Toward that end, the Chinese radio representatives were continually asking the group what they thought about this or that, always wanting to know how programs on Radio Beijing could be improved. Hale says the catch phrase among the Radio Beijing

Radio Beijing's English Department staff with the tour group from America.



Radio Beijing's first English newscast was broadcast from a cave near Shahe village.





Beijing Review *and* China Reconstructs, *two magazines Radio Beijing sends to people who write to the station.*

hosts was, "We haven't done our job very well this time but we will try hard and do it better next time."

English department employees at Radio Beijing practice their language skills by listening to the Voice of America and the BBC.

Mr. and Mrs. Hale have, since their visit, hosted representatives of Radio Beijing at their Colorado home.

Radio Beijing, in recent years, has also treated a few people active in the SWL/DX journalism field to tours of China and visits to stations.

Mr. Hale, connected with an organization called "Listeners and Friends of Radio Beijing" invites people interested in making a "radio trip" to China, to contact him at 1619 North Royer, Colorado Springs, CO 80907.

Radio: The Early Days

A Nostalgic Peek At The Past

BY ALICE BRANNIGAN

Typical of the early broadcasters run by young people was station WLBT, "Where Lovers Become Tied." That curious slogan was related to WLBT's hometown, Crown Point, IN. During the 1920's, Crown Point was famous as a "marriage mill," where couples could get hitched with a minimum of time, cost, fuss, and questions. We thought that February (Valentine's Day, and all that) made WLBT a good lead-off here this month. And we thank John R. Ghrist, Elgin, IL for filling us in on WLBT.

WLBT was the homebrewed creation of Harold "Bud" Wendel, a local electronics whiz. At the age of eighteen (when he was still called "Buster" by local residents), WLBT took to the air from 317 East North Street. The station operated with 50 watts on 1210 kHz, then 100 watts on 1310 kHz.

Commencing operation in 1926, WLBT operated for about two years. During that time, the antenna system consisted of five wires with 4-foot spacing between each, strung between two old windmill towers that existed on his parents' property on North Street, near the corner of Grant Street.

The original studio was in Buster's home, although eventually there were studios on North Court Street. WLBT carried no advertising. For a time it had temporary studios in the Crown Point Community Building (known then as the old American Legion Hall).

Run from out-of-pocket money Wendel could muster, WLBT was operated by Wendel and two friends as a hobby until everybody's funds were tapped out. Because new records were expensive to buy, and ASCAP royalties couldn't be paid, WLBT made much use of live programming, including a considerable amount of air time given over to the Harmony Boys, a local band.

Mostly, everybody was having a good time. Once, a local prankster arranged with the Western Union telegrapher to send WLBT a fake telegram supposedly from a listener in Tennessee saying how much the programs were being enjoyed. The WLBT staff was overjoyed at the DX report and knowing that their signal was making such a good trip—until they learned that the whole thing was a hoax!

WLBT did garner a considerable audience in its local area, and several newspaper stories helped the station reach the public to introduce people to the joys of owning a receiver. In the years after WLBT, Wendel remained interested in electronics and even became an active CB operator!

W1XPW Update

Recently, we ran a photo of early FM station W1XPW located atop West Hill in Connecticut. We noted that this station eventually became WDRC.

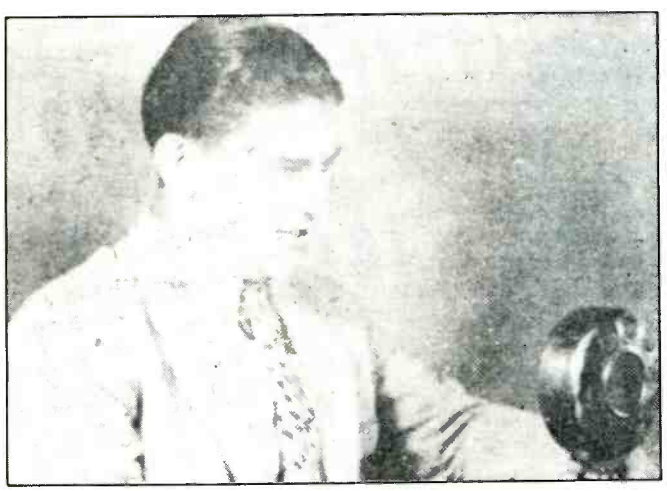
That statement was sort of correct, but required some clarification. So says Richard T. Walsh, Chief Engineer of WHCN, 105.9 MHz FM, in Hartford. He advises that W1XPW actually had evolved into present-day WHCN. He reports that present-day WDRC-FM was put on the air in 1958 and had reused the previously abandoned callsign that had once been used by W1XPW—but that it is the WHCN callsign that relates to the W1XPW activity in its present stage of lineage. So, while WDRC was a later callsign of W1XPW, as we stated, the station that's now WDRC is not the same station, even though it operates to the same coverage area. Oh, you know what I mean.

A 1950's Pirate

In last month's issue, *POP'COMM*'s own Tom Kneitel related the story of his unusual experiences as a pirate broadcaster. That jogged my memory because I knew that there were actually many a number of pirate stations on the air during the late 1940's and early 1950's.

David Dary, for instance, had become an SWL in 1948. By 1952, the Kansas youth, age eighteen, decided that it would be interesting to venture into the world of broadcasting. So he sent $6 for a wireless phono oscillator and embarked on his new career.

When the little antenna supplied with the



The young man with the microphone is eighteen-year-old Harold Wendel, owner of short-lived station WLBT.

A Steinway piano was used to accompany live music programs over station WLBT when the studios were at 7 N. Court Street, Crown Point, IN.

David Dary opened up bootleg broadcast station KDAD using a wireless phono oscillator. Worked so well the FCC sent him a reception report!

kit didn't work, he connected the mini-transmitter to his 80-foot SWL antenna. That's when he also concocted the callsign KDAD, which included a reference to his initials.

Saturdays were broadcast days, and on the third Saturday there was a 9:30 a.m. knock on the door shortly after KDAD commenced its schedule. It was two FCC engineers from the Kansas City office who notified Dave that KDAD had been picked up by the FCC monitoring station in Grand Island, NE.

They later wrote Dave's Dad a letter and explained that, since the station operator was a minor, Dave's father could have been fined and/or imprisoned! The FCC didn't pursue the matter, and shortly thereafter Dave took out a Novice Class ham ticket. His ham licenses, over the years, have been issued the calls W4ZAX and W5DAO. Presently he is W0DQG, and he's a college professor who teaches broadcast news and radio station management in Kansas!

The receiver at the top is a Zenith Trans-Oceanic portable. It's sitting atop a wonderful console type Zenith receiver. Ed Ostrenga owns these two gems.

This Will Console You

In the October issue we ran a photo of the beautiful console receiver with the two tuning-eye tubes and all-band coverage. That brought in a photo of two sets owned by Edward Ostrenga, Pawtucket, RI.

The top receiver in the photo is a gorgeous Zenith Trans-Oceanic all-wave portable. It still needs to be restored, and is one of the more famous early deluxe portables. A large and relatively heavy vacuum-tube receiver, it has a telescoping whip that extends to a height sufficient to be a hazard to low-flying butterflies.

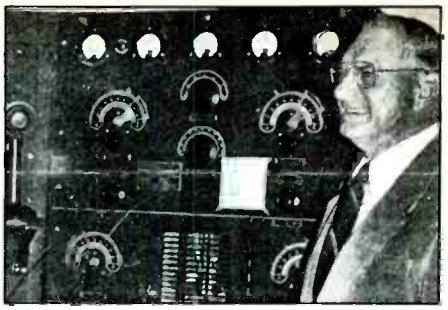
The lower set is a magnificent Zenith Model 10S153 that picks up the standard AM band, plus 55 to 170 kHz and 1.8 to 19 MHz. This set has one of those renowned circular white-on-black dial scales for which Zenith became famous in its 1930's console receivers. The cabinet is highly polished wood, rich in color and graining. It looks to be in top condition.

Edward would like to see our magazine start a regular column devoted to old time radios and the old time programs heard on those sets.

Home On The Range

Edward Kusalik, of Coaldale, Alberta, writes to say that the Canadian government established Trans-Canada Airlines in 1937. As the number of flights increased they found it necessary to establish a network of low frequency radiobeacon range stations. Stations located every 100 miles across TCA's route were aligned with neighboring facilities. The characteristic signals sent out by range stations consisted of four courses, each going out from a separate antenna. The CW letters "A" *(di dah)* and "N" *(dah dit)* were sent out in such a way that, when pilots were on course, the CW signals blended into a steady tone. If the pilot became aware that either the "A" or "N" became distinguishable, he knew he had to correct his course until the signal again became a steady tone. These stations also transmitted weather information voice.

The transmitter of the old Lethbridge, Alberta, radio range (VFS, 326 kHz) was recently shown at the local Galt Museum, and explained in a lecture by Norm Larson, retired electronic maintenance manager at the Lethbridge Airport. Some of the other early stations in the network included CYW in Strathburn, Ont. (248 kHz); VFT, Red Deer, Alta. (248 kHz); VFQ, Regina, Sask. (296 kHz); VFR, Maple Creek, Sask. (314 kHz); VXR, Jarvis, Ont. (326 kHz); VFN, St. Hubert, Que. (332 kHz); VFP, Forrest, Man. (332 kHz); and VFU, London, Ont. (314 kHz).



The old Lethbridge radio range transmitter is shown as it appears today. Norm Larson, who used to keep it going, poses with the rig.

Radio Queen

No sooner had the January issue gone out than the column received a comment on the *Spirit of Radio* artwork submitted by a reader from Anaheim, CA. Reader Ben Markowitz of Illinois said he liked the allegorical lady drifting through the air sort of like Al "Jazdbeaux" Collins, but that he had his own contribution to this genre of pictorial.

Ben thereupon sent along a large full-color cigar box label dated 1922. In bright red, blue, green, and metallic gold, the label touts *Radio Queen* brand cigars, and shows the lady herself on a chaise lounge listening to a vintage radio through its horn-type speaker.

Very jazzy. We decided to frame the label and hang it on the wall at our radio room.

The Real Me?

Joseph Schwartz, Flushing, NY writes to say that he enjoys our scribblings and wonders if my name just happens to be Karen Povlovski, and if my home port is Haverhill, MA. Well, Joe, you came close to home on the port of registry, but Karen Povlovski isn't too accurate. My sainted little Irish grandmother would have dropped the whole corned beef (cabbage and all) at such a rendition of the family name.

WCX/Transradio Revisited

Last September I responded to an inquiry from a reader who wanted more information about a press telegraph station of the 1930's that used the callsign WCX. I was able to dig up information on several other stations that held the callsign from the information supplied on the Transradio Company's station WCX. Readers were asked to step forward if they could fill in the missing information. As usual, they did!

Edward Garrigan, of Alpine, TX remembers it well and notes that it was located in Hicksville, NY, hometown of *POP'COMM* headquarters. Ed was a broadcast engineer who had to copy WCX's 40/42 wpm code speed for a solid hour to come up with

The label from a 1922 box of "Radio Queen" brand cigars shows the YL in her best Theda Bara pose.

Here's coastal telegraph station GHC, late of Hunstanton, Norfolk, England. It was used just after WWI.

twelve minutes of mike time for the news announcer. Transradio Press was the service that provided the news material, sent via transmitters of Press Wireless. Ships at sea were the primary customers of the service, but many local U.S. broadcasters also subscribed because not all areas (at that time) were covered with teletype news facilities from AP, UP, or INS.

Ed was also active in maritime, police, and airline communications. He also worked comms at the Bikini, Eniwetok, Nevada, and Aleutian atomic tests. Ed's now 76 years of age, retired, and still enjoys DX'ing.

Also heard from was James Glendening, WB6WTJ, of Lakewood, CA. Jim was an RMC (that's a Chief Radioman in the U.S. Navy) during the period 1940 to 1945. Stationed aboard the *U.S.S. San Juan*, he recalls copying the 30 to 45 wpm speed of WCX (7850 kHz) and its companion station, WJS (15700 kHz). The stations could easily be copied in most areas of the North Atlantic and in some areas of the Pacific.

A letter from D. White, W1SZJ, known to his friends as "Poco," of Cherryfield, ME sheds even more light on WCX. Poco tells how the World-Telegram newspaper of San Juan, PR had two wax-cylinder recorders hooked to a National HRO receiver set up to record the transmission. The receiver would turn on via automatic timer and later a telegraph opertor would show up to transcribe the press information for the following day's edition. This was in the early 1940's.

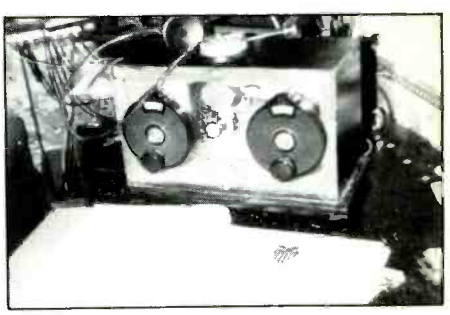
Poco was in the U.S. Naval Reserve near San Juan and would also have to copy the WCX transmissions because the District Communications Officer there wanted to furnish the news items around the station in un-edited condition. The WCX transmissions were typed directly off-the-air onto a mimeograph stencil. Within minutes after the transmissions ended, they were in the process of being mimeographed for distribution.

The press transmission would start off every day with "Good morning gents" and then go headlong into a lengthy lead story followed by several shorter items, plus sports scores. This would fill up about two mimeo sheets.

Poco passed along a photo of a crystal set still in service for tuning the broadcasting band. It's either a genuine oldie, or one made per old plans.

Lastly, a letter was received from Fred Becker, Plainville, MA. Fred worked at WCX as a radio operator during WWII. While Fred mainly worked as a radio operator for Eastern Airlines in New York, he moonlighted at WCX from the station's control point on the third floor of the *New York Times* building near Times Square in New York City. Fred claims that the exact speed of the CW transmissions was 39 wpm. He also recalls that war news was received directly from the company's own communications van located in Europe. The van had typewriters where reporters could file their stories and then wait while they were radioed to WCX in New York for retransmission.

The information on WCX filled the bill



Poco, W1SZJ, can bring in DX on this terrific looking crystal receiver. But don't the cat's whiskers get cold in those Maine winters?

beautifully and we thank those readers who so generously shared their recollections of the station.

Early British Station

A reader in England sent in an old photographic view showing what is described as "Cliffs and wireless station, Hunstanton." Asks William Farnsworth, of Bristol, "Can you offer any informtion on this station?"

Hunstanton, located in Norfolk and facing the inlet known as The Wash, was the site of the early station shown in the photo. Using the callsign GHC, this station, which was located above the steep cliffs, was used for maritime telegraphy to ships in the North Sea. Long gone from the scene, the station operated on 500 kHz in its day.

Hungary For DX

Long-time DX'er Carroll H. Weyrich, of Baltimore, MD received a fascinating QSL in 1939 from station HAD in Budapest, Hungary. The card was sent on one originally printed up for station HAAQ2. These were stations the Royal Hungarian Post in Szekesfehervar. Announcing "Justice for Hungary," these stations offered many complaints about the territories it lost after WWI. Hungary joined with Nazi Germany in WWII and got back lands that had been given over twenty years earlier to Czechoslovakia, Yugoslavia, and Romania. In 1944, the Soviets came in and Hungary lost some of its territory.

The QSL reads HAAQ2, but it really confirms station HAD. This was a shortwave broadcaster of the late 1930's that devoted much air time to discussing Hungary's political complaints.

In all, Hungary was one of the most politically volatile and talkative nations of Europe during the 1930's, and the nation's several shortwave broadcasters were the forum for expounding its views.

Station HAD, in 1939, was operating with 200 watts on 9625, 11850, and 21680 kHz. Today, of course, Hungary is still broadcasting lots of propaganda, and the days of 200-watt transmitters there are history. But, wouldn't it be great to have one of the 1939-era QSL's pinned to your wall?

Memories—we hope to have more of them for you next month. In the mean time, your comments, photos, clippings, QSL's, and information are welcomed. PC

Monitoring VHF/UHF Weather Links

These Are The Little-Known Stations That Make The NOAA 162 MHz Weather Broadcasts Work!

BY LEWIS KESEBERG, KCA6PK

The NOAA's 162 MHz weather broadcasts have long captured my imagination. More than that, monitoring the seven VHF frequencies these stations use has provided me with many hours of DX excitement and enjoyment as new distant stations are logged at my station. I have even been fortunate enough to be "on frequency" during rare DX openings on these frequencies.

In the March, 1985 edition of *POP'COMM*, I presented a feature story on hobby monitoring NOAA's VHF weather broadcasts. At that time, I briefly mentioned the use of fixed (point-to-point) VHF and UHF links used for making the extensive 162 MHz operations work.

In response to that story several years ago, I received a considerable amount of input from readers who contributed information and opinions on these link transmitters. I have also done some digging on my own. At this point, the time seems right to sit down and assemble what has come in from so many sources, then solicit additional information for future presentation.

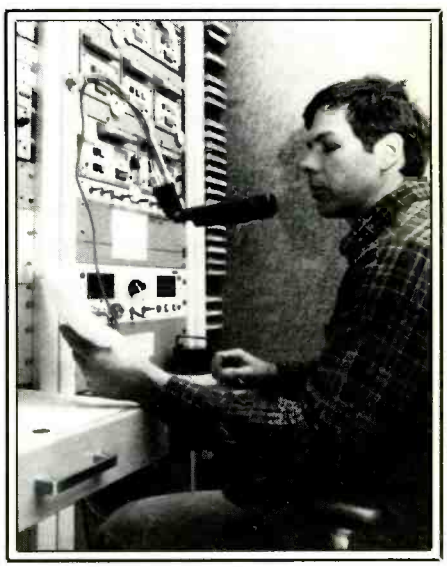
We know that the regular NOAA broadcasts intended for general public reception and use are transmitted over the following standard channels:

Channel 1: 162.55 MHz
Channel 2: 162.40 MHz
Channel 3: 162.475 MHz
Channel 4: 162.425 MHz
Channel 5: 162.45 MHz
Channel 6: 162.50 MHz
Channel 7: 162.525 MHz

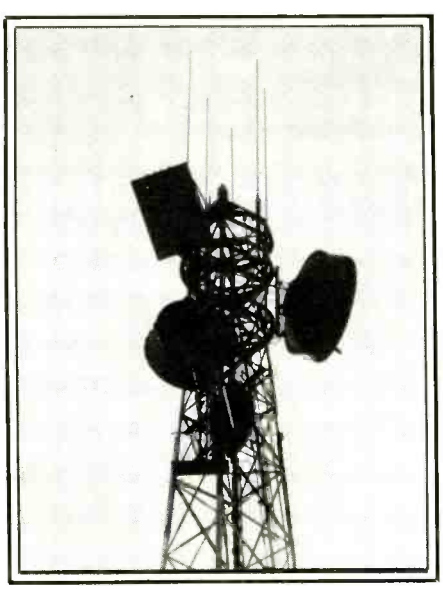
We have learned that many of the transmitters used for these broadcasts are remotely located from the NOAA offices, sometimes being miles away atop mountains that will offer maximum signal coverage. In some instances, broadcasts prepared and transmitted in one city are simulcast over facilities in other cities. For instances, station KWO35 (162.55 MHz) in New York City has its transmissions simulcast over WXM80 (162.475 MHz) in Riverhead, NY which is almost 70 miles to the east. Another example is WXJ41 (162.475 MHz) in Hartford, CT which is rebroadcast over WXJ42 (162.40 MHz) in Meriden, CT and also KHB47 (162.55 MHz) in New London, CT. Yet another example of this very common practice is KHB36 (162.55 MHz) in Washington, DC that is rebroadcast over WXM42 (162.475 MHz) for residents in and around Hagerstown, MD.

Similar examples of this type of network-

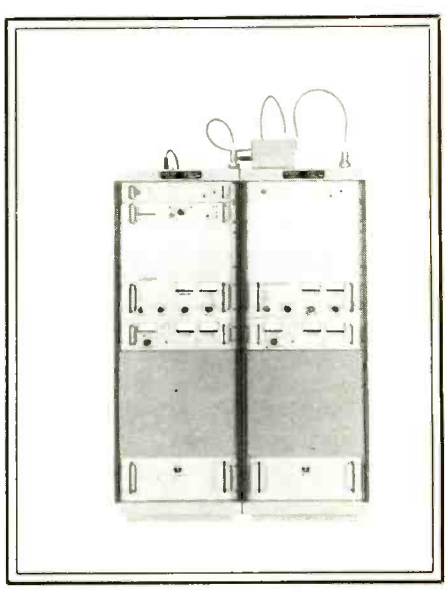
The NOAA weather broadcast station in Washington, DC is easily heard on 162.55 and 162.475 MHz. But did you know it can also be monitored on other channels not intended for general reception by the public?



Many NOAA stations have remotely located transmitters, and are also rebroadcast over one or more other stations in distant cities.



Remote NOAA transmitter sites are fed signals by landline, or by radio links operating on VHF, UHF, or microwave frequencies.



The SR-416 VHF transmitter is standard equipment at most NOAA weather broadcast stations.

ing can be found in all areas of the nation. We have shown just a few of these mini-networks in one geographic area. This should give you the general picture for the rest of the nation.

In some instances, the broadcast material is fed from the NOAA office to the remote transmitter site, or distant city, by landlines. In other instances, these broadcasts are sent out by VHF, UHF, or even microwave links. It is the VHF and UHF links that are the subject of this study. Such links are within the receiving range of scanners, and they do seem to have their own definite mystique since they are unpublicized and not intended for reception by the general public.

It may be, in some instances, the links are not in continual use but are held in reserve as a backup for use only in case of problems with the landlines. Moreover, in almost all cases, the VHF and UHF links are transmitted using the least amount of power necessary to do the job, and sent out and received via highly directional beam (Yagi) antenna systems.

This is one way of saying that the stations offer a distinct challenge to the serious scanner owner, made even more tricky by several other relevent factors. For one thing, they are virtually never reported to publications by scanner owners—our own information is (at best) very tentative and fragmentary. Frankly, we're sort of hoping that this story will not only spark interest in these federal stations, but will also bring in more information for sharing with *POP'COMM* readers.

For the most part, these links don't seem to announce any callsigns other than those of the NOAA broadcast stations whose signals they carry. Your author suspects that, with a few possible exceptions, the links are assigned those same callsigns or else none at all.

What follows is a trial listing of these links. You'll note that they operate on certain frequencies: 162.375, 163.275, 167.905, 173.025, 410.075, 410.10, 410.575, 415.90, and 416.375 MHz. At least, those are the channels thusfar reported to us. These are the prime candidates for investigating in *your* area. Why not let us know the results of your investigations?

NOAA VHF/UHF Fixed Links

AK	Anchorage	KEC43	410.575
AK	Fairbanks	WXJ81	410.575
AK	Nome	WXJ62	410.10
AL	Huntsville	KIH20	410.10
AR	Little Rock	WXJ55	410.575 415.90
AZ	Tucson	WXL30	162.375 410.10
AZ	Yuma	WXL87	416.375
CA	Bakersfield	WXL89	410.10
CA	Coachella	KIG78	162.375
CA	El Centro	WXL87	416.375
CA	Eureka	KEC82	410.10
CA	Fiesno	KIH62	416.375
CA	Los Angeles	KWO37	410.10
CA	Mt. Pierce		416.375
CA	Mt. Tamalpais	KIH30	416.375
CA	Pt. Arena	KIH30	416.375
CA	Redding	WXL88	416.375
CA	Redwood City	KEC49	410.10
CA	Red Bluff	WXL88	416.375
CA	Sacramento	KEC57	410.575
CA	San Diego	KEC62	162.375
CA	Strawberry Pk.	WXM21	416.375
CT	Glastonbury	WXJ42	416.375
CT	Meriden	WXJ42	416.375
CT	New London	KHB47	416.375
FL	Jacksonville	KHB39	163.275
FL	Ruskin	KHB32	415.90
FL	Tampa	KHB32	163.275 415.90
GA	Augusta	WXK54	415.90
HI	Honolulu	KBA99	173.025
ID	Boise	WXK68	410.10 416.375
ID	Lewiston	WXK98	416.375
ID	Pocatello	WXL33	410.10
ID	Twin Falls	WXL35	416.375
LA	Lake Charles	KHB43	163.275
LA	New Orleans	KHB43	163.275
MD	Dovids Hill	KEC92	416.375
MD	Marlow Mtn.	KHB36	410.10
MD	Salisbury	KEC92	410.575 416.375
MD	Trappe	KEC92	410.575
MT	Helena	WXK66	410.10 416.375
MT	Kalispell	WXL82	416.375
MT	Missoula	WXL25	410.10
NC	Asheville	WXL56	416.375
NC	Greensboro	WXL42	410.10
NC	Winston-Salem	WXL42	410.10
NM	Las Cruces	WXL91	162.375 415.90
NV	Elko	WXL28	410.10
NV	Ely	WXL69	410.10
NV	Las Vegas	WXL36	410.10
OH	Akron	KDO94	410.575
OH	Cleveland	KHB59	410.575 416.375
OH	Sandusky	KHB59	416.375
OR	Astoria	KEC91	410.575
OR	Newport	KIH33	410.575
OR	Warrenton	KEC91	410.575
PA	Wilkes-Barre	WXL43	167.905 410.10
PR	San Juan	WXJ68	410.575 415.90
RI	Providence	WXJ39	410.075
RI	Warwick	WXJ39	410.075
SC	Charleston	KEC95	410.10
SC	Georgetown	KEC95	410.575
SC	Huger	KEC95	416.375
		WXK49	415.90
SC	Myrtle Beach	KEC95	410.10 410.575 415.90 416.375
TN	Blountville	WXK47	410.575
TN	Bristol	WXK47	410.575
TX	Alvin	KGG68	415.90
TX	Corpus Christi	KHB41	163.275
TX	Dallas	KEC56	410.575
TX	Del Rio	WXJ98	162.375
TX	Ft. Worth	KEC55	410.575
TX	Galveston	KHB40	163.275
TX	Houston	KGG68	415.90
TX	Midland	WXK32	162.375
TX	Pharr	KHB33	162.375
TX	San Angelo	WXK38	415.90
UT	Cedar City	WXM24	410.10
UT	Logan	WXM22	416.375
UT	Milford	WXM24	410.10
UT	Salt Lk. City	KEC78	410.575
VA	Lynchburg	WXL60	410.10
VA	Roanoke	WXL60	410.10 416.375
VT	Burlington	KIB60	416.375
WA	Seattle	KHB60	410.575
WA	Yakima	KIG75	410.10
WV	Charleston	WXJ84	416.375
WY	Casper	WXM47	415.90
WY	Cheyenne	WXM37	410.575
WY	Sheridan	WXM46	410.10

PC

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High School Student Saves Bus Passengers From Disaster

In this column we usually highlight a police officer, firefighter, or EMT . . . but this month's award is proof that anyone who can think quickly, clearly and with bravery can make a difference.

SCAN PUBLIC SERVICE AWARD

Robert Paul is a senior at Lyons Township High School, near Chicago. He was riding in the school bus with fellow students on a two-lane road when the driver of the bus suddenly slumped behind the wheel. The bus immediately went speeding out of control. First it headed for the opposite lane, narrowly avoiding a head-on collision, then it began to swerve to the right, hitting a large interstate highway entrance sign and heading straight for a concrete overpass support.

Robert Paul

As the bus began to begin to tip over, Robert Paul didn't try to protect himself from the coming crash. Instead he wrestled his way into the driver's seat and fought to bring the bus under control. Narrowly missing disaster, he slowed the bus and managed to get it back on the pavement. Then, rather than stopping, he continued driving the bus to get help for the bus driver. Paramedics were unable to revive the driver, who had suffered a fatal heart attack.

18-year old Paul showed clear split-second thinking and true courage. He receives this month's SCAN Public Service Award which includes a handsome engraved plaque and a cash award. The SCAN member who made the nomination also receives a special award plaque. Now it is your turn! Send your nomination, with a newspaper clipping or other account of the event to SCAN Public Service Award, P.O. Box 414, Western Springs, IL 60558.

SCAN PHOTO CONTEST WINNERS

Best Equipped

Elmer Cronkright of Wyoming, Michigan assembled all of his receivers, scanners, recorders, clocks and a television set together in one cubbyhole, then decorated it with pennants, stickers and decals from a variety of shortwave stations.

Elmer uses a Bearcat 210XL scanner, Robyn 40-channel citizens band rig and Kenwood R-1000 communications receiver. Still in service are two National tube receivers, a 270 amateur band receiver (lower left) and an NC-109 general coverage receiver (lower right) along with one of those old gray National speakers. Elmer also has what he describes as an "old Crosley radio" that stands in the upper left of this photo. He also has a television receiver in his shack and a Panasonic cassette recorder.

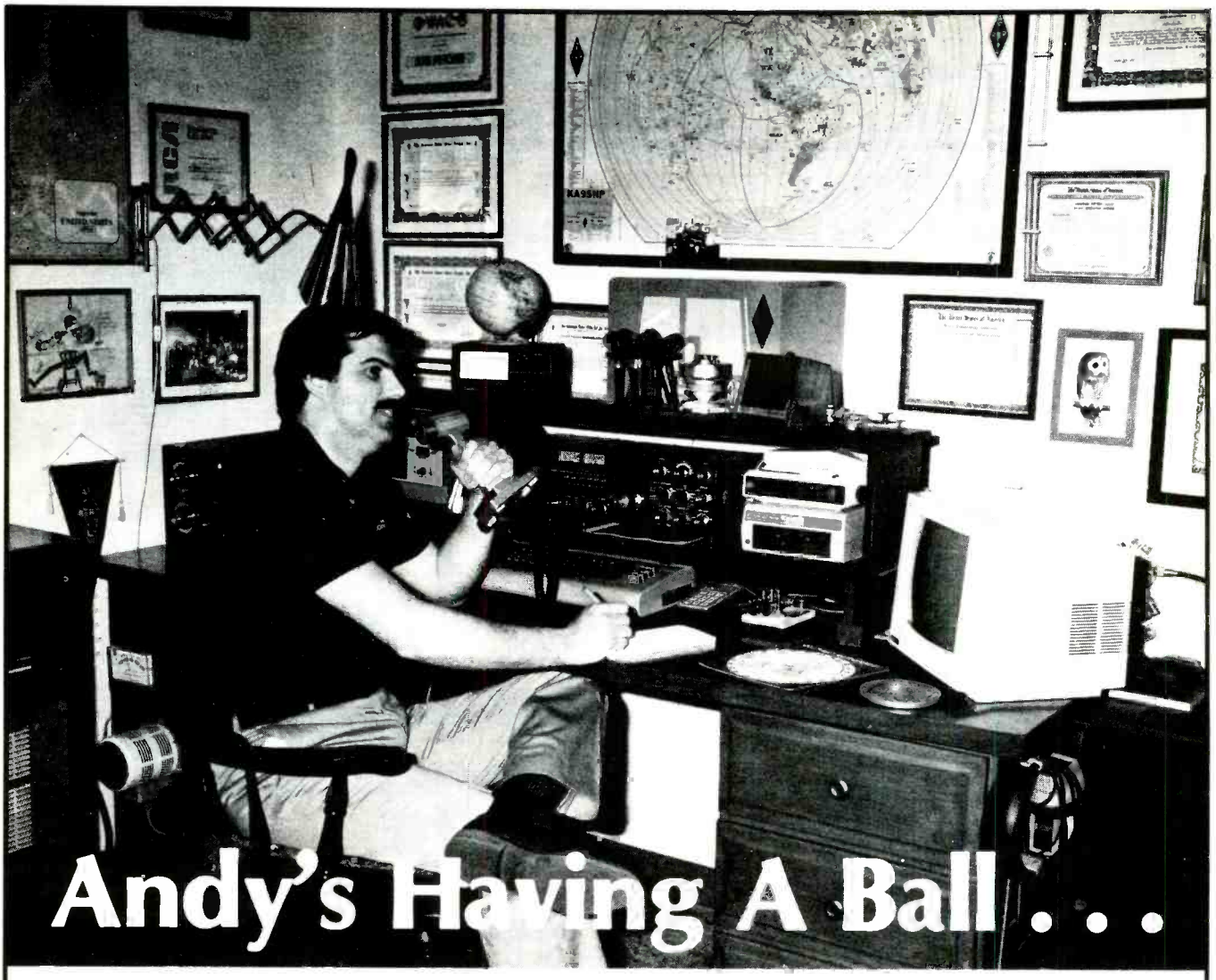
Obviously, Elmer enjoys collecting shortwave pennants, and appreciates older receivers. There's no doubt about it, those old tube radios are still nice to have on hand. But they don't make a BMI Nitelogger with tubes.

Best Appearing

Homer J. Rajotte of Northbridge, Massachusetts, sends us this photo of his attractive monitoring station. All of the components of this shack are easily accessible, and that's important since Homer is a member of the Northbridge Fire Department.

Because of his duties with the fire department, Homer uses an Instalert alerting radio and a Plectron pager. When he travels, he takes a Bearcat 100 scanner along with him. Staying at the base station are a Bearcat 220 scanner connected to a Realistic all-band antenna mounted about 70 feet high. Homer reports that reception is good for about 30 miles in all directions with this aerial. He also listens to a Bearcat DX-1000 communications receiver, which is connected to a 75-foot longwire antenna mounted between two trees. Homer also has an SBE console V citizens band radio for local transmissions and to monitor Channel 9. A Commodore 64 computer with disk drive is used to record programs received on the DX-1000.

Winners in the Photo Contest this month receive the BMI "NiteLogger" tape recorder activator. Plugged into a cassette recorder and a scanner, it gives a complete record of all communications with no "dead time" on the tape. If you would like to enter the contest, just send a sharp black/white print to SCAN Photo Contest, P.O. Box 414, Western Springs, IL 60558.



and you can too!

Andy is a Ham Radio operator and he's having the time of his life talking to new and old friends in this country and around the world.

You can do it too! Join Andy as he communicates with the world. Enjoy the many unique and exclusive amateur bands . . . the millions of frequencies that Hams are allowed to use. Choose the frequency and time of day that are just right to talk to anywhere you wish. Only Amateur Radio operators get this kind of freedom of choice. And if it's friends you're looking to meet and talk with, Amateur Radio is the hobby for you. The world is waiting for you.

If you'd like to be part of the fun . . . if you'd like to feel the excitement . . . we can help you. We've got all the information you'll need to get your Ham license. Let us help you join more than a million other Hams around the world and here at home. Who are we? We're the American Radio Relay League, a non-profit representative organization of Amateur Radio operators.

For information on becoming a Ham operator
circle number 110 on the reader service card or write to:

AMERICAN RADIO RELAY LEAGUE Dept CQ, 225 Main Street
Newington, Conn. 06111.

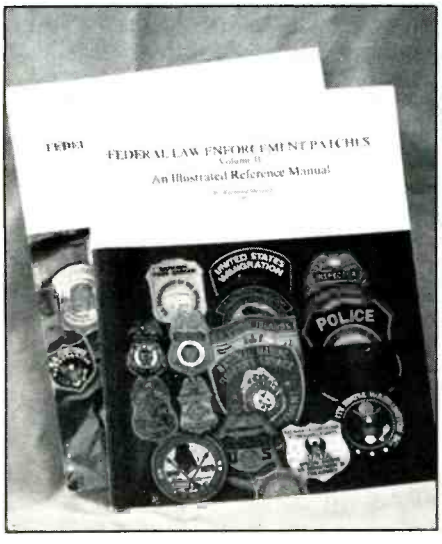
BOOKS YOU'LL LIKE!

BY R. L. SLATTERY

These Aren't 'Phone Patches

Two extremely interesting reference books are available to the student of federal enforcement agencies, and that seems to include many persons who own scanners. The two companion volumes are known as *Federal Law Enforcement Patches, Volume I and Volume II*, both by Raymond Sherrard.

The author, who happens to be a U.S. Treasury Department Special Agent, has long been a collector of patches from his own agency, the FBI, State Dept., Dept. of Defense, and other agencies. Several years ago he decided to take color photos of the 288 patches in his collection, write up a brief description of each, and issue a reference book for other collectors that might also be used for ID purposes by various agencies. That became the first volume, issued in 1983.



After the original volume came out, new patches were issued and many older patches were added to his collection. In fact, 800 more patches than when Volume I came out. So, Sherrard took more color photos, wrote more descriptive information, plus information on how to collect federal patches—and he issued his Volume II. The second volume (which *doesn't* include those previously covered in the earlier book), also covers many agencies not included in the earlier work—FCC, CIA, NSA, etc.

Although they may be obtained separately, together they make a very useful reference set for federal agency buffs. Volume I is $13.00. Volume II is $21.50. Prices are for postpaid to USA/Canadian addresses. These books may be ordered from RHS Enterprises, P.O. Box 5779, Garden Grove, CA 92645. By the way, he's working on a book about federal badges!

The Reel Story

The New World of Amateur Radio is a 28-minute videotape that was produced by the ARRL. The ARRL says that it "portrays the excitement and person-to-person contact that only ham radio can provide." There's no doubt about the fact that it easily meets its goal, for this is a professionally produced, slick, and completely captivating portrait that will appeal to everyone, even those who never had any interest in hamming.

The Executive Producer is Roy Neal (K6DUE), formerly NBC News' science editor. Others involved in the project include hams who hold important positions with the CBS and Fox TV networks. The original musical score is by John Tesh (of TV's *Entertainment Tonight*).

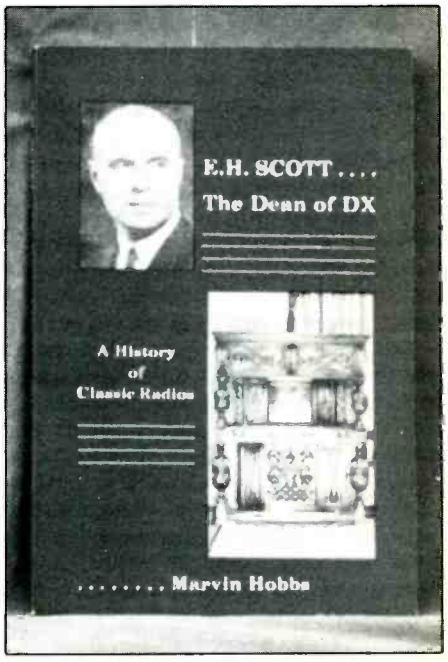
The video shows ham radio in action, giving you a look at some well-known hams, including a king, an astronaut, show business personalities, and others. We see DX-peditions to remote areas, hams performing emergency tasks, operating in contests, hams transmitting via shortwave broadcast station antenna arrays, and lots more. The idea is to explain ham radio to all age groups and levels of interest.

It's so interesting that it makes you want to go out and get a ham ticket without delay. As an added extra, there are even several views of *POP'COMM's* own Gordon West teaching one of his ham radio license study classes!

While this video is ideal for schools, it's of genuine interest to individuals too. Schools can obtain a copy on a free loan basis. Copies may also be purchased outright by schools and individuals for $20, (plus $2.50 mailing). It's available from the Publications Sales, Dept. PC, American Radio Relay League, 225 Main St., Newington, CT 06111.

Great Scott!

For those whose interests in radio and DX cover the past as well as the present and future, here's a goldmine of information. It's a book entitled *E.H. Scott, The Dean of DX*, by Marvin Hobbs. E.H. Scott, it should be noted for the uninitiated, was a DX'er who turned his hobby into a major industrial effort by producing deluxe receivers from 1926 until he sold his company in 1944.



That company then went into producing quality high fidelity equipment until the 1960's—and still exists (under another name) importing most of its equipment from overseas.

This book covers Scott's early DX'ing efforts and exploits through an examination of his logbooks. It discusses many of the early broadcasting stations and their activities, then it picks up the threads of Scott becoming interested in manufacturing receivers that would be the ultimate DX machines—and how that dream developed and evolved into worldwide fame for hobbyists and even the military.

A few years ago I found one of Scott's old WWII receivers at a hamfest. It was a model SLR-H, intended for entertainment (broadcast reception) aboard naval vessels. It covered the broadcast and shortwave bands and weighed a ton. Other than the fact that it (of course) didn't have any SSB capabilities, it was as good a receiver as I had ever owned up until that time—tubes and all. And, despite the fact that it was almost forty years old, it was totally problem-free. That was my own personal introduction to Scott's equipment.

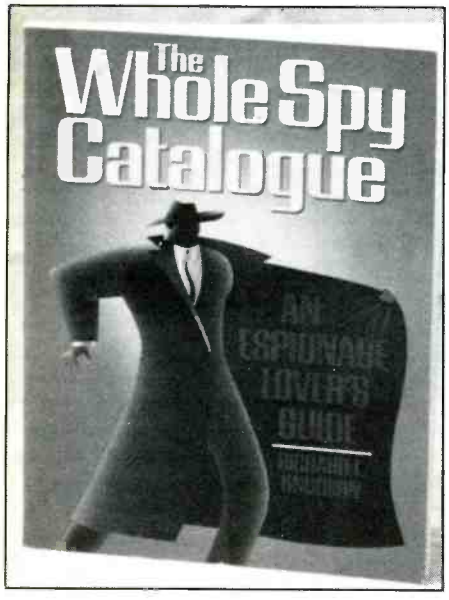
Who better to write this probing 169-page book about this complex and fascinating man than Marvin Hobbs, who was Scott's Chief Engineer from the late 1930's through the late 1940's. After his tenure at the Scott labs, Hobbs worked for Bell Telephone Labs until his retirement in 1982.

This is an excellent book, filled with photos and facts, and telling of Scott's many ideas in equipment design and marketing, and, sadly, Scott's ultimate disillusionment. It's a most exciting story, told well by Hobbs.

The book is available at $10.95 per copy from North Frontier Press, P.O. Box 578652, Chicago, IL 60657.

The Inside Story

The inner workings of espionage tradecraft and hardware are laid bare in *The Whole Spy Catalog, An Espionage Lover's Guide*, by Richard L. Knudson. It's a cornucopia of information put together by an author who is the former editor of the official journal of the International Spy Society.



In his fully illustrated and wide-ranging new book, Knudson reveals probably everything you've ever wanted to know about espionage applications of listening devices, communications equipment, bugs, voice scramblers, telephone analyzers, transmitter locators, black boxes, bug detectors, VHF trackers, night vision devices, telephone taps, secret codes, professional espionage agency operations, espionage jargon, miniature radios, famous spies of historic and literary importance, and even the Espionage Hall of Shame!

This is an indispensable handbook for everyone who has always wanted to know more about espionage than the news media seems willing to discuss. Its probing text and more than fifty photos combine to offer a detailed guide to spies and spy lore—in both fact and fiction. Lots of source names and addresses are provided, too. In all, it easily achieves its goal of providing a well-rounded picture of the current state of the world of professional and amateur snoopery.

The Whole Spy Catalogue is $10.95 (plus $1 postage/handling to addresses in USA/Canada/APO/FPO) from CRB Research, P.O. Box 56, Commack, NY 11725.

Caveat Emptor

Unfortunately, we saw the *Scan America's Travelers' Frequency Directory, 2nd Edition*. It purports to be a something that will be of use on a nationwide basis. Actually it's a dinky little 61-page pamphlet that's about as useful as a fractured elbow. It contains an abundance of blank white space plus large, crudely-drawn and absolutely meaningless state outline drawings. In between there are some listings. If you think that it would be difficult to include much useful information in this small amount of space, you're right. You could probably put all of the useful data in *Scan America* on the back of a matchbook cover and still have room left over for everything else it contains. No wonder its perpetrator has elected to remain anonymous. Can't say I blame him. It would be almost funny if it didn't carry an $8 price tag. If I had shelled out $8 for a copy of *Scan America*, I definitely wouldn't be laughing. Neither would you. PC

Equipment Report:

The Ranger AR-3500 Transceiver

For lovers of the 10 meter ham band (28 to 30 MHz), there's no other band that can quite duplicate that band's excitement. With a minimal antenna and a rig running only a fraction of the power required on lower frequency bands, worldwide SSB DX can be worked when propagation conditions are right. Of course, long range propagation on 28 MHz is a come-and-go sort of thing, but conditions have been getting better (thanks to cooperative sunspots) and we're seeing overall improvement of DX conditions.

Certainly, anybody who ever listened in on the adjacent 27 MHz CB band during DX conditions can attest to the potency of even a few watts of transmitter power in this lively portion of the spectrum. These frequencies are also known for producing Sporadic-E skip openings which come and go on a very irregular basis. Mostly it's something lasting only a few hours—and it affects only limited geographic areas. These are some of the reasons the 10 meter band is so unpredictable and exciting.

Then, not that long ago, comes something called Novice Enhancement. That meant that people holding Novice and Technician Class ham licenses could finally operate with SSB on this spectacular band for the very first time, thus opening up the doors to worldwide ham communications (using voice) to thousands upon thousands of operators whose only HF band operating privileges had consisted of CW. With the 28.3 to 28.5 MHz portion of the 10 meter band now available for SSB use by Novices and Technicians, this band is buzzing away with new vitality and activity. Moreover, it's inspired a whole new influx of ham licensees —folks who weren't motivated to get CW or VHF-only ham privileges, but were definitely inspired by the chance get an easily obtainable Novice license and have the joy of legally "skip shooting" stations from other areas of the world. Many who jumped at the opportunity were those who had been doing it illegally for many years in the bootleg *freeband* (27.415 to 27.995 MHz).

Most I've spoken to who are part of the new influx on 28 MHz seem to be less interested in exercising their CW privileges on the other HF bands than they are in running SSB on 10 meters. Inasmuch as the majority of HF ham gear consists of multiband transceivers, it seemed only natural for some manufacturer to bring out a transceiver that would be solely devoted to operation on only this one single band.

Enter the Clear Channel Corporation, P.O. Box 445, Issaquah, WA 98027. They have very cleverly designed two similar 10 meter band transceivers dedicated to the person who is interested in that particular band alone. One rig is the Model 30W (25 watts PEP SSB, 8 watts AM, FM 8 watts RMS), and the Model 100W (120 watts PEP, 30 watts AM, FM 8 watts RMS).

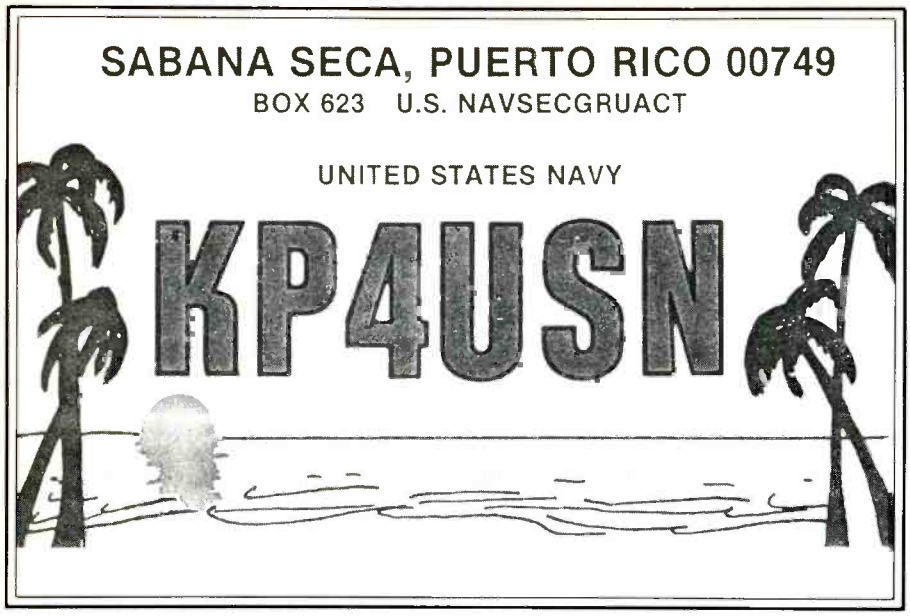
While these rigs run less power than the average multiband all-mode rig (SSB 200 to 250 watts PEP), devotees of this portion of the spectrum know that it has its own peculiarities. One of them is that if a DX station can hear you at all, even a 5-watt signal will probably do the job. On the other hand, if skip conditions aren't right, a full kilowatt will be meaningless.

The Ranger AR-3500 is designed for mobile use, although it can be operated as a base station with a regulated power supply (6 amps for the Model 30W, 25 amps for the Model 100W). The two models weigh 5 and 7 lbs., respectively. Each is about the size of a mobile SSB rig or 2 meter band FM ham transceiver, although the Model 100W is a shade longer than the lower powered model.

General features of both models of the Ranger AR-3500 are identical and include programmable scanning range; scanning in 100Hz, 1 kHz, 10 kHz, and 100 kHz increments; direct entry frequency selection as well as five memory frequencies; selectable split frequency operation; a high gain noise blanker; squelch; an SSB clarifier; LED's that indicate the relative amount of transmitted power and incoming signal strength; and a large LED frequency display that reads out to four decimal places (such as 28.3257 MHz).

While the Ranger AR-3500 should be of instant interest to Novices and Technicians with its SSB in the 28.3 to 28.5 MHz subband, the unit does cover the entire 28 to 30 MHz ham band with SSB/FM/AM/CW and will appeal to all licensees.

The manufacturer rates the receiver at better than .3 μv (10 dB S + N/N) sensitivity, with selectivity 4.2 kHz (– 6 dB) and 8.6



As soon as the band opened I got a 5 × 7 report from KP4USN in Puerto Rico (KP4WZU at the controls there). This QSL commemorates the contact!

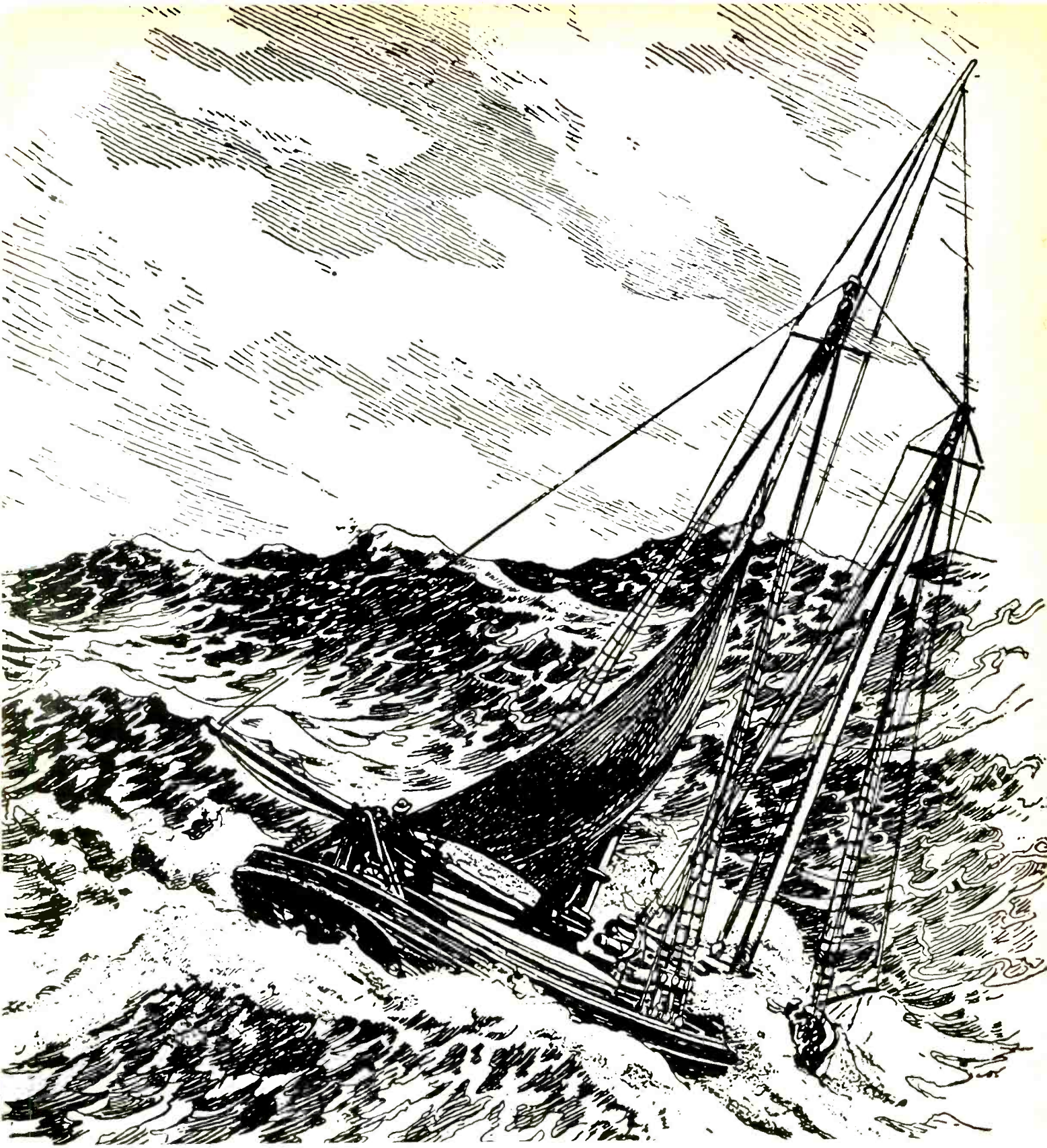
kHz (−60 dB). The unwanted sideband suppression is rated at better than 50 dB below peak output (1 kHz tone); carrier suppression better than 40 dB below peak output—spurious radiation better than 50 dB below peak output.

We had a chance to put the Model 30W through its paces, running it into a half-wave coaxial antenna mounted about 30 feet up. As soon as the rig was turned on we heard Tom, KA2ZAF, on the air. He was about 20 miles away and had a horizontally polarized beam. He said the rig sounded fine and had a strong signal, despite the antenna polarization difference. Within minutes we were joined by Gary, KB1WY, who was a good thirty miles away. He also gave the rig a good report. Things were looking good, but we were anxious to see the unit tackle a couple of DX stations. Later that afternoon came a band opening and we nailed WP4CTD and KP4USN, both in Puerto Rico, followed by PP1BG in Brazil, and HK4CGI in Colombia. These guys were giving me 5 × 5 and 5 × 7 signal reports—and that's respectable in anybody's book. For the next several days, with the Ranger AR-3500 in action, I nailed down Costa Rica, Uruguay, the Canary Islands, and a whole raft of stations in Puerto Rico and elsewhere.

I found the unit easy to use, imbued with all of the operating features and conveniences for which I had any need, and really quite an attractive all-around package for the aspiring 10 meter fan, as well as enough of a rig to satisfy the experienced 10 meter operator seeking a handy rig for the shack, the car, the camper, or the boat. Price is nice too; the Model 30W sells for $319, with the Model 100W weighing in around $409.

It's a quick, easy, and rather inexpensive way of joining in on the enjoyment and excitement of the unique 10 meter band. All you need is a ham ticket. Check it out, the ham ticket and the Ranger AR-3500! **PC**

Reviewed by Tom Kneitel, K2AES, Editor



"Seth Parker's" Crazy Radio Cruise

A 1930's "Radio Ship" You'll Never Forget!

BY DON JENSEN

• • •

He always came on like Gangbusters!

Not much about the flamboyant, hard-driving Phillips H. Lord was quiet or subtle. Low-key wasn't his style. When he dove into a project, he aimed to make a big splash.

And Phil Lord would make plenty of splashes during radio's Golden Age, the 1930's and 40's. His slam-bang radio dramas captivated audiences and made him millions when the medium was still young. He wrote, produced, even acted in some of the most popular programs on the air.

Lord's biggest hit, of course, was "Gangbusters," which began its 12-year run in 1936. A 1939 program, "Mr. District Attorney" also would be a long-time smash. He was the creative drive behind other broadcast favorites, "David Harding, Counterspy," "We, the People," "Treasury Agent," "Policewoman," and more.

In 1933, though, that was all in the future. The handsome 31-year-old actor with flashing eyes and dazzling smile was already a radio star, riding the crest with the most popular program on the fledgling National Broadcasting Company network.

For two years, Lord had played "Seth Parker," a folksy, Down East character, in the series "Seth Parker's Singing School" and "Sunday Evening with Seth Parker."

Audiences loved the kindly demeanor of the fictional Parker from Jonesport, Maine. They took his common sense wisdom to heart and enjoyed the old-fashioned country hymns sprinkled liberally throughout the broadcasts. The shows claimed an astonishingly large audience for the day—some 10 million faithful listeners.

Then, at the height of his popularity, Lord announced a "topper." He would outfit a four-masted schooner—appropriately named the *Seth Parker*—as a radio ship. For the next year and a half, he said, he would cruise the world, broadcasting his programs back by shortwave to WJZ, New York, for relaying over the NBC chain.

It was an audacious bit of showmanship that added excitement to an already top-rated show. And Lord, apparently, expected the cruise to be a great adventure, too.

It was, in a goofy sort of way, filled with improbable events and characters. There were rumors of wild shipboard parties which drove to distraction the show's refrigerator manufacturing sponsor, anxious to preserve Seth's Bible-bound reputation.

The voyage also was linked to tales of a sexy self-styled "Empress," who, wearing silk scanties and a pistol, ruled a South Sea isle. Also figuring in the voyage of the shortwave schooner were the youngest son of the King of England, an ex-Czarist admiral, an Australian warship, a typhoon-that-never-was, a supposed near-sinking and, finally, allegations of a "Seth Parker" hoax.

It ended 18 months after it began, with the Parker image irreparably tarnished and Lord beached and broke.

Phillips H. Lord was born, a minister's son, in Connecticut in 1902, but the family soon moved to Maine where he grew up. He attended the prestigious Phillips Andover Academy and graduated from Bowdoin College. At 22, he was hired as the youngest high school principal in Connecticut.

But Lord was more interested in writing than teaching, so despite rejection slips from magazine publishers, he quit his post, moved to New York and tried, unsuccessfully, to support himself with his typewriter.

His radio career began by chance the night he heard a broadcast sketch of small town life in Maine.

Bosh!—Lord complained to the small Hartford radio station. Pure hokum! His childhood neighbors never sounded or acted that way! The station told the would-be writer to put up or shut up. And he was on the air.

Lord's program, which would become "Seth Parker's Singing School," drew a flood of favorable letters and was soon aired by five New England stations. That attracted NBC, which signed Lord to produce it for the new network.

"Parker" was a kindly man of the soil who distained proper grammar, but offered advice and inspiration to his fictional Jonesport neighbors who came to him with their fears and hopes, defeats and dreams. In between, the townsfolk raised their voices in song, *Rock of Ages, The Old Rugged Cross* and similar hymns.

What was "Seth's" audience attraction? One fan explained in a sincere but dreadful verse, *When Seth Parker's On The Air:*

Refreshing as the summer breeze that cools the coast of Maine,
And when the neighbors 'gither' and 'Ma' Parker strikes the chord,
Somehow I feel I'm getting better acquainted' with the Lord . . . .

Phil Lord, meanwhile, was getting acquainted with money—big money. As radio's first independent program producer, he parlayed "Seth's" success into sheet music and records, magazine articles and books, a national tour of the Seth Parker singers and a Hollywood movie called *Way Back Home.*

It was in mid-1933, when Lord capped it all with his plan for the world radio cruise. During the Fall, a 250-foot sailing ship was renovated at Portland, Maine, at a cost of $200,000. A radio studio and a 1,000-watt shortwave transmitter were installed.

The *Seth Parker* station was assigned the call letters KNRA. It was intended that the transmitter would be used both for relaying the program back to New York and for normal ship-to-shore communications. And so it was heard by many shortwave listeners on a number of shortwave frequencies, including 6160, 6423, 6600, 6900, 8840 (the most commonly heard), 12345 kHz and on an unspecified frequency in the 13 MHz range.

On Nov. 20, 1933, the 775-ton schooner cast off from the government pier at Fort Totten, New York, near Lord's home in Bayside, Queens. Aboard were 27 people—Lord, his cast and singers, technicians and the crew.

The vessel returned to Portland for final outfitting, then, on December 8, headed south toward its first port of call, Baltimore. The next stops on the eastern seaboard were Charleston and Savannah. At each port, "Seth's" program was aired and relayed to listeners across the land.

Soon, though, disquieting rumors were heard about what was happening aboard the ship after the microphones were switched off.

Author Jim Harmon, in his book, *The Great Radio Heroes,* tells it this way:

"Afterward the ship rocked with lavish parties full of bubbles, giggles and hot jazz music. Disgruntled reporters (who perhaps had not been invited) suggested in the press that Seth Parker seemed to think he had already reached the Promised Land.

"Frantic messages began flying from the sponsor, Frigidaire. Evidently they were concerned over the large number of ice cubes being consumed by Lord and his party."

Rumors gave the broadcasts a black eye. And while SWL's later reported reception of marine communications from "Seth Parker Expedition," none of the 1934 loggings mention hearing the "Parker" program on shortwave.

But the ill-starred cruise had only just begun. The vessel—under the command of Captain Constantine Flink, formerly of the Imperial Russian Navy—sailed in stages toward the Panama Canal, and then into the vast southern ocean.

A year after the voyage began, in November 1934, she was sailing near the Galapagos, the remote Pacific island chain, 600 miles west of Ecuador, where, in the 19th Century, Charles Darwin figured out his theory of Man's beginnings.

The enterprising Lord offered his own version, radioing back to New York a titilating interview with a modern Adam and Eve, a Dr. Ritter and Frau Koervin, wife of a Berlin businessman, who had run away together five years earlier. They had established their own little Garden of Eden on one of the uninhabited Galapagos.

Also there were press reports that Lord was looking for the elusive Baroness de Wagner, said to be a dark-eyed Viennese beauty who, two years earlier, had assumed the title of Empress on another of the remote isles. Wearing silk shorts and a revolver dangling from a cord, she allegedly ruled, with fierce temper and lashing tongue, over a nine-man male harem. Rumors reached the outside world of nudism, bondage and

weird food fettishes being practiced on the Empress' island.

That tale died, unresolved, with the word that the Baroness de Wagner supposedly had moved on to some even more remote island without leaving Lord a forwarding address.

The ship and crew, by that time down to about 15, next made headlines about three months later, some 300 miles out of Tahiti, bound for Samoa.

The story broke Feb. 8, 1935, when Lord radioed the Radiomarine Corporations' San Francisco station, that the vessel had been caught in a typhoon, was leaking and in a "dangerous position." At 11 p.m., he added, "In danger of capsizing."

The schooner was caught in cross swells, rolling up to 60 degrees at times, Lord reported. Capt. Flink, he said, believed the ship had run smack into "the eye of the cyclone!"

Puzzled because it had no indication of a major storm in the area, Honolulu Naval Radio asked other ships to report weather conditions.

Answering the distress call was the *HMS Australia*, with the Duke of Gloucester, third son of King George, aboard. The cruiser changed course and steamed 200 miles to aid the *Seth Parker*.

By radio, Lord claimed "solid walls of water" were coming over the side during "bad squalls."

Capt. W.S.F. Macleod of the *Australia* made it clear he didn't think the weather was all that threatening, but approached the sailing vessel and hove to to await developments.

At 1:35 p.m., Feb. 9, the schooner's radioman passed the word that "everything was okay," even though "the owner" still didn't think so. The veteran "sparks" aired his opinion that the owner, Lord, "ought to go to sleep now" having been up all night.

But at about 1 a.m., Feb. 11, hours after the Australian fleet's warship sailed away, both Mackay Radio and Globe Wireless in San Francisco reported a frantic SOS from the *Seth Parker*.

"Rigging already going . . . fear only a matter of hours," Lord radioed. And then, more ominously, "If we lose contact, it is a sign we have gone over."

Macleod turned about again and steamed back to aid the stricken ship. At 12:29 a.m., Feb. 12, the *Australia* reached the scene and took off nine of the crew, including the diminutive black cabin boy, Arthur Morgan, whom Lord had dubbed "Worry" at an earlier time when there had seemed no real cause for concern.

Lord, his Russian skipper, a navigator, "sparks" and another crewman remained on board. The Navy tug *Ontario* was dispatched from Pago Pago, 800 miles away to help. The leaking schooner, under tow, reached safety to Tutuila, American Samoa, nine days later.

In London, the British, strongly suspecting the SOS incident had been just a publicity stunt, warned it would file a formal complaint with Washington if it was proved that it had been a hoax. The Admiralty said it took "a very serious view" of phony SOS calls. After all it cost some 500 pound sterling—about $2,500 in those days—to divert the cruiser 400 miles out of her way to answer the plea for help.

Eventually, Capt. Macleod backed down, saying that, well, maybe the Yank actually had thought his ship was in imminent danger of foundering. He guessed that no hoax was intended. On May 5, the Australian government made it official: it was convinced "that Phillips Lord, the radio entertainer and captain of the schooner, did not ask for assistance unnecessarily . . . ."

No charge for the service, the Aussies said. It was, however, the end of the trip for Lord. He was broke and his radio show was cancelled.

But Phillips H. Lord was never one to stay down for long. Within a year, he was back on his feet again with a Bang! Pow! BAM! and a Rat-a-tat-tat-tat! "Gangbusters" soon blasted away the bad memories of Lord's crazy radio cruise.

His career zoomed, with show after show. After WWII, he made a brief foray into television, with a courtroom drama, "The Black Robe," and a video clone of "Gangbusters." They flopped. With more than enough money in his sock, Lord retired in 1953, returning to Maine, There, in 1975, he died at the age of 73.

For the luckless schooner, the *Seth Parker*, there was no happy ending to the tale. Sold to the Hawaiian Tuna Packing Co., the ship became a fish carrier. On Sept. 7, 1935, 600 miles southeast of Hawaii, she again sprung a leak. Accompanied by the Coast Guard patrol boat *Tiger*, she limped back to Honolulu with pumps working furiously and several feet of water in the hold.

Eventually she was patched up and towed to Australia where she was broken up for scrap.

EQUIP-tips

Tips from the expert on boosting the performance of your radio equipment.

By Bob Grove
WA4PYQ

Boost the Range of Hand-Helds

Today's hand-held VHF/UHF scanners and handie-talkies from Bearcat, Regency, Cobra, and Radio Shack, ICOM, Yaesu, and Kenwood have excellent sensitivity and talk power, but their range is reduced by their short flex antennas.

Tip: To increase the range of your hand-held scanner or transceiver, connect a Grove ANT-8 extendable whip antenna, equipped with standard BNC base.

The Grove ANT-8 is a fully-adjustable, professional whip antenna made of chrome-plated brass and equipped with a standard BNC base to fit most hand-held radios. Length is extendable from 7 to 46 inches. Replace that inefficient "rubber duckie" with the ANT-8 and *STAND BACK!*

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CIRCLE 51 ON READER SERVICE CARD

"MACISIN"

A New Era In Military Communications

BY LOLA HOBBS
AISD OFFICE OF PUBLIC AFFAIRS

A program being developed by Airlift Information Systems Division is expected to modernize and enhance Military Airlift Command's data processing and communications capabilities worldwide.

A prototype of the MAC Information Systems Internetting (MACISIN) project has been installed at the Scott AFB Combined Computer Facility in Illinois. It includes software, a communications function connected to the Automatic Digital Network, dedicated lines, Defense Data Network and HF radio and satellite communications.

According to Capt. Wesley D. Frazier, AISD project officer, "MACISIN is needed because MAC's current hardware cannot respond adequately to a mission that can change drastically and unexpectedly based on world conditions."

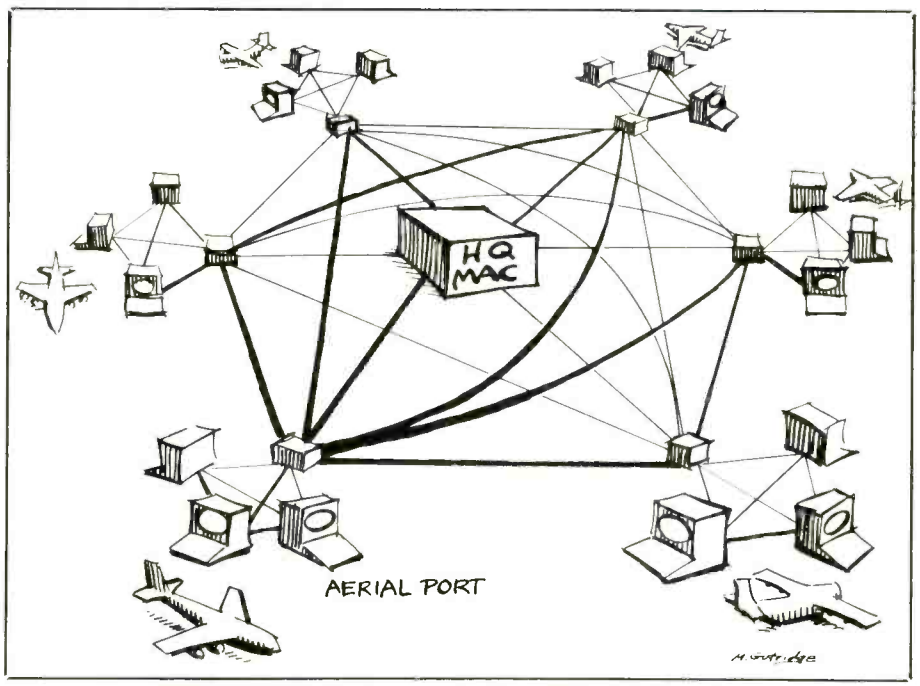
According to Captain Frazier, the project will provide MAC with a true alternate headquarters capability.

Following competitive acquistion and installation of the architecture at MAC headquarters, it will be placed at 24 major aerial ports, connecting to the existing hardware at each site. Finally, all existing terminals will be connected to communications gateways, thus modernizing MAC's existing applications software and integrating MAC's corporate data base across functional lines.

Capt. Frazier estimates that initial software will be delivered approximately two years after the contract is awarded. The requests for proposals have been sent out and the contract is expected to be awarded sometime next year.

According to Captain Frazier, "The MACISIN project will take advantage of the many improvements in technology. It will allow easy hardware modernization as changes in requirements or technology occur. It will allow the competitive replacement of hardware at MAC headquarters and eventually will replace this same capability at 50 MAC locations worldwide. The program will initially move existing software onto the new hardware. When completed, all MAC software will be modernized, integrating it across functional areas, thus providing enhancement and improved ease of maintenance."

MAC's hardware architecture provides support for its command and control mission, passenger reservation system and cargo transportation system. It consists of five multiprocessor mainframes with communications lines and terminals. The systems were acquired under a Worldwide Military Command and Control System contract. That contract is due to expire, making it more difficult to get support equipment.



MACISIN (U.S. Air Force art by Capt. Milford A. Gutridge.)

Captain Frazier added, "The rapidly changing technology and environment impact MAC's short and long-term workload. MAC's mission of flying personnel, equipment, medicine, and other resources to areas throughout the world makes it necessary to be able to respond quickly to world changes. Such missions produce surges in workload, such as the offloading and processing of cargo and/or passengers at these sites." He said, "If the facility at Scott is lost as a result of a natural disaster or war, we must continue to support the MAC mission. We have to be able to continue the accuracy of data and the reliability of processing and communications. We need to be able to shift applications programs to meet the changing workload—so the architecture needs to be flexible, survivable, reliable and maintainable. When new aircraft types join the fleet, we need to be able to respond to those changes in requirements."

Captain Frazier added that MACISIN will also allow additional computing power from a wide variety of vendors to fulfill MAC's future needs, and will eventually give MAC the same capability worldwide.

MACISIN will interconnect computers by use of a high-speed network. This fast interface is needed to handle the data requirements of MAC and provide support to the WWMCCS Information System and Air Force WWMCCS Information System. MACISIN will take advantage of new technology and improve worldwide data communications for MAC by moving from dedicated lines to long haul communications backbones such as the DDN.

The number of software systems and terminals needed for users to interface is expected to be reduced, according to Captain Frazier. MACISIN will also include a communications gateway as a front-end processor and a data access processor as a back-end storage unit.

He said, "The data will be captured once and flowed accurately and automatically to where it is needed."

The gateway will have two fault-tolerant processors and will provide a store and forward capability for transactions, messages and electronic mail, thus providing an audit trail and historical record keeping.

He added that software requirements will be redesigned based on experience learned from the Global Decision Support System and other AISD projects. PC

The Fine Art of Monitoring "Buzzsaws"

Or, What You Should Know About Tuning In FDM RTTY Signals

BY JACK ALBERT, WA9FVP

If I asked you if you have ever heard a "buzzsaw" on the shortwave bands, you may answer, "Yes, it's one of those Russian jammers or it's a Russian Woodpecker." The buzzing I am referring to is a roaring sound that is similar to a twin-engine prop airplane that you may have heard flying over your house. It sounds like a "buzzsaw" when your shortwave receiver is switched to AM mode.

When I was just a young guy in the early 1960's, I remember, while tuning the shortwave bands on the old Philco console, I heard a roaring, buzzing sound. I thought I just tuned in "Sky King," (a late fifties television series about a freelance airplane pilot). I never heard those famous words from the series: "Roger wilco, over and out"—all I heard was the same old buzz. (When Sky King was calling the tower on his radio, his voice was mixed with a buzzing to create the effects of someone talking on a radio in an airplane.) I didn't know that these sounds could have been "**F**requency **D**ivision **M**ultiplexed Radio Teletype" or FDM RTTY. I didn't even know what RTTY was!

In 1983, I purchased an ICOM R70 receiver and the 250 Hz narrow CW filter. I noticed when I switched to narrow CW, I would receive many channels of RTTY on a single buzzsaw. You're probably asking how that can be. I will attempt to explain FDM RTTY in this article, without getting too technical. You should already know basic RTTY principles before reading on; if not, the *ARRL Amateur Radio Handbook* has a wealth of information on the subject.

Before we start to copy FDM, I would like to show you some theory behind it because a better understanding will make it easier for you to tune in FDM. If you owned a 50-kW utility transmitter, how would you transmit three different Wire News Services at the same time? You could purchase two more transmitters and antenna systems or "time share" and transmit for 12 hours. The second method would be cheaper but you would have an electric bill that would light the city. FDM is the solution to this problem.

It is a method whereby many FSK (frequency shift keying) channels are con-

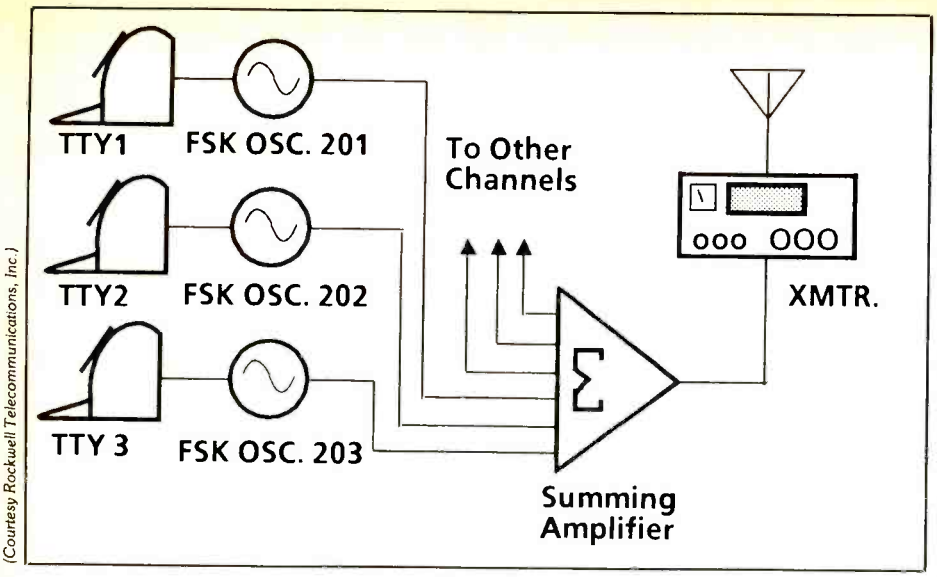
Figure 1

Scheme of Numbering of Frequencies and Multiplex
CCITT - R 70 bis

Mean frequency (Hz)	420	540	660	780	900	1020	1140	1260	1380	1500	1620	1740	1860	1980	2100	2220	2340	2460	2580	2700	2820	2940	3060	3180		According to Rec. R.31 ; 50 baud / Rec. R.35 ; 120 Hz
Channel No.	001 101	002 102	003 103	004 104	005 105	006 106	007 107	008 108	009 109	010 110	011 111	012 112	013 113	014 114	015 115	016 116	017 117	018 118	019 119	020 120	021 121	022 122	023 123	024 124		
Mean frequency (Hz)	480		720		960		1200		1440		1680		1920		2160		2400		2640		2880		3120			
Channel No.	201		202		203		204		205		206		207		208		209		210		211		212			Recommendation R.37
Mean frequency (Hz)	600				1080				1560				2040				2520				3000					50 baud / 100 baud } 240 Hz
Channel No.	401				402				403				404				405				406					Recommendation R.38 A 200 baud 480 Hz
Mean frequency (Hz)	540				900				1260				1620				1980				2340				2700	3060
Channel No.	301				302				303				304				305				306				307	308
Recommendation R.38 B 200 baud 360 Hz																										
Mean frequency (Hz)	420	540	660	780	900	1020	1140	1260	1560				2040				2340	2460	2640		2880		3120			
Channel No.	101	102	103	104	105	106	107	108	403				404				117	118	210		211		212			

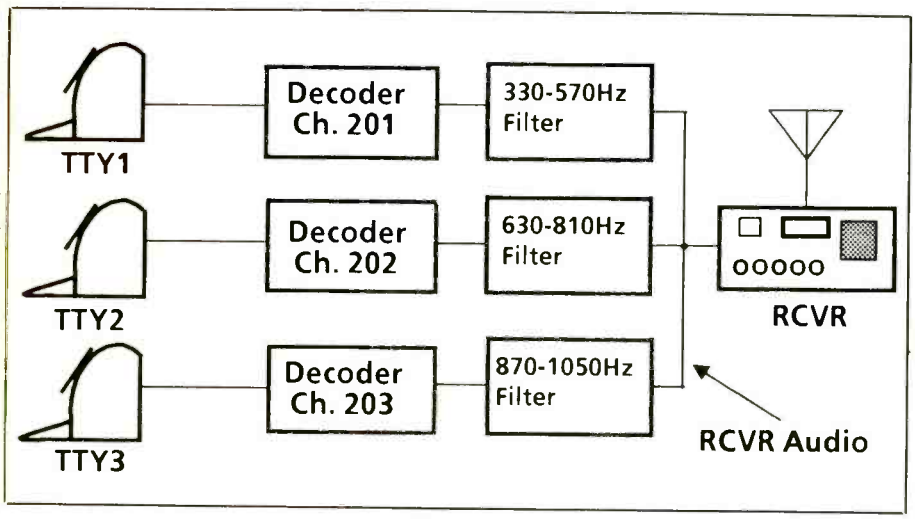
One example of the application of Recommendation R 36

2 channels-200 baud 480 Hz
3 channels-100 baud 240 Hz
10 channels- 50 baud 120 Hz



(Courtesy Rockwell Telecommunications, Inc.)

Figure 2



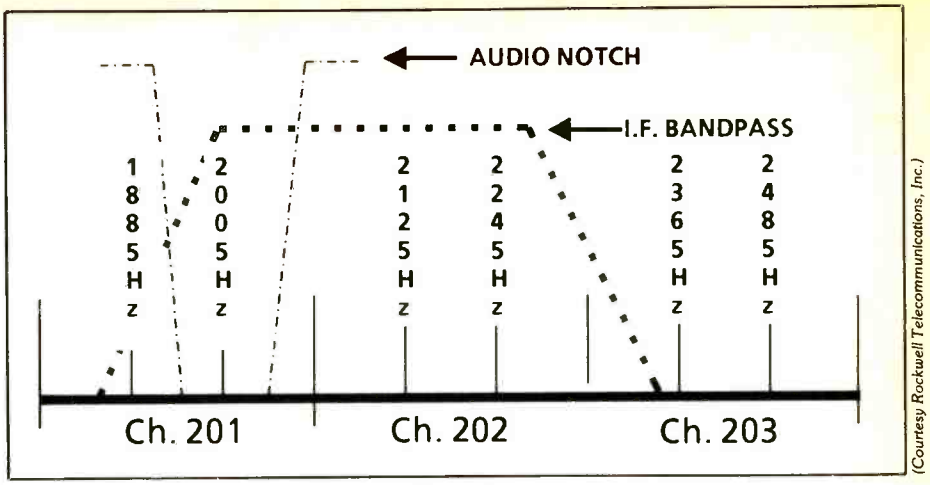
(Courtesy Rockwell Telecommunications, Inc.)

Figure 3

nected to a special mixing amplifier called a summing amp. The channels operate at different audio frequencies and shift at the rate of 120 Hz (which can be copied using normal Ham equipment). The FDM channels can have many different frequency assignments as shown in Figure 1. This table is called "R.70 bis" and is taken from the CCITT Red Book VII.I, page 63. The CCITT is "The International Telegraph and Telephone Consultative Committee." This committee consists of a group of engineers from all over the world who get together and decide which telephone, teletype and computer data standards are to be used world wide. They make recommendations, for example, as to which frequencies would work the best for the VFT (Voice Frequency Telegraph) channels and how the channels should be numbered. You probably wonder, "What does this have to do with radio teletype?" The VFT schemes used in the telephone industry are used in radio and we are going to consider R.37 because it is the scheme that is most used on the SW bands. I have copied other schemes such as R.36 or R.38B using "homebrew" RTTY equipment.

Figure 2 is a block of a simple FDM RTTY system showing three of the twelve channels. The FSK oscillators are combined in the summing amp and fed to the audio input of our imaginary utility transmitter that we talked about earlier. The transmitter is a single side band transmitter and, with the combined teletype channels, we can eliminate the need for several transmit sites. When combined audio frequency tones are transmitted by an SSB transmitter the buzzing hash-like sound is received when the listener is using an AM SW receiver. This is because the receiver has a wide band pass and all of the tones are clustered together. Also, there is no carrier being transmitted because it is supressed by the SSB filters in the transmitter. If the transmitter is set at 11 MHz and you want to receive Ch. 202 (Figure 1, R.37), for example, you would have to select the USB mode and set your receiver to pick up 11 MHz.

You need a special filter to remove the hash coming from the speaker output and only the FSK frequencies of 660 Hz and 780 Hz (see Figure 3) would pass through the filter. Then the decoder would change the FSK tones to a loop current which runs the



(Courtesy Rockwell Telecommunications, Inc.)

Figure 4

Ch. 202 RTTY machine. The only problem with this system is that you can only receive three channels. More filters and RTTY decoders would have to be added to decode other channels.

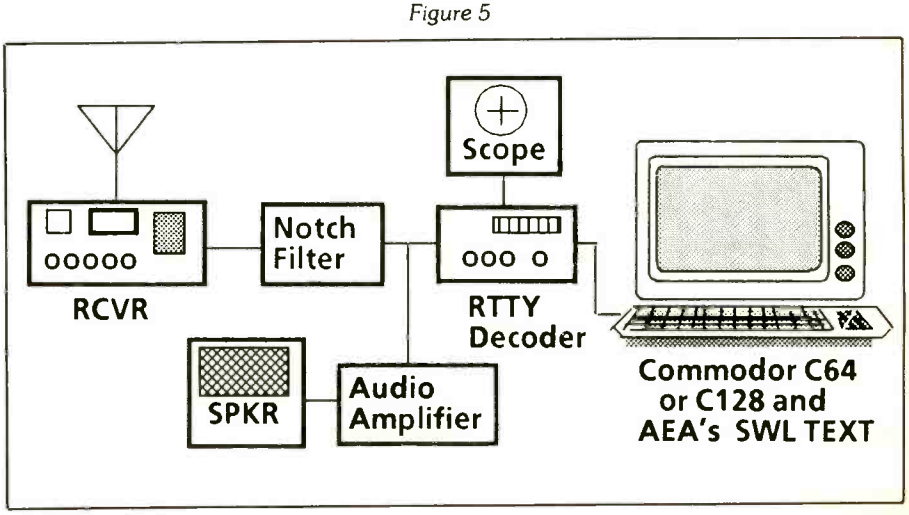
Because the RTTY hobbyist only needs to copy one channel at a time, a simple and cheap method can be used. I will show you how to copy FDM RTTY using a standard SW receiver like the ICOM R70 or R71, a notch filter and a good RTTY decoder. The single "RTTY Box" method is possible because FDM is transmitted using a SSB transmitter and no carrier is present in the aggregate of FDM channels.

Receiving FDM RTTY is not complicated. If you have a stable receiver and a RTTY decoder with RTTY software for your computer, you're in business. The two things you would need are the ICOM 2.4 kHz (FL44) or the 270 Hz (YK88CN) narrow filter for the Kenwood and a good "home brewed" or commercial audio filter. The stock filters in the "NRD's" are adequate for some FDM reception. Filtering is very important—if a good quality crystal filter is not available for your receiver, you may have trouble copying FDM. The receiver must also be fully synthesized. This type of receiver has a reference crystal and when you turn the tuning knob, the receiver tunes in 10 or 20 Hz steps. A fully synthesized receiver has a stability of 10 or 20 Hz drift after warm up. Other receivers are synthesized but they have LMO's (Linear Master Oscillators) in them for tuning a 1 MHz spread. This type of receiver may drift a few hundred Hz which is not adequate for FDM reception. The RTTY decoder must have two filters with a 170 Hz shift rate or better. Some RTTY "boxes" use a PLL decoder or a single filter design which is also not adequate for FDM reception. Before we start to copy FDM, I would like to explain why receiver filtering is so important.

The IF's in a receiver are used to improve the selectivity. This is because the IF's are at fixed frequency and it is easy to design a selective fixed frequency stage. Selectivity is like sifting sand—it filters out the wide stones and selects the narrow ones. By placing the narrow CW filter at the first IF in a receiver fewer signals will pass through the following stages.

Better filters are available for some receivers. Places like "International Radio Inc." or "Fox Tango Corp." sell matched filters for both IF's of most modern receivers. I use a pair of matched 2.1 kHz filters from "International Radio" in my ICOM R71 and it im-

Figure 5



(Courtesy Rockwell Telecommunications, Inc.)

FDM RTTY LOG

FREQ (MHz)	SHIFT (Hz)	SPEED (WPM)	REMARKS
5.0731	170	45	UPI
6.432	100	68	UPI non-standard speed
6.9926	75	100	Weather
6.993	170	67	AP (AFRTN)
7.5869	170	67	6VU41/6VU73 179 CQ RY
7.923	170	67	UPI
8.0323	170	100	"Foxes"
9.2141	170	67	AP
9.317	75	67	RY's DE LGAT
9.961	75	55(Baud)	AP News
10.2588	65	100	AP News
10.281	170	67	"Foxes"
10.3172	30	80	Narrow Shift Odd Speed
10.6095	30	54	UPI AFRTN
10.8577	170	67	RYRY All Chnls.
11.0486	170	67	UPI News
11.0970	170	67	"Foxes"
11.4833	170	100	RYRY
11.4249	170	67	DE 5HD TESTING RYRY
11.5395	170	67	UPI
12.1490	170	67	"Foxes" DE MKD TESTING
12.5259	170	67	UPI
135665	158	50	DE MKD "Foxes" All chnls.
14.4071	165	50	DE MKD "Foxes" All chnls.
14.6032	170	67	DE MKD "Foxes" All chnls.
16.1502	175	50(Baud)	DE MKD "Foxes" All chnls.

(Courtesy Rockwell Telecommunications, Inc.)

Figure 6

proves the performance of the PBT (Pass Band Tuning).

Notice in Figure 4 that the channel spacing is 240 Hz and the RTTY is centered in the channel space with a shift rate of 120 Hz. The total bandwidth of the three channel FDM station is 720 Hz. If you tried to receive the three channel FDM group on a standard shortwave receiver, you would hear nothing but noise. The bandwidth of your receiver is 6 kHz in AM mode, 2.4 kHz for single side band mode; both modes are too wide for FDM. What you need is a narrow window that would select one mark and space from one FDM channel. The receive window is provided by the narrow IF filter or the PBT control. The IF filter cannot do the job alone which is why an audio notch filter is needed. The audio notch filter "trims off the fat" and removes the remaining hash. Figure 5 is a block diagram of a complete FDM RTTY station.

I use a "homebrew" audio filter with my rig. You can use a commercial made filter but I won't guarantee it will work. Before purchasing it make sure you can get it on a trial basis. Do not use the I.F. notch filter on the R70 or 71; it is too wide for FDM work.

You will notice that while receiving in narrow RTTY mode, when you tune across the FDM group, the audio pitch of any channel can be changed. That is because the BFO in the receiver beats with the received signal. This will allow you to match the pitch of any FDM channel to the "RTTY FSK" tones

which are 2125 Hz and 2295 Hz. To copy the FDM shift rate of 120 Hz the "RTTY Decoder" can be switched to the 170 Hz shift rate. (Close enough for Government work!)

The following are the steps for copying FDM:

1) When you are searching for FDM RTTY, set your receiver to AM (this allows you to tune rapidly and to spot the "Buzzsaw").

2) When you spot a "buzzsaw" switch to narrow RTTY mode. Some receivers will automatically offset the IF when you are in RTTY mode and you can adjust the PBT for a narrow bandpass. If your receiver does not have PBT or a RTTY mode switch and it has a narrow switch with an IF shift control, adjust the IF shift while in narrow CW mode until you hear high pitched tones that are in the range of 2125 to 2295 Hz. There will be some hash mixed in with the RTTY tones.

3) Tune the audio filter until the hash is reduced and you can hear pure RTTY tones. The notch filter will reject the 2005 Hz (Ch. 201) "space" tone. (Figure 4.)

The audio filter should be connected between the receiver and the RTTY box. Monitor the output of the audio filter using an external amplifier and speaker.

4) Slowly dial the receive frequency up and down until the "RTTY Box" indicates a properly tuned "mark space" tone. I found that a RTTY tuning scope simplifies this step. You can see the hash in the "cross" or "+" pattern on the scope and by tuning the PBT or IF shift, the receive frequency and the audio filter you can get a perfect "+" pattern. This is the most difficult step. If you can't get a good indication on the tuning meter or scope, you will copy nothing but garble.

5) Go back to step 2 and touch up the controls to further improve reception if possible.

6) Listen to the receiver's speaker and return to step 1 if you cannot reduce the hash. The noise you hear may be a jammer. When you get more familiar with this technique, you will notice as you tune slowly in 10 Hz steps that you'll hear RTTY channels "pop" in and out as you tune across the FDM group.

7) Try different speeds and reversed RTTY if copy is garbled. Remember, many channels of RTTY are present in one FDM group and you are searching for unencrypted normal 67 or 100 wpm RTTY.

Many services share a single FDM group and you can receive government encrypted channels mixed with "Wire News Services" that are carried by the "Armed Forces Radio and Television Network." The encrypted RTTY cannot be copied but the news service is standard 67 wpm RTTY. Sometimes you will copy the "Quick Brown Fox" test message. Then you will notice that all of the channels in that FDM group will be sending "Foxes." Other times there will be no RTTY, just the "mark" tone for each channel in the group. Figure 6 is a list of FDM RTTY I have logged over the last few years. Try 6.993 MHz in the evenings—the signal strength is very strong in the Midwest. Change the receive frequency to 6.9926, and then you will receive weather in the same FDM group using a different baud rate. I don't indicate the channel number on the FDM log because I have not found a reliable method of determining which channel is received.

FDM can be copied from the satellites; it requires a satellite dish, an LNA receiver and a shortwave receiver. The same tuning techniques are used with satellite FDM reception.

I have had many hours of enjoyment copying FDM RTTY and I hope you will too. If you already are an FDM listener, drop me a line. I would like to hear from you. My address is 203 York Pl., New Lenox, IL 60451.

PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS

Two New HF Transceivers

Kenwood has announced two new affordable, high-performance, HF transceivers: the TS-140S and the TS-680S. The TS-140S is an all band, all mode, 100 watt HF transceiver with general coverage receiver. Six meter enthusiasts will enjoy the TS-680S. This all band, all mode, 100 watt HF transceiver includes a ten watt, six meter section.

New features include a programmable band marker, useful for staying within the limits of your ham license and preventing out-of-band operation. Contesters can program in the suggested frequencies to prevent QRM to non-participants. The new Morse Code beeper status indicator not only verifies the operating mode with Morse Code characters, but also signals empty or full memory banks, or a locked-in frequency.

Other features include dual digital VFOs, 31 memory channels, programmable scanning, and automatic selection of USB or LSB. Also included are the Kenwood interference reducing circuits: IF shift, dual noise blankers, RIT, RF attenuator, selectable AGC, and FM squelch.

For additional information contact Kenwood U.S.A. Corporation, 2201 E. Dominguez Street, Long Beach, CA 90810; telephone (213) 639-9000; or circle number 101 on your reader service card.

Cellular Security

GRE America introduces a voice encryption device as an add-on to cellular phones. The device, called SecureTalk™, transmits a scrambling signal over the voice signal which is recognized and decoded by another SecureTalk™ at the other end of the line.

Designed to connect with most major cellular makers phones in a matter of seconds, SecureTalk™ provides instant security with a choice of 32 different codes over four channels. Normal communications can also be resumed by the touch of a button.

SecureTalk™ can also economically protect interoffice communications over regular corded phones.

For more information contact GRE America, Inc., 425 Harbor Blvd., Belmont, CA 94002, telephone toll free (800) 233-5973, or circle number 103 on your reader service card.

MFJ-284 Speaker/Mic

The MFJ speaker/mic allows you to comfortably carry your handheld on your belt without ever having to remove it to monitor calls or talk. You'll never have to turn up your audio annoyingly loud to monitor calls because its handy lapel/pocket clip lets you place it close to your ears for easy listening. And you'll never have to clumsily remove your handheld from your belt holder to talk because you can conveniently take the speaker/mic in one hand, press its push-to-talk button and simply talk.

Its lightweight retractable cord eliminates the "dangling cord problem" and it has a connector that fits both ICOM and Yaesu handhelds. It features unusually clean audio on both transmit receive. The attractive dark grey color matches all handheld radios. It also comes with the MFJ one year unconditional warranty. The MFJ-284 retails for $24.95.

For additional information contact MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762, call 800-647-1800 or circle number 102 on your reader service card.

RF Transmitter Bug Detector

Torfino Enterprises, Inc. announces TRANSTEC, a small, hi-tech device no larger than a cigarette pack, capable of detecting concealed RF transmitter "bugs". The TRANSTEC will alert you with a flashing LED and vibrating action when it detects a "bug".

TRANSTEC allows both a concealed and sweep mode and features a monitoring capability which allows you to hear transmissions as you sweep for "bugs".

For more information contact Torfino Enterprises, Inc., 3850 N.W. 2nd Avenue, Suite 11, Boca Raton, FL 33431, telephone (305) 391-7417, or circle number 104 on your reader service card.

Filter For Yaesu And Kenwood Radios

International Radio, Inc. has announced two new 8 pole crystal lattice filters for Kenwood and Yaesu radios.

The IR88H4.OC is an AM filter that has a bandwidth of 4.0 kHz at 6 dB. It was designed to provide Kenwood users a second choice in AM selectivity. The normal Kenwood AM filter is 6.0 kHz wide at 6 dB. This new filter will provide additional selectivity in today's crowded AM bands. The IR88H4.OC is used to replace the Kenwood YK88A1 which is used in the R-5000, TS-940 and TS-930. This new filter comes mounted on a fiberglass printed circuit board like the YK88A1.

The second 8 pole filter announced is the new IR3.3H2.1 filter. This filter was designed to improve selectivity in the Yaesu FT-101/E/EE series radio and is an exact replacement for the original unit. The new filter offers 2.1 kHz SSB selectivity at 6 dB and will provide additional razor sharp selectivity for the above series Yaesu radios.

The filter pricing is $60 each plus shipping and handling: USA $5; Canada and Mexico $10; elsewhere $13. For more info circle reader service number 108 or contact International Radio and Computers, Inc., 747 S. Macedo Blvd., Port St. Lucie, FL 34983.

The USAF's Atlantic Crossroads

The Story Behind The 1936th Communications Squadron

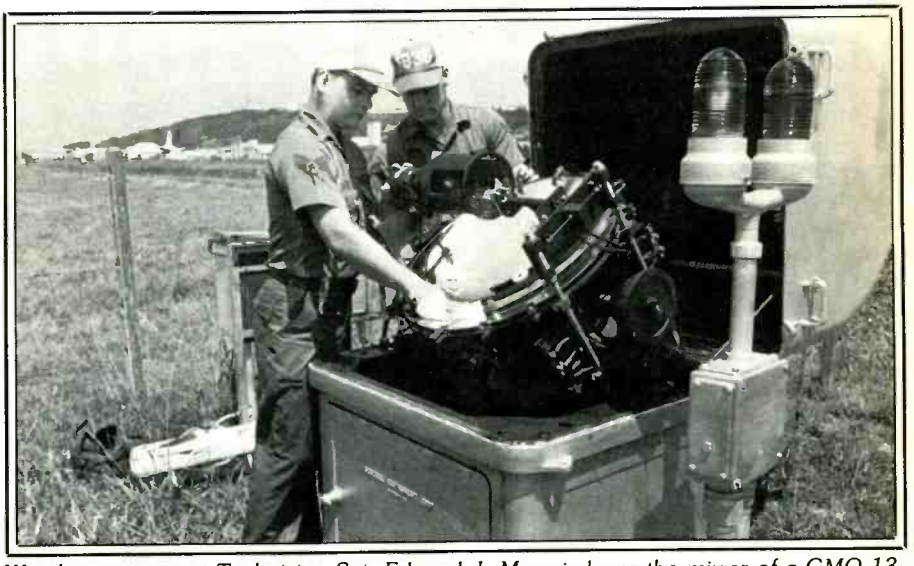
BY CAPT. MILFORD A. GUTRIDGE

In 1943 World War II was drawing attention to North Africa and the Mediterranean Sea. The Allies were evicting German Field Marshall Erwin Rommel from the African land he had only recently seized. An assault on Sicily would follow as Allied fighters were sweeping skies free of Axis aircraft, and Allied bombers were pounding Axis targets on the ground. Many American planes were arriving at West Saharan bases via a newly constructed stopover—Lajes Field.

Great Britain had activated the installation. Among the Americans to follow were five officers and 18 enlisted personnel, who established the unit eventually to be called the 1936th Communications Squadron.

Today the 1936th is the largest unit on base, with 363 personnel supporting the installation's role as "the crossroads of the Atlantic."

"Ours is probably the most unique mission in AFCC," said 1936th CS Commander Lt. Col. Gilbert R. Hawk. "We operate in both joint and combined forces environments, and we support international air traffic control." The squadron's combined mission activities focus on supporting the Portuguese host and the North Atlantic Treaty Organization. Joint activities support a U.S. Army terminal unit and a U.S. Navy air facility on the island. Basically, the 1936th operates, maintains, and programs communications electronics, data automation, and air traffic control services and facilities for Lajes Field.

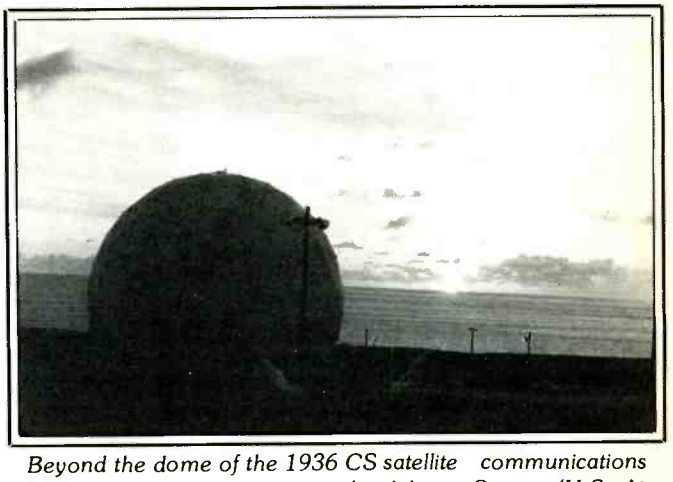


Weather equipment Technician Sgt. Edward J. Mazzei cleans the mirror of a GMQ-13 cloud height set, with the assistance of Navigational Aids Technician, Sgt. Michael R. Lilley. (U.S. Air Force photo by Capt. M.A. Gutridge.)

The 1936th supports the 1605th Military Airlift Support Wing in its service for Military Airlift Command aircraft crossing the central Atlantic Ocean. In this role the squadron is important for the annual Reforger exercise in Germany and for contingency operations in Europe and Africa. The 1936th also supports the mission of USFORAZ—for "U.S. Forces Azores," one of three sub-unified commands under U.S. Atlantic Command.

"In that capacity we are part of the Navy's anti-submarine warfare mission," said

Ground Radio Equipment Specialist Amn. Suzette M. Herbst repairs land mobile radio equipment. (U.S. Air Force photo by Capt. M.A. Gutridge.)



Beyond the dome of the 1936 CS satellite communications antenna, the sun rises over the Atlantic Ocean. (U.S. Air Force photo by Capt. M.A. Gutridge.)

Squadron Chief of Operations Capt. James Williams. "Two squadrons of P-3 Orion ASW aircraft rotate through Lajes continuously."

Lajes Field is also an important communications hub. Mountaintop HF radio antennas—battered by Atlantic gales—are repaired and replaced by 1936th technicians. Huddled below, under a protective radome, the squadron's 40-foot dish antenna provides other communications links via satellite.

The squadron serves weather information needs. A Defense Meterorological Satellite program unit, maintained and operated by 1936th members, furnishes island forecasters with highly detailed photographs of cloud formations transmitted from weather satellites. After the Air Weather Service makes its forecast, 1936th airmen in the Lajes Global Command and Control station relay it to aviators via voice meteorological broadcasts.

The 1936th is a mini "Ma Bell." MSgt. Patrick W. Reilly explained, "If you want a phone in your house at Lajes you call the 1936th. We are the only Air Force unit to offer both private and party-line service. We do the billing, too."

The 1936th provides air traffic control services, alongside Portuguese airmen. "They run the tower and we run the radar approach control," said RAPCON Chief Controller, CMSgt. Peter C. Pelletreau. Both are joint operations, and U.S. airmen provide training in the tower.

Telecommunications is another service of the 1936th. The Lajes center includes a pneumatic tube system that literally propels 6,000 to 7,000 messages with compressed air to the base Air Operations Center, the base Command Post, the Global Command and Control Station, and the Weather Communications Center.

The 1936th serves intrabase communications, not only with telephone and radio equipment and operators, but also with one of only three blue-suit maintenance shops for land mobile radios.

The 1936th has made the best use of old sets—operating and maintaining AFCC's oldest switchboard, installed in the early 1950's, but built in the late 1920's.

Lajes personnel do find time for recreation. Swimming, fishing, snorkeling, volks marching, and tennis are all popular.

"They have got some excellent fishing here," said TSgt. Ronnie R. Allen, noncommissioned officer in charge of the Information Processing Center." Last week I caught a five-foot ribbon fish. They are real good eating."

The Azores honeymoon by Prince Andrew and his bride underscored the spot's attractiveness. However, squadron personnel are quick to describe two drawbacks to living here—gales severe enough to demolish a dormitory last February, and sharks waiting for the unwary diver.

Nonetheless, many enjoy their tour enough to extend. After all, they point out, the island is beautiful, the natives are friendly—and it never snows. PC

Stop Noise Pollution

Controlling Radio Interference

BY MARK WEIGAND

Here is a worst-case scenario familiar to many radio monitoring enthusiasts. You are looking forward to an uninterrupted evening of shortwave listening on one of your favorite frequencies. You and your equipment are primed and the airwaves suddenly crackle with an intriguing array of transmissions. Then, at a critical moment, something that sounds like a combination chainsaw and a screaming poltergeist completely covers your voice or digital communications intercept.

Before you begin to think in terms of defective equipment, conspiracies, and before you give up in frustration, remember that what you hear may be entirely avoidable radio frequency interference (RFI) originating from your own monitoring location! Realizing that you cannot attach ground rods to everything in sight (including the neighbors), you are confronted by a real challenge.

Most SWL's, hams, and VHF-UHF scanner users are very aware of the problem of radio frequency interference. In "hot" RF environments such as most large cities, a wide variety of interference may be found. To complicate matters, the growing use of personal computers in conjunction with radio equipment has introduced more RFI headaches for advanced radio monitoring. The trend toward computer control of shortwave radio transceivers, receivers, and VHF-UHF scanners offers many exciting monitoring opportunities previously available only to commercial enterprises and governments. This has also brought an increase in computer-generated RFI.

For those especially interested in monitoring radioteletype (RTTY) and Morse code (CW) transmissions, RFI is even more troublesome because such interference can confuse RTTY/CW demodulators and result in gibberish being printed on the video screen or by your printer. While dedicated RTTY/CW demodulators such as the Info-Tech M-6000 are less vulnerable to these problems, their cost is prohibitive to many hobbyists. Therefore, in recent years the personal computer has become the most common type of equipment used to decode RTTY/CW.

In addition, because many monitoring enthusiasts live in apartments and condominiums which prohibit outdoor antennas, the problem of RFI caused by PC's and other household appliances has increased. In this article I will suggest some effective methods

"Where is that RFI coming from?"

to identify and then reduce or eliminate common causes of RFI in the computerized monitoring station. I will also give instructions for building a low-noise SWL antenna.

Sources Of RFI

Interference results from sources which are both internal and external to the equipment being used. For example, modern radios using digitally synthesized tuners produce unwanted signals internally (sometimes called 'birdies' and 'harmonics') which show up on various frequencies and bands. Computer circuits also operate at frequencies in the HF range and radiate unwanted RFI outward from their chassis and interconnecting cables. They also produce numerous harmonics which can interfere with VHF-UHF scanners and television sets. Digital scanners are also known to "lock up" when used on the same antenna or when placed physically near each other due to radiated RFI. The use of unshielded plastic cases for all kinds of electronic equipment increases the problem of stray RFI polluting the airwaves.

Besides equipment which may actually interfere with itself or radiate RFI to other units nearby, there are many sources of interference which are external to the equipment being used. Most active shortwave radio users are familiar with selective fading, signal flutter, multipath distortion (which causes an echo effect in the audio), heterodynes, intentional jamming of shortwave broadcasts by hostile governments, CW key clicks, splatter caused by overmodulation, industrial equipment RFI, and more recently the use of over-the-horizon radar systems (the "woodpecker"). A trained ear can even identify noises from space—from solar flares, the planet Jupiter and other galaxies—which occasionally interfere with communications equipment.

Scanner users are familiar with intermodulation and image interference, strong out-of-band signals which cause scanners to lock-on and stop scanning, ignition noise from vehicles, interference from computerized credit card verification machines, and FM broadcasting stations which can overload these sensitive units.

To cure some of these problems, numerous station accessories are available: antenna trimmers, tuners, preselectors, active indoor/outdoor antennas, notch filters, etc. Rather than discussing each of these causes of RFI and/or poor reception, I want to focus on the sources of RFI *within the monitoring station itself* which can be identified and corrected by anyone with a little detective work and ingenuity. The frustration saved will be

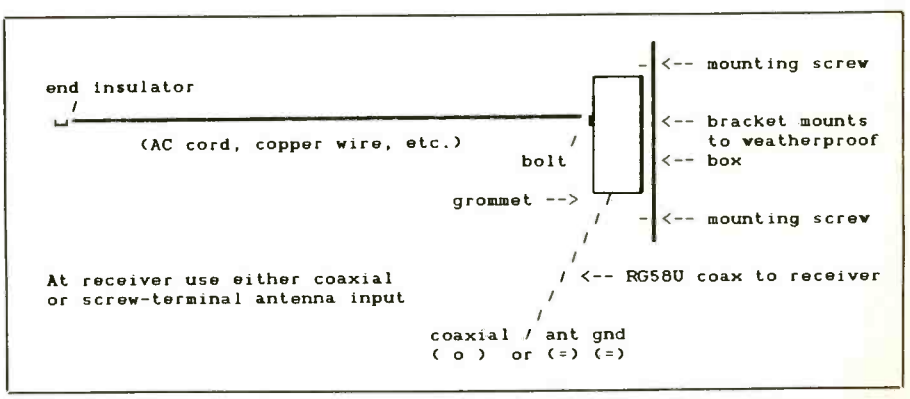


Figure 1: A low-noise indoor/outdoor antenna for shortwave listening.

Frequency (MHz)	Meter Band	Length
5.950- 6.200	49	78'
9.500- 9.775	31	50'
11.700-11.975	25	40'
15.100-15.450	19	32'
17.700-17.900	16	28'
21.450-27.650	13	23'
25.600-26.100	11	19'

Formula: antenna length (feet) = 468/frequency in MHz

Figure 2: Half-wave antenna lengths for SWL frequencies.

well worth the time and effort spent to "clean up" your own RF environment!

Inside a typical American house or apartment complex are a wide variety of electric and electronic devices which may cause RFI. Even a handheld calculator produces enough RF energy to be heard on most AM radios! Other common sources of household RFI include motor driven appliances such as hair dryers, vacuum cleaners, electric drills, sewing machines, light dimmers, electric blankets, fish tank heaters, fluorescent lights, television sets, gas-powered engine ignitions, discharging or arching power lines, and "electric eye" controlled appliances and lights to name only a few. Usually, interference enters the affected radio through the antenna, AC or DC power cord, or both.

At this point some detective work is needed to find the problem and correct it. For example, at what time(s) of day or night is the interference usually present? Many kinds of RFI produce a distinctive sound in your speaker or headphones which helps to identify the source of RFI. Brush-type motor driven household appliances usually produce a harsh whine which varies with the speed of the appliance. Flourescent lights produce a loud buzz which becomes continuous after the light flickers and stays on. Television picture synchronization buzz varies with changes in the TV picture, while gasoline engine ignitions produce a distinct popping sound which varies with the speed of the engine.

Generally it is best to stop RFI at its source whenever possible, by either disconnecting the offending appliance or using an AC power line filter at its AC wall outlet. In a large home it may be necessary to switch off your electrical outlets one group at a time at the circuit breaker or fuse box in order to locate the source of RFI. Even yard lights and automated sprinkler systems have been known to affect communications equipment. Occasionally a neighbor may be operating the RFI-generating equipment in his or her home, at which point some diplomacy skills are needed!

Aside from these common sources of RFI there are problems which are unique to radio-computer-television interfacing in a monitoring station. Depending upon your own equipment, location and monitoring techniques, you may experience all or none of these problems. The suggestions that follow have worked successfully and are offered as easy remedies that do not require you to disassemble your radio or computer equipment. Although intended for RFI problems that are most often experienced when monitoring RTTY/CW transmissions, most of these methods will be useful when monitoring any shortwave broadcast or VHF-UHF scanner messages.

Televisions Used As Monitors

If you are using a television set instead of a computer monitor, try replacing the computer-to-television audio style cable with good TV coaxial cable, using adapters if necessary. If your TV has 300-ohm screw terminals rather than a 75-ohm cable connector, use a 75- to 300-ohm transformer such as Radio Shack part no. 15-1140. Disconnect the TV's own rabbit ears when using it as a computer monitor. You might try using an in-line high pass filter at the TV antenna input such as Radio Shack part no. 15-579. Do not use an excessive length of TV coax or coil up any extra coax—keep it as short as possible.

Use an AC power line filter at the TV's AC wall outlet and plug it into a different AC outlet from the one used by your computer. If you have any loose AC line cord, coil it up and secure the coiled cord with a rubber band or wire tie. If the TV is an AC-DC type, try using it on batteries to see if the RFI decreases or disappears. If so, the RFI is probably entering the set via the AC cord. If the TV's AC plug is not polarized, try reversing it in the AC outlet. Don't forget to use the TV's fine-tuning control to its best advantage on the computer's output channel (usually Channel 3). If feasible, consider buying a computer monitor with a 3-prong grounded AC plug. Since a computer monitor lacks a tuner and is better shielded, it is less subject to RFI.

The Computer And Its Peripherals

Regarding the computer and peripherals (disk drive, printer, modem, cassette recorder, etc.), use an AC power strip which has RFI noise filtering as well as voltage spike protection. If you do not use a power strip, try using individual AC line filters for each unit as needed. Coil up any loose AC or peripheral cords and secure these coils with rubber bands or wire ties. When monitoring, turn off any unused peripherals such as disk drives and printers until they are needed. I have found that printers and computer-to-printer interfaces are major producers of RFI. Unplug all joysticks (their cables can act as antennas for RFI). Note that any cable from the computer to its peripherals may radiate RFI. Separate the computer and radio(s) as far as possible without causing inconvenience. Use an outdoor antenna with a downlead of good RG58U or RG59U coaxial cable.

If you must use an indoor antenna, keep it as far away from the computer and peripherals as possible and use a coax cable from the antenna to your radio's antenna input. Sometimes only a few inches of added separation between equipment can make a big difference. Try switching on your radio and then powering on your computer and peripherals separately, listening for any change in the sound from your radio. Then turn off each peripheral individually to see if one is the main culprit producing RFI. One of the more bizarre solutions I have heard is to place the computer on a large piece of aluminum foil or cooking tray to block stray RFI.

Radios And Demodulators

Concerning the radio(s), accessories, and RTTY/CW demodulator, use a common ground for all such equipment, connecting units together and then to an outdoor earth ground, metal cold water pipe or at least to the center screw of an AC outlet's cover plate. If the radio(s) and interface can operate on battery power, try changing from AC to DC power and listen for any effects of RFI. Does the RFI increase, decrease, or stay the same? Some AC adapters are poorly filtered and produce a significant amount of noise even when the equipment they are powering is switched off.

If you have an outdoor antenna, make sure that it is properly grounded. On scanners with indoor whip antennas, try telescoping the antenna to progressively shorter lengths to reduce overloading and interference. Use only shielded audio cables to the RTTY/CW demodulator and to any external speakers you may use. You can try using a lo-pass filter on the antenna at the shortwave receive's input.

If your radio has a plastic case you may want to increase its RF shielding by applying some aluminum automotive tape on the inside of the cabinet. Another tape useful for shielding and grounding purposes is Scotch 3M brand Electrical Tape No. 1181, which is copper with a conductive adhesive backing. There is also a conductive spray coating available for the same purpose, although I have not used it myself. It can be obtained from Miller-Stephenson Company, Danbury, CT 06810. Bear in mind that these procedures *do* require disassembling your equipment and *may void your warranty*.

To reduce RFI at the receiving location, try using a good brand of RG58U or RG59U coaxial cable as an antenna downlead to your receiver rather than TV twinlead or any other kind of unshielded cable. Although some shortwave antenna kits come with a non-coaxial downlead, this is not recommended from a noise-reduction standpoint. With horizontal antennas, run the antenna wire at right angles to nearby power lines for better noise reduction. Ideally, the antenna's length should be one-half wavelength (or a multiple of a quarter-wavelength) at the frequency most often monitored.

Another alternative, if space permits, is to cut the antenna to one-half wavelength at the lowest frequency of interest. Fig. 1 shows a practical, easy to build SWL antenna which is designed for low-noise reception. Notice that this antenna is basically an inverted "L" longwire antenna with the center conductor of the coax downlead connected to the horizontal part of the antenna, while the braided shield of the coax is peeled back and not connected to anything at the antenna end of the cable. Instead, it is grounded at your receiver's antenna connector and shields the vertical downlead part of the antenna from interference. The ideal length of the horizontal part of the "L" can be determined using Fig. 2. Fig. 2 provides the information for cutting your low-noise antenna to the best length on different shortwave bands. In practice, any length from 30 to 100 feet works reasonably well.

Reference books are available which may be helpful to you in solving RFI problems. For example, the FCC publishes a short booklet entitled *How to Identify and Resolve Radio-TV Interference Problems* (stock no. 004-000-00345-4). By combining one or more of the RFI remedies above you should be able to reduce or eliminate some of the most common types of RFI found at many monitoring locations. With some patience and careful observation you will save many hours of RFI-disruptions to otherwise exciting monitoring!

Try to improve reception by switching sidebands and then fine tuning your receiver—sometimes this can help eliminate interference. It is possible that RFI may force you to tune an RTTY/CW signal slightly off frequency so that it becomes unreadable to your demodulator. One solution to this problem is to record the transmission on a variable speed tape recorder and then change its speed on playback (thereby changing the pitch of the signal) so that your demodulator can copy it.

Drawing a wiring diagram before actually reorganizing your station can simplify your efforts. Of course, when working with any electrical devices it's a good idea to disconnect all affected equipment from the AC wiring before making any changes. Don't be surprised if some offensive RFI is intermittent and therefore difficult to pinpoint. There is no magic formula to remove all RFI problems, but these solutions will apply in most circumstances. My own efforts to reduce RFI at my location in Denver, CO were made necessary by the fact that I am only a few miles from the Denver Federal Center's antenna farm (which transmits enough watts to blanket large sections of the shortwave bands on my receiver) and from a nearby mountain where most of Denver's television and FM broadcast antennas are located.

A Low-Noise Indoor/ Outdoor Antenna

Without going too heavily into detail about receiving antennas, a few comments may be helpful in the quest for better reception. At my location I have used both outdoor longwire antennas and an active indoor antenna tuner with good results. If you use more than one antenna, try using an antenna switch to compare their susceptibility to RFI. Although good SWL antennas can be either vertical or horizontal, vertical antennas tend to be more vulnerable to many sources of RFI. **PC**

CLANDESTINE COMMUNIQUÉ

WHAT'S NEW WITH THE CLANDESTINES

BY GERRY L. DEXTER

A couple of columns back we brought your attention to a new Guatemalan clandestine, La Voz Popular, operated by URNG, an umbrella organization of various groups opposed to the current government in Guatemala City. La Voz Popular, at this writing, is still operating on UTC Saturdays only (Friday eveningjs, U.S. time) from 0015 to 0045 on 6950, sometimes 6965, with all Spanish programming.

This rather sparse clandestine broadcasting effort has now been joined by something a little more offbeat, something we haven't yet been able to pigeonhole, although it seems to be more of a numbers or "spy" type of communication than clandestine broadcaster. This station has been appearing nightly at 0100 on 9966 single sideband, running a transmission of from 20 to 30 minutes. Most of this time is taken by a man who reads five digit number groups in Spanish. The transmission begins with the number of the particular message or group involved and a 1 to 10 count. On occasion the last two or three minutes of the transmission are given over to political talk, sometimes including mentions of various military districts within Guatemala.

Some monitors have heard the station identifying as "La Voz de URNG" (Unidad Revolucionaria Nacional Guatemalteca). The transmissions are fairly well heard in much of the U.S. but just what this station is being used for or where it is located remains uncertain. The power of the transmitter, however, seems somewhat greater than that of the 6950 station.

The former Nicaraguan *contra* station La Voz de la UNO on 5890 (actually 5889 and a fraction) has, as we guessed, changed its name to Radio Liberacion, apparently reflecting the deemphasis of the use of United Nicaraguan Opposition name. The shortwave Radio Liberacion carries different programming than the mediumwave station on 1520 which uses the same name. The shortwave station was recently verified by your editor after sending a self-prepared card to the UNO office at 2623 Connecticut Ave. NW, Washington, DC 20008.

John Shonder of Illinois sends some notes about the Camilo Cienfuegos name used for the main service of La Voz del CID: "Cienfuegos was one of Castro's guerrilla commanders and is considered one of the heros of the revolution. He was a militant member of the Popular Socialist Youth Party, which was what the communists called themselves before the revolution. He disappeared mysteriously on a flight from Camaguey to Havana. He was indeed a comrade of Huber Matos (Ed. note: Matos founded the CID organization) and his untimely death probably saved him from a fate similar to that suffered by Matos and numerous other revolutionaries who eventually fell from Castro's graces." John notes that this information comes from a book entitled *Against All Hope*, by Armando Valladarez who was a prisoner in Cuba for 22 years.

The book also makes reference to the CIA-run Radio Swan, active back in the early 1960's, noting that the station was one of the few links the prisoners in Cuba had with the outside world. At one time, the author notes, the station called on everyone in Cuba to turn on all of their electrical equipment at the same time in order to overload the island's power generating facilities.

CID's Radio Camilo Cienfuegos can be easily heard by U.S. listeners. Its Spanish language broadcasts run from 1200 to 0705 on 9940 and 0705 to 1140 UTC on 6305. CID programs are also heard throughout much of the day over the Dominican Republic's Radio Clarin on 11700. The 6305/9940 outlet is believed to be located in El Salvador and run around 5 kW.

One station you cannot hear just by dialing up a specific frequency at a pre-set time is the FMLN's Radio Venceremos which now seems to be more and more on the run from various jammers. Look for it around 0100 somewhere in the range above 6500 or 6600, but keep in mind that it bounces around a great deal and may spend only a few minutes on any one channel. If you catch it, the station normally confirms reports sent to Apartado Postal 7-907, Mexico 7 DF, Mexico.

The sister station of Venceremos, Radio Farabundo Marti, is also moving around recently, mostly in the area between 6600 to 6800. Best time to try for this one is between 2300 and 0000 or a shade later. The station is somewhat less reliable with QSL's but some replies have been obtained from P.O. Box 32-80, Managua, Nicaragua. Readers living in the United Kingdom might try the support group there, the Worker's Film Association, 9 Lucy Street, Manchester M15 4BX, England which, the World DX Club reports, represents the station's interests there.

An informational brochure in Spanish from Radio Farabundo Marti, one of two currently active anti-El Salvador government stations. The other is, of course, Radio Venceremos.

Also on the El Salvador scene is a new clandestine operating on the local FM dial at 106 MHz. Radio La Verdad (Radio Truth) began broadcasting in late July. It appears to have an extreme right wing orientation—opposing both the FMLN and the Christian Democratic government. It reportedly broadcasts at 0900, 1800, 0000 and 0200.

The search goes on. We continue to seek tips, clues, background data, theories and, best of all, hard evidence on several clandestine stations. These include the anti-Castro Radio Caiman, Radio SPLA of the Sudan People's Liberation Movement and the Libyan-backed anti-Chad station, Radio Bardai. We'd like to publish information on who runs them, where they are located, the mailing address for the organization, etc. Another interesting question involves who runs the seemingly legitimate Costa Rican station Radio Impacto. Readers who wish to do some detective work or can pass along information already in their possession are encouraged to do so. Your name can be kept confidential if you wish.

Of course your regular informational input, with press clippings, background information, schedules and the like are also most welcome. **PC**

CB SCENE

BY BILL SANDERS, SSB-295

27 MHz COMMUNICATIONS ACTIVITIES

Sparkomatic, producer of the *Road Alert* product line, has several new rigs to report, including the RA-100, an emergency handheld with a magnetic mount antenna; also the RA-500, a small mobile rig that comes packaged complete with a magnetic antenna. The RA-500 is also available without the antenna and known in that status as the RA-400.

The RA-500 has LED channel indicators, channel up/down buttons, T/R indicating lights, a modulation light, Emergency Channel 9 button, plug-in microphone, and a micro-mini size (about 5"W × 1"H × 7"D). Just right for installation in tight quarters, or as a backup rig. Best of all, the suggested retail price for this unit is $69.95, and without the stock antenna you can knock $10 off the price.

For more information, contact Sparkomatic Corp., Milford, PA 18337.

Sparkomatic's RA-500 is intended for mobile emergency use.

A Matter Of Choice

William Yeargan of Texas says that he figures that Channel 9 was selected to be the emergency frequency because it was located almost midpoint in the original 23-channel CB band, but he can't seem to figure out how Channel 19 fits into any logical pattern to have been selected for use as the mobile enroute frequency.

Understand that Channel 9 was in unofficial use from about 1961; which was several years before it was sanctioned by the FCC as an emergency frequency. On the other hand, Channel 19 didn't achieve significant national use as an unofficial enroute frequency until about 1974. By that time in the evolution of CB, a number of other traditions had been established. For instance, SSB operations were primarily taking place on the lower sidebands of Channels 16 and 18. The fact that there was a 20-kHz gap between Channels 19 and 20 (as opposed to the usual 10 kHz space), coupled with virtually no AM or USB operations on Channel 18, meant that there would be a minimum amount of adjacent channel bleed-over from strong base stations to interfere with the mobile operations on Channel 19. That's why Channel 19 was selected by truckers.

Flat Side

The CB service was conceived in order to accommodate the communications needs of mobile units talking to one another and to base stations. Like all other mobile communications, signals are vertically polarized—not only because horizontal mobile antennas are impractical, but because omnidirectional signal coverage (or at least, generally omnidirectional coverage) is what's wanted in a service where mobile units are constantly changing location.

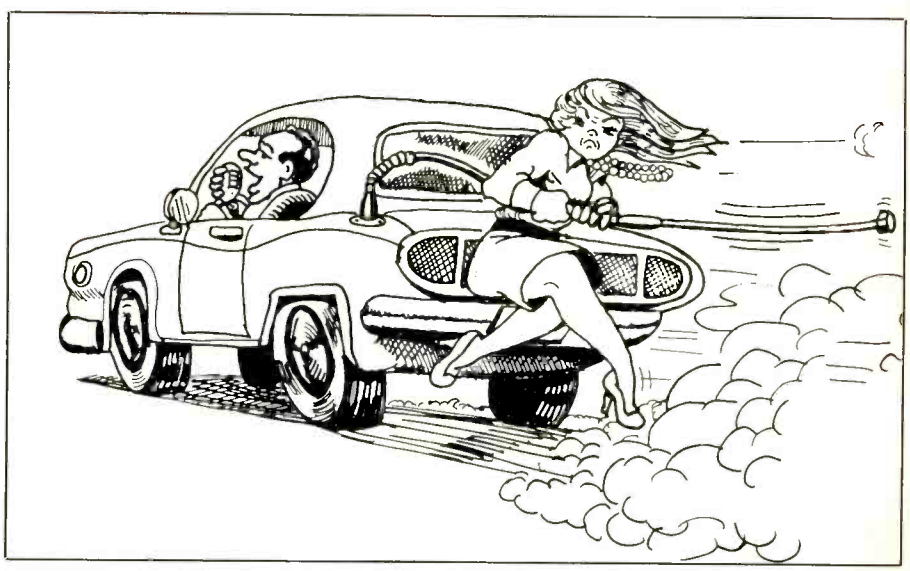
Since the mobile units are all sending/receiving vertically polarized signals, base stations do likewise for best communications to/from vehicles. Consequently, commercially produced CB antennas are all set up for vertical polarization.

Flat Side is CB lingo for horizontally polarized communications on our band, and it does have its devotees who regard this technique as a boon to long range base-to-base station contacts. For point-to-point operations, where there's no interest in working mobile units, it offers many advantages.

Those who work with horizontally polarized signals find things a lot quieter than other 11 meter band operators—that's because the "cross polarization" substantially reduces the received strength of all vertically polarized signals.

Those who combine flat side operation with the extended range offered by single sideband (SSB) can achieve extremely long distance groundwave communications when communicating in networks made up of stations all using horizontally polarized antenna systems. Since beams can be rotated, the direction of the signals can be changed to suit the station operator.

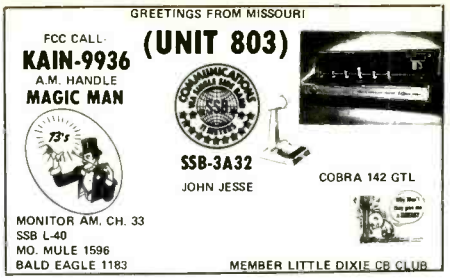
This technique is nothing new on CB, it dates back about 25 years when several "flat side only" local area clubs were formed by operators seeking to establish wide-area communications that were more-or-less private, or at least as private as might be achieved on the band. It's still a good ap-



"How's my signal, Joe? I just switched over to flat side!"

The emblem of REACT Philippines, Inc.

There's some question about how to get parts and service on the many "orphan" CB rigs produced several years ago by manufacturers no longer in the business. This Kris XL-40 is only 10 years old, but try to get it repaired!



Here's an attractive QSL from a sideBander in Missouri, SSB Network member SSB 3A32, known also on AM as Magic Man *and Unit 803.*

proach for those who wish to achieve what it has to offer, although it's obviously not suited for all-around communications.

Might be an interesting project for you to experiment with along with several friends.

Deep In The Heart Of Texas

Mrs. J.C. Caraway, KHP0806, of San Antonio, TX brings to our attention the Bexar County Citizens Radio Association, a local CB club that has been active for many, many years. Club members usually monitor Channel 10, and persons in the area seeking to become members can give a shout there for more information. The group has its own clubhouse and communications van. Here's a tried-and-proven local organization that has been serving the community since the early 1960's, and we wish them continued success.

From Alberta

We received a letter from Brian A. McKay, SSB Network member SSB 67-D (also Central Alberta Sideband 151, Canada 3723, and 57 X-Ray 76). Brian notes that there is a coffee break on the third Friday of every month for operators in central Alberta. There's also a sideband check-in and roll call from October to May at 8 p.m. every Tuesday. Brian forgot to specify the frequency, but possibly it is 31-LSB. On AM, Brian is known as *Mr. X*, and he monitors Channel 11. For more information on the coffee breaks or sideband activities, contact Brian A. McKay, Box 52, Red Deer, Alta., Canada T4N-5E7.

Pleasant Info From Pleasant Hill

Bob Zirkelbach, Pleasant Hill, CA advises that there's a local SSB roundtable QSO in his area every evening on Channel 37-LSB. It's been a regular activity there for years now, and all stations within range are cordially invited to QSK.

REACTING in the Philippines

A letter from Noel "Latigo" Tan, the National Secretary of REACT Philippines, Inc., advises that there are 44 REACT teams in his nation, all operating under the direction of his organization. Noel would be pleased to exchange ideas with CB emergency teams in North America. Contact him at: Noel "Latigo" Tan, c/o Oro Marketing, Inc., J.R. Bora Street, Cagayan de Oro City, Philippines.

Getting It All Together

As you know, the number of different CB rigs that have been designed over the years is astronomical, and when you add in all of the accessories that have been offered, you've got a rather wide ranging batch of goodies. Collecting every single type of CB set and accessory is pretty much an impossibility, but John C. Stucke of CA seems to be well on his way.

He has about 165 old CB radios in his collection, including the first Heath CB "Lunchbox," an ancient Vocaline, and the Radio Shack TRC-459. There are plenty of other non-CB radios, too. A beautiful collection in every possible way. John even has a collection of the many different CB magazines that existed over the years!

Many Questions

A lengthy list of very apt questions and comments was sent in by an anonymous subscriber in Kankakee, IL. We'll be covering these comments as we go along in forthcoming issues, and for starters let's get around to the question about where to get service for older CB tube and transistor equipment from companies that are no longer on the CB scene—Tram, Browning, Lafayette, RCA, USL, Globe, Multi-Elmac, Hallicrafters, and scores of others.

In many instances, your nearest CB service shop can get these sets going again, especially if the problem is as common as a defunct tube, a bad relay, bad switch or control, or resistors and fixed capacitors that need to be replaced. When it gets to damaged cabinets, or problems with exotic IF components, specially made semiconductors or variable capacitors, PLL's, or coils designed for specific units, there's a definite gray area.

From time to time we hear (mostly rumors) that *this* or *that* company bought out the service inventory of some former CB manufacturer. Mostly such rumors can't be verified by any company supposedly owning these goods. Or, they say that they had replacement parts at one time but depleted them all years ago.

If there are any CB service companies out there who specialize in working on CB equipment produced in the 1959 to 1979 era (one brand or many), we would very much like to hear from you so we can tell our readers.

One small section of John Stucke's magnificent collection of antique CB equipment. All we can say is, "Wow!"

Our DX QSL of the month comes from Vlado Pozezanac, known on the air as "P.V." from Yugoslavia.

BETTER SIGNALS

ANTENNAS AND SIGNAL IMPROVING ACCESSORIES

BY ED NOLL W3FQJ

W9INN 160-80-40M Broadbander

The low-band ham antenna is a problem in today's world of townhouses and tract developments. A second aggravation can be the use of more than one antenna to cover all three bands along with separate cables to the radio room. The W9INN 160-80-40M Broadbander offers effective solutions to the above. An attractive feature of this antenna is good and matched performance on some of the shortwave broadcast bands as well. Basic operation and a typical installation are covered in this column. In a subsequent column several innovations are covered that can be used with the basic W9INN and other wire antennas to add additional matched shortwave broadcast and ham bands to their capability.

The restrictive mounting site problem has been handled in two ways by W9INN. The antenna legs are only an electrical quarter-wavelength long worked against ground like a quarterwave vertical. Thus the feed point is at ground level, Fig. 1. The ground can be as simple as a 5 ′ stake driven into the ground or, radials can be added to improve low vertical angle DX and make the entire antenna less susceptible to changing ground conditions. An antenna worked against a good ground is usually the better way to go with low height antennas as compared to a low dipole when DX'ing is your aim. The low angle results improve with more radials. In fact sixteen of them is a worthwhile objective for the low-band DX'er.

W9INN uses a unique coil he has named a resonactor to decrease the required length of the quarterwave 160 meter leg, Fig. 1. It functions as a loading coil to obtain resonance on 160M and has a high reactance untuned trap-like performance on 80 meters. The 80-160M leg extends from the antenna end to the coaxial SO-239 receptacle at the feed point. The ground space occupied by the antenna is approximately 75 ′.

On the feed point side of the mast, two spreaders space the 40M quarterwave element a proper distance from the 80-160M leg. Both ends are soldered to the inner conductor of the SO-239. As shipped, the antenna is assembled completely except for the attachment of the spreaders. Even these are dressed and can be positioned correctly with ease.

When you order the antenna you can choose three preferred resonant frequencies, one on each band. These will bring you in the ball park even though you do not erect your antenna exactly as shown in Fig. 1. However, ground-system conductivity, height, and angle between the two sides of the 80/160M leg have their influence on the exact resonance points. Mast here was only 23 ′ high and the ground length of the antenna then approached 90 ′. I had to increase the length at all three antenna ends as marked in Fig. 1 to hit the center resonant frequencies of 1.85, 3.8 and 7.22 MHz. The SWR at each frequency was dropped to 1.1-to-1. The 160M 2-to-1 bandwidth was 120 kHz; 80M, 270 kHz. A ratio of less than 1.6-to-1 was maintained over the entire 40M band, and a ratio of 1.2-to-1 over the 15M band. In fact on the latter band the 40M leg operates as a three-quarter wavelength element. The cable length here was 90 ′ and in addition to the ground stake I used three 40M radials. The 160-80-40M Broadbander worked out well on all four bands. It was a joy to be able to operate on all four bands just by retuning the transceiver.

On 80 and 160M and on the other bands too there was no problem in bringing the SWR down to 1.1-to-1 over each of the bands with a tuner. Of course the tuner is only really necessary on 80 and 160 meters when you wish to operate over the entire band. As a bonus the antenna functioned

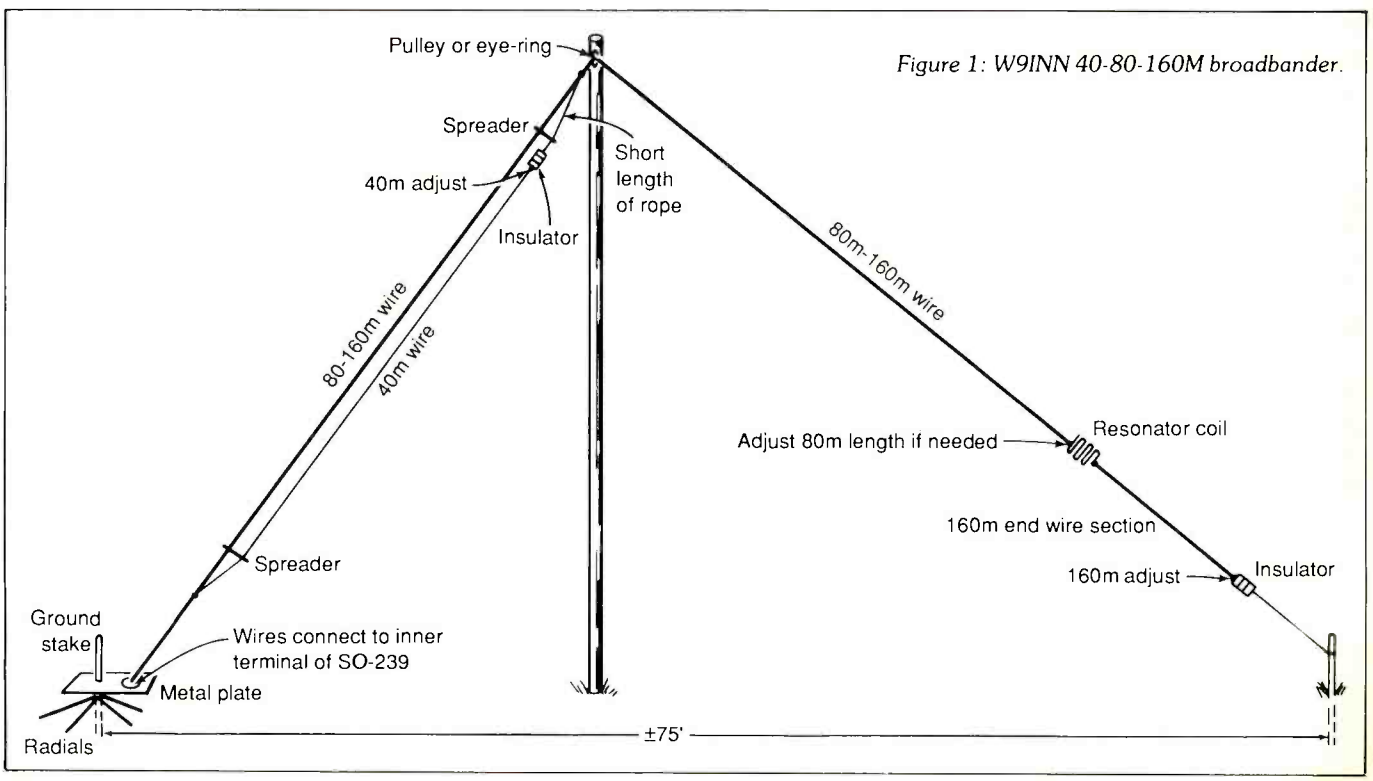


Figure 1: W9INN 40-80-160M broadbander.

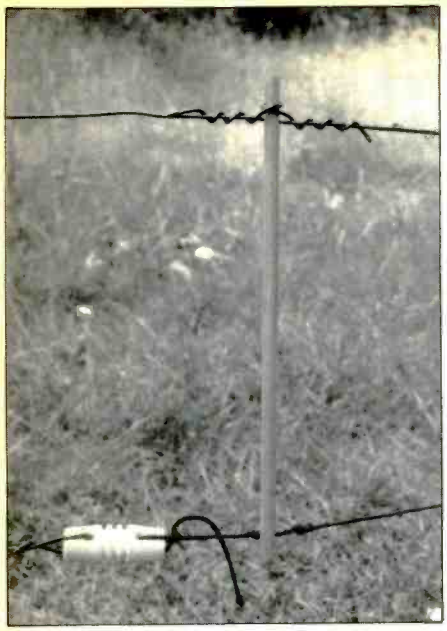


Figure 2: Spreader attachment before erection; 80-160M wire at top of spreader; end of 40M wire at bottom.

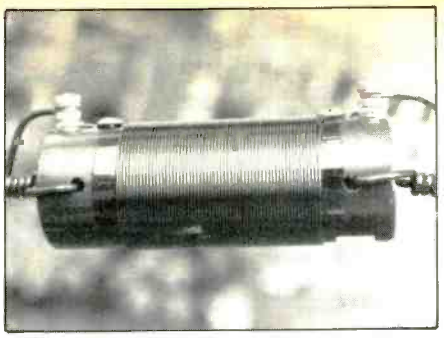


Figure 4: Resonactor coil.

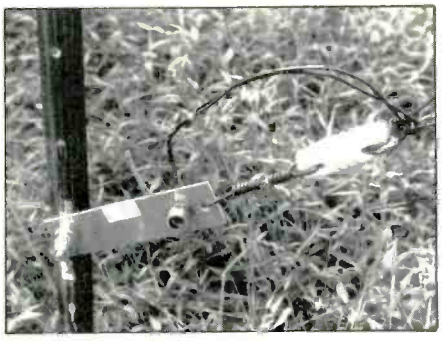


Figure 5: Feed point arrangement.

Figure 6: Antenna bridge at work.

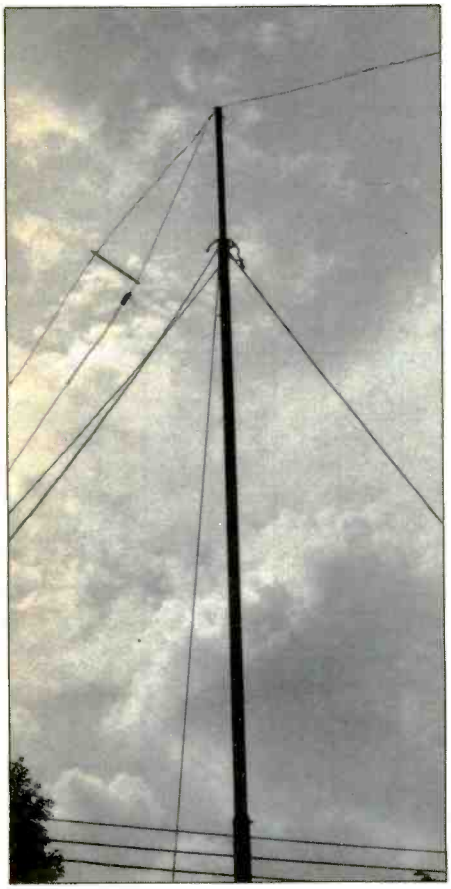


Figure 3: Antenna in position on top of plastic mast.

well as a general purpose shortwave broadcast antenna with some additional boost in performance on the 13, 19, 31, 41 and 75M bands.

The first construction procedure is to stretch out the antenna along the mounting site. Next the spreader near the feed point was attached about 3′ from the feed point, Fig. 1. The top spreader was assembled at ground level, Fig. 2. In the photograph note that the top 80-160M wire passes around the spreader but is held in position by the looped wires that are a part of the spreader assembly. The bottom 40M wire is held to the spreader by a flexible rope, also supplied. The looped wire on the left of the insulator can be used to adjust the 40M wire to resonance. Fig. 3 shows the antenna raised to the top of the mast. The 80-160M wire extends to the right away from the mast.

Similar looped tuning wires are located on the 80M side of the resonactor, Fig. 4, and, for 160M, ahead of the 160M end insulator, Fig. 1.

The feed point assembly is shown in Fig. 5. Note that the two antenna wires are joined and attached to the inner conductor SO-239 receptacle at the rear. All of this is supplied already assembled. The mounting plate itself is grounded to the metal stake. The three 33′ 4″ 40M radials I supplied are attached to the same bolt/nut assembly that holds the plate to the stake.

In my installation I used an MFJ-204B antenna bridge, Fig. 6, to tune the antenna to the three exact center frequencies I desired. This can be done without applying any power to the antenna using the bridge and the receiver part of the transceiver. As mentioned previously I was able to get SWR down to 1.1-to-1. This technique avoids inconsistancies. The antenna becomes resonated in its mounting situation. When you tune the antenna first, the influence of the coaxial line on the SWR readings at the transmitter is minimized. Stated another way, the actual length of the line has a minimal effect on the SWR readings.

W9INN Antennas can be reached at P.O. Box 393, Mt. Prospect, IL 60056.

THE HAM COLUMN

DAVE NEWKIRK, AK7M
AMERICAN RADIO RELAY LEAGUE HQ

GETTING STARTED AS A RADIO AMATEUR

Those Shared Ham Bands—Part 1

"Sharing is caring," the saying goes, but sharing isn't always so wonderful if you care to enjoy interference-free use of the radio spectrum. I'm talking about situations in which two or more radio *services* share a band of frequencies—ham stations side by side with broadcasting stations, for example. One way or another, hams share seven of the nine Amateur Radio bands between 1.8 and 29.7 MHz with other services. "One way or another" may mean sharing on a national or regional basis—stations in different services sharing a given band or part of a band within a country or adjacent countries—or sharing a band worldwide. Depending on propagation, national and regional sharing can be worldwide *in effect*: Radio signals don"t stop at national or regional borders!

The International Telecommunication Union (ITU), an agency of the United Nations based in Geneva, Switzerland, allocates operating bands to radio services on an international basis through the participation of representatives from its member nations. To do this job better, ITU divides the world into three administrative regions, as shown in Fig. 1. Once ITU has done its worldwide thing, national administrations work within the ITU's Radio Regulations to allocate frequencies on a domestic basis. In the United States, the Federal Communications Commission (FCC) and the National Telecommunications and Information Administration (NTIA) work together to allocate frequencies nationally. (The NTIA regulates all *federal* telecommunications, and the FCC regulates the rest.)

ITU's allocation job would be much easier if there were more than enough frequencies for everyone who wanted them. Dream on! The radio spectrum is a limited resource; there *aren't* enough frequencies for each radio service to have exclusive territory throughout the spectrum. This frequency crunch is the reason for band sharing: Where necessary (*and* feasible), ITU allocates bands for simultaneous use by two or more services.

Which service comes first in questions of harmful interference between services in a shared band? That depends on whether an allocation is *primary, permitted* or *secondary*. Primary and permitted services have maximum (and equal) rights in matters of harmful interference. Secondary services must not cause harmful interference to, and must accept harmful interference from, primary or permitted services.

Dry as such bureaucratic lingo may seem, it *is* part of the true story of how the various radio services end up where we find them in the radio spectrum: in shared bands, if necessary. But what does this mean in practice? For radio amateurs, band sharing means the added responsibility of causing no harmful interference to other services operating legitimately in shared ham bands. For SWL's tuning the ham bands, band sharing often means spicy DX listening, because several services operating side by side can provide a blend of stations and emission

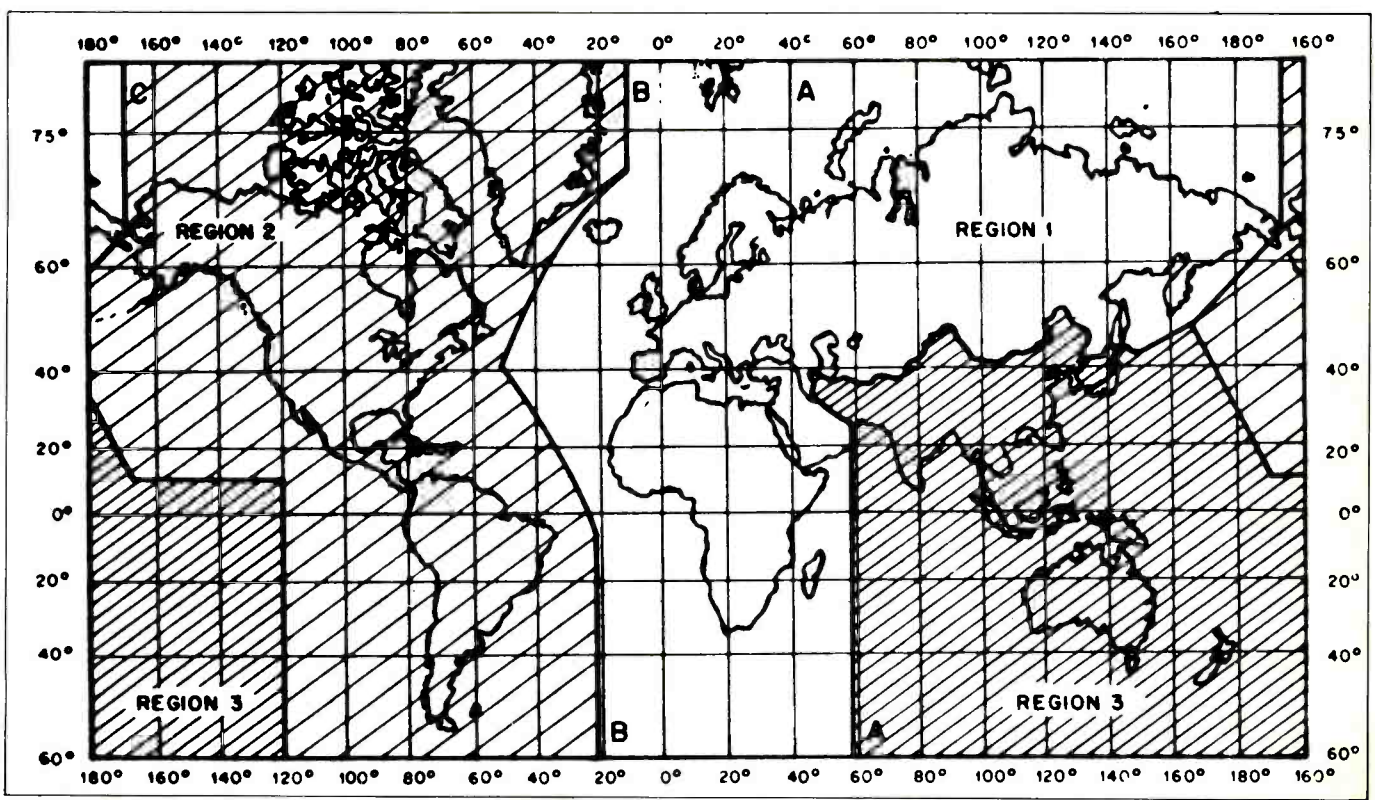


Fig. 1: Here's how the International Telecommunications Union divides the world into three regions for the regulation of radio communication. Region 2, the Americas, includes Hawaii.

modes uncommon anywhere else in the radio spectrum.

Shared Shortwave Ham Bands

With the "why" of band sharing in place, we've just enough space this month to start a tour of shared ham bands between 1.8 and 29.7 MHz. First in line: Amateur Radio's "top band," so named because it's the longest-wavelength ham allocation.

160 Meters (1.8–2.0 MHz)

Depending on the ITU region, hams share this band with radiolocation, radionavigation, fixed and mobile stations. Region 2 hams under FCC jurisdiction can use the entire band, but they must not cause harmful interference to stations in the non-government radiolocation service between 1.9 and 2.0 MHz. These radiolocation stations emit echoey blips and beeps best detected with a receiver set for CW or SSB reception. After night falls in Connecticut, I hear a pretty strong one near 1.9124 MHz: Its pulses sound like glurpy Morse Code *H*'s. (You can hear more of these stations from 1.6 to 1.8 MHz, between signals from old cordless phones.)

For many years, North American amateurs operating around 1.85 and 1.95 MHz had to put up with earsplitting interference from the loran radionavigation system. Worse, hams had to observe strict frequency and power limits to keep from interfering with loran stations. No longer! Region 2 hams said their not-so-fond farewells to 160-meter loran in 1982, but the system drones on at 1.85 or 1.95 MHz in Region 3.

A few coast stations (in the maritime mobile service) operate between 1.8 and 2.0 MHz in Regions 1 and 3. Most of these are in Europe, with a handful in Africa and Asia. All but a few use upper-sideband voice emission. West German coast station DHJ59, 1.8305 MHz, is a propagation indicator familiar to many hams who search for DX on 160 meters. West Coast listeners: If DHJ is too long a DX haul for you, try intercepting the few Korean coast stations reportedly using CW between 1.9 and 1.94 MHz.

Say, *hams* make for interesting listening between 1.8 and 2.0 MHz, too! Radio amateurs mainly use lower-sideband voice and CW on the top band, but there's a bit of AM activity as well. For the best in 160-meter ham DX, tune the *DX window* (1.83–1.85 MHz). (It's "the DX window" out of necessity: In many Region 1 countries, the entire 160-meter ham allocation is just that 20-kHz sliver.)

The Rest Of The Story

We'll round out the tour of shared shortwave ham bands in next month's Ham Column. Want to know where you can find *me* in the ham bands, week after week, same bat-time and same bat-channel? I'll spill the beans next month—hope you can stand the suspense! PC

SATELLITE VIEW

DONALD DICKERSON, N9CUE

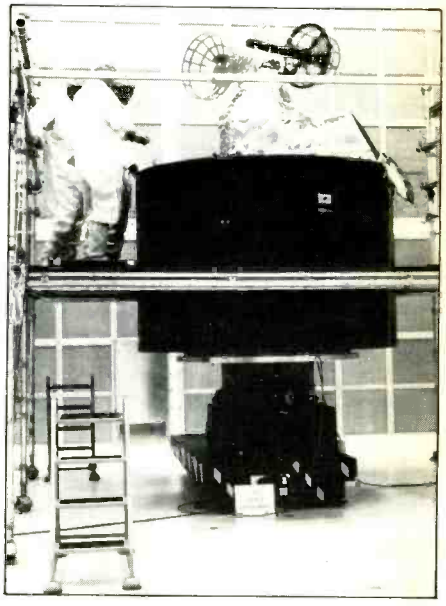
INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

Military Satellite Communications

Live NASA Videoconference

NASA's Educational Affairs Division will air two live one-hour programs on Westar 4, transponder 10, Channel 19. At 2:30 p.m. EST on Feb. 16 the U.S. Space Station will be discussed. On March 16 launch vehicles will be the topic, again at 2:30 p.m. EST.

This night launch of an Atlas-Centaur is carrying a Fisatcomm Defense communications satellite.



The DSCS II and Marisat spacecraft use the same configuration as this GOES weather satellite.

Military communication satellites, both tactical and strategic, fall under the general control of the Department of Defense. Several satellites, with names like Fisatcomm (Fleet Satellite Communications), DSCS III (Defense Satellite Communications System), SDS (Satellite Data System), NATO-3 and MILSTAR, provide voice and data communications for all western military forces. The strategic communications include dispatch of U.S. nuclear forces, both land and sea based. The tactical includes troop movements during war games and routine exercises.

Navy

The Navy boasts of having the most versatile and secure satellite system in the military. They may well be right. The Navy's Fisatcomm satellites carry strategic communications for the President, the NSC, Joint Chiefs, SAC, NORAD, Special Task Forces and even the CIA. Naval Intelligence and the CIA use the Fisatcomm as do their proprietaries. A proprietary is a business which operates as a front for intelligence operations, such as the now well known Air America company. During *Watergate II: The Sequel*, better known as the Iran-Contra investigations, some interesting uses of such cover businesses came to light. Large sums of money, missiles and even intelligence reports were laundered through proprietaries set up by the CIA and dealing directly with Iran.

Fisatcomm and DSCS II and III satellites are often used to relay communications concerning such operations. These Special Task Forces usually identify as TF 159 or TF 147, for example. It should be pointed out, however, that most of the intelligence communities' messages are sent over secured hardwire (telephone) lines by teletype or computer terminals. The terminals are given non-descript, generic identification. They are known as 960's. These systems send encrypted messages which are then secured even further by bit inversion in a special computer format. Manual as well as automatic encryption machines can also be used. The voice and data communications carried by Fisatcomm are wideband FM. From time to time plain FM voice comms can be heard in a cluster of frequencies near 261 MHz.

These spacecraft also relay information concerning the Navy's anti-submarine program. Navy listening devices, anchored to the ocean floors, monitor Soviet submarine activity. These buoys transmit data back to the States on the location of the subs through the Fisatcomm system. The Navy also uses small listening devices which can be deployed by ship, aircraft or helicopters; they too relay info through Fisatcomm.

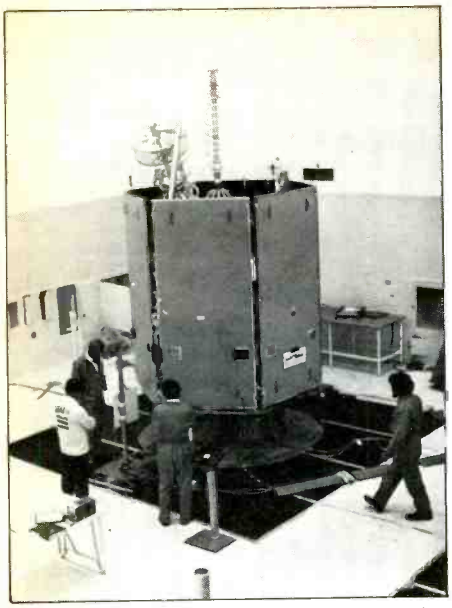
Since the Navy first began to use satellites they have been unable to keep up with the demand for them on their own. They have had to turn to commercial satellites, generally known as GAPSATS, to make up the difference. The military has leased three transponders on Marisat, the commercial maritime communications satellites.

The next generation spacecraft to be used by the Navy will be called Lesat. They are the scheduled replacement for Fisatcomm. Lesat are to be launched from the space

Military Satellites

Satellites	Frequency	Orbit	User
DSCS II and III	7250 to 7775 MHz downlink 7900 to 8400 MHz uplink	Geo-stationary	NSC/AF/CIA/NSA
Fisatcomm	240 to 265 MHz downlink 290 to 318 MHz uplink	Geo-stationary	Navy/AF/CIA
Marisat	240 to 328 MHz downlink 335 to 399 MHz uplink	Geo-stationary	Navy
SDS	200 to 400 MHz	Molniya	AF/CIA/NSA

Notes:
- Marisat are commercial maritime satellites with 1.5 and 4.2 GHz downlinks as well.
- The Army's tactical satellite system (Tacsat) also uses 240 to 325 MHz.



A Flsatcomm satellite readied for launch.

shuttle, as they are too large for standard launch vehicles. They will be placed into a geo-stationary orbit.

Air Force

Perhaps the most important satellite system in the military is one operated by the Air Force. Known as the Satellite Data System (SDS), these satellites relay information to and from spy satellites and the ground stations which control the spacecraft. This system also provides communications for the President and our strategic forces worldwide. SDS satellites maintain a Molniya orbit with a perigee of 400 miles and an apogee of 40,000 miles.

The Air Force also has transponders on host satellites. Flsatcomm's satellites carry AF transponders. Other spacecraft may carry AF transponders as well. This may be an attempt on the part of the Air Force to spread their communication resources around in a way that would enhance the chances of the system surviving if attacked.

There are two other satellite systems used by the military, DSCS II (Defense Satellite Communications System) and DSCS III. They carry a wide variety of communications and relays of highly sophisticated intelligence gathering techniques such as bugging and wire taps. These intercepts can be uplinked by listening devices which can be air dropped into the target area or from bugging equipment which is put in place by more conventional means. DSCS III (an improved version of DSCS II) carries communications for a network of sonar stations onboard ships which continually scan the oceans for Soviet subs.

Support Systems

The military operates two important navigational satellite systems, NavStar and Transit. They enable ground forces, ships and aircraft to pinpoint their exact location. They are used by high-tech weapons systems for guidance and control. NavStar is also used by our nuclear subs. They enable the subs to pinpoint their targets. NavStar is a high-altitude (12,000 miles) system; Transit satellites maintain a polar orbit and an altitude of 600 miles.

Military satellites provide communications for over 2,200 mobile and fixed stations around the world. The majority of these terminals are on board ships, aircraft, and communication vans. These stations generate between 100 to 500 watts of RF, depending on the satellite system they are trying to access.

Flsatcomm satellites require only 100 watts of uplink to access. Another nice feature of this system is that the antennas can be kept simple. Aircraft carry a four-element beam antenna and ships use a small, six-foot diameter dish antenna.

Milstar

As you can see, the military uses several satellite systems. The control and use of the spacecraft by various military and intelligence groups overlap. It's unclear whether any other secret military communication satellites exist. But, as with spy satellites, the whole story will never be told. One thing is certain, the government will continually upgrade and standardize their satellite systems. Milstar is just such a program. It will consist of four geo-stationary satellites to be crosslinked with several identical satellites maintaining a polar orbit. This method will insure complete coverage of the earth's surface.

Milstar spacecraft will be hardened against EMP (Electro-Magnetic Pulse) and ECM (Electronic Counter Measures). The only other method of protecting satellites is by placing them in extremely high orbits, which is sometimes impractical. Most LEO (Low Earth Orbit) satellites are easy targets for even the primitive ASAT (anti-satellite) systems. Both the U.S. and USSR have such systems which could be operational before the end of this century.

A special thanks to Stephen Young of Beaumont, Texas for his contribution to this month's column.

Let me hear from you. Comments, questions and suggestions are always welcome. Write me care of *Popular Communications*, 76 N. Broadway, Hicksville, NY 11801. Be sure to include an SASE. . . see you next month. **PC**

BROADCAST TOPIX

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

BY MARK MANUCY, W3GMG

How long does it take to change the polarity of a standard broadcast station from its normal vertical, to horizontal?

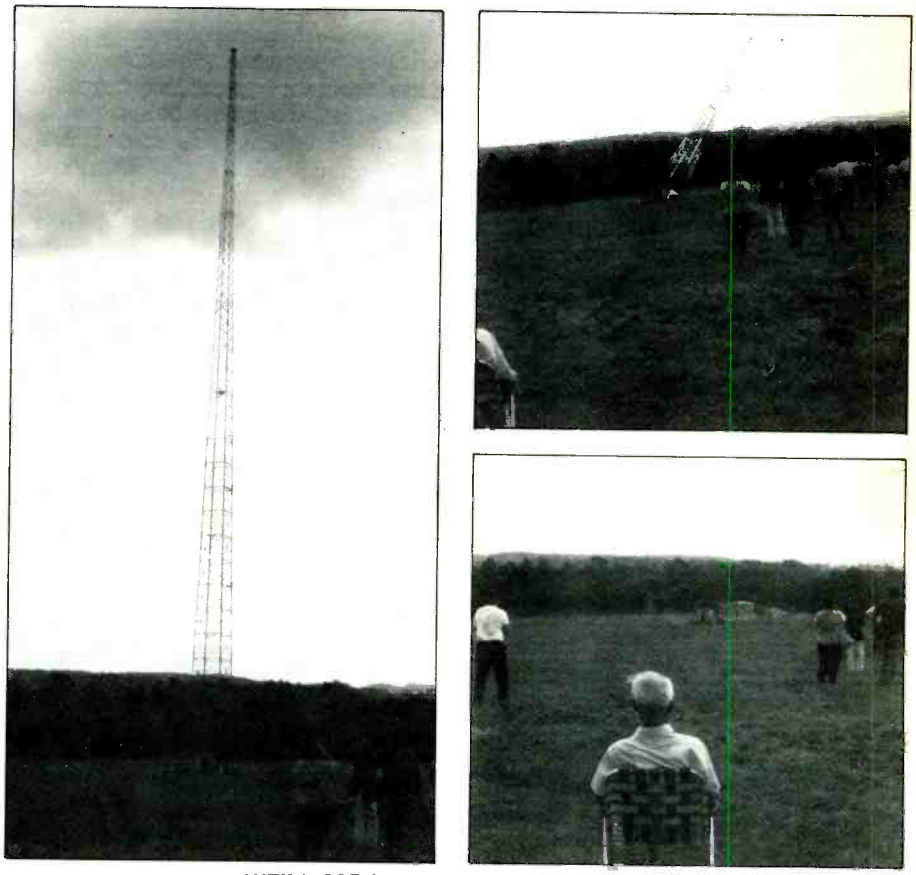
Last year WFIL decided to experiment with horizontal polarization. This hasn't been used to any great extent since the 1920's and, to be honest about it, things didn't work out too well for WFIL either. The changeover time wasn't too bad, 21.6 seconds, but supporting a 397-foot tower horizontally did prove to be a bit of a problem as you can see from the accompanying photographs.

Actually, what occurred was a tower lowering ceremony, attended by yours truly and other media types, as well as other CE's of the greater Philadelphia area. Bob Janney, the transmitter engineer at WFIL gave us a tour of the transmitting facilities of WFIL and nearby KYW. We enjoyed a pizza during the dropping of two of the three towers.

The WFIL facility, transmitting since the late 40's from a location northwest of Philly, near Valley Forge, had three four-legged self-supporting towers. They operated with a DA-2 pattern using 5 kW. From September through November the station used 1200 watts non-directional into a single tower while new towers were erected and the entire system modernized. The owners spent almost a million dollars to upgrade the AM station! This included three new towers (guyed) a new ground system, a new phasor and a slightly modified pattern for better coverage.

In addition, they upgraded the electrical system in the transmitter building and installed a new solid state Nautel 5-kW transmitter. They kept the two older transmitters, a Harris and "the wall" . . . an RCA which was probably new when they moved into the building. Most exciting to me is that they're returning to AM stereo! The system this time will be C-Quam using either a Delta Electronics or Broadcast Electronics unit. They are now evaluating both.

The station began the day of September 9th non-directional. By about 2:20 p.m. the tower crew was ready to drop the first tower. They had attached a line about halfway up the tower and cut the eight bolts holding the lee side of the tower base. The signal was given and the wench line to the tower was tightened and with a single creak the base started to lift. When the base was about three feet above the concrete piers it really started to move. Twenty seconds after the first tug, a "whomp" ended the majestic fall. The tower didn't bounce at all but the large base did move around for a second as it recoiled from the fall. The top of the tower was flattened and buried several inches in the soft earth. Joints here and there were snapped by the impact. See the photos elsewhere in the column. In the months ahead I'll have photos and stories of the transmitters of WFIL and KYW. By the way, the 50-kW site of WZZD is also visible from WFIL.



WFIL's 397-foot east tower comes down.

AM Stereo

The number of new AM stereo stations across the dial seems to be increasing weekly. According to the lamp on my home AM stereo there are quite a few new C-Quam stations that used to be Kahn stations. Although Radio Shack discontinued their AM stereo auto radio about a year ago they now have a new AM stereo unit available for $140. The model is number 12-1933. This is not a high-end unit as it is priced $10 above the lowest priced digital radio with a high power amplifier.

The chip that Sanyo has available for multi-mode AM stereo is the LA-1910. The NTIA committee found that multi-mode receivers with the Sanyo chip work very well and decoded both systems with excellent quality and low distortion. They recommended that multi-mode AM stereo receivers not be used, however, and that a single system be adopted in the U.S. Meanwhile the consumer waits without AM stereo receivers available except in high-end auto units from the auto manufacturers.

I have been searching the Sunday ads in the newspapers for over three years now and rarely see an AM stereo radio advertised. I could count on one hand the times I've seen an ad for AM stereo. The Japanese will take about a year before they decide which system (Kahn or C-Quam) they will use. A decision to go with Kahn would make many multi-mode receivers available in the U.S.

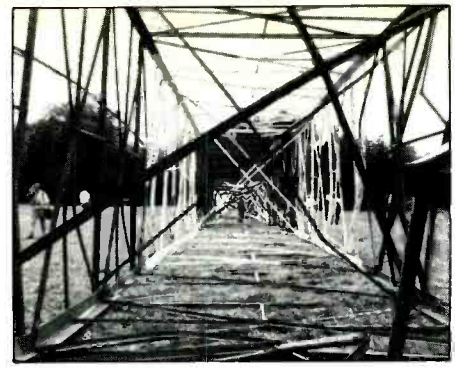
Meanwhile FM stereo radios continue to be improved. The most recent batch will sample the signal level before the scan circuits decide to stop on a station and preset the AGC level so that the sensitivity of the set is proper. This reduces the possibility of intermod and other such objectionable noises. Many units have also added line level input and output jacks for recording from the radio and playing compact discs through the auto sound system. These new bells and whistles do add to the price of a unit, but still no AM stereo choices!

Out of thirteen models of auto radios offered by Radio Shack only one has AM stereo and all but one offers a cassette deck. All the digital units offer a clock, which I don't

Station Update

Call	Location	Freq	Pwr	Ant
AM				
New	Flemington, NJ	1040	1/1	DA-2
New	Chicago, IL	1200	10/2.5	DA-2
FM				
WUWF	Pensacola, FL	88.1	100	617′
KCEP	Las Vegas, NV	88.1	10	−16′
New	Due West, SC	88.5	20	502′
New	Naples, FL	89.5	.55	354′
New	Waynesboro, VA	90.1	4.0	730′
WBXL	Baldwinsville, NY	90.9	.195	195′
KRBM	Pendleton, OR	90.9	25	587′
New	Sulphur, OK	91.1	3.0	216′
New	Lewisburg, PA	91.3	5.0	89′
New	Gainesville, FL	91.7	.52	249′
New	Salt Lake City, UT	91.7	100	242′
New	Warroad, MN	92.5	100	458′
WRQN	Bowling Green, OH	93.5	2.0	400′
New	Delhi, LA	93.5	3.0	320′
New	Norway, MI	94.3	2.0	1315′
KPKY	Pocatello, ID	94.9	100	1003′
New	Rantoul, IL	96.1	3.0	328′
WRXK	Bonita Springs, FL	96.1	100	1122′
New	Crandon, WI	96.7	3.0	316′
New	Sturgeon Bay, WI	97.7	3.0	328′
KZZC	Leavenworth, KS	98.9	100	1057′
KMSO	Missoula, MT	102.5	25	874′
WKNE-FM	Keene, NH	103.7	33	610′
New	Maljamar, NM	105.1	100	1100′
WFMM	Harbor Beach, MI	105.7	50	493′
New	Boston, GA	106.3	3.0	328′
KEXL	Norfolk, NE	106.7	100	1028′

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.



Standing at the base of the WFIL tower looking toward the top after it was on the ground. One big tower!

want. I don't really want a cassette deck either, but what choice do I have? Just what does a radio person want in an auto radio? AM and FM with stereo decoders for all modes. A digital display that shows the frequency all the time. A loudness switch and a six to ten band graphic equalizer without 15 kHz. Separate amplifiers for each speaker (at least four) with a minimum of 15 watts per speaker with decent speakers and sufficient enclosures to have good low-end response. I can hear the 25 Hz switching tones on some automated stations (AM and FM) on one of my systems. The sensitivity of the AM and FM sections should be first rate, at the 10 dbu level for FM and μv for AM. The AM selectivity should be selectable and have a 10 kHz audio bandpass (about 22 kHz IF) in the wide position.

Mail Call

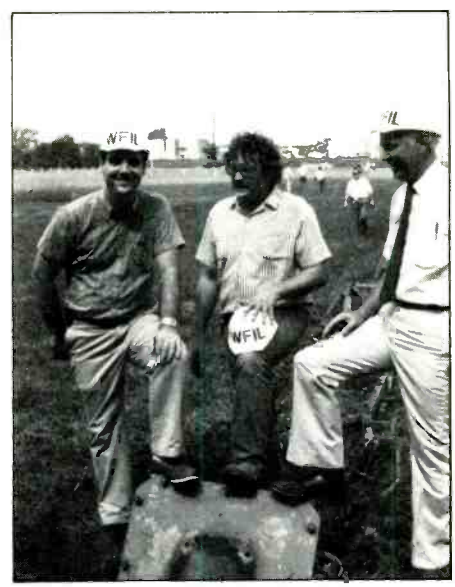
For those of you who have always wanted to have an advertisement on the radio here is your chance. In a mailing from WNWK (FM) in Brooklyn, NY tells how one may advertise for a full minute for $25. For more information write to Barry Publications, 477 82nd Street, Brooklyn, NY 11209.

More interference from Cuba according to Darwin Bonogofsky. Recently, while listening to WHO, he heard another station rebroadcasting on Radio Moscow's 300-kW transmitter in Cuba. He uses a Hammarlund HQ-129X, one of the best receivers ever built, Darwin, hang on to it. He bought it used as a teenager from Allied Radio . . . the good ol' days!

A complaint from Canada as well as news from the north country. The complaint deals with the lack of info from Canada. Vic, I can only report what I can find and whatever is sent to me, but I will try to find the information you have requested and include it.

From David Shearman a really nice letter. David says he is so isolated he can hear only two stations during the day. At night, however things improve considerably. David says one can spend a lifetime hunting the 1500 or so CBC stations. They use high power AM and FM and many low power relay transmitters (LPRT's). The only way one can ID a CBC station is to have a frequency list. Station ID is rarely given except after the weather forecast, following the hourly news. You'll hear, for example, "You are listening to CBC Radio, New Brunswick" or "This is the Quebec Community Network of the CBC." By listening to the regional weather forecast, then the network identification and crossing that with a frequency listing, one can usually locate the particular transmitter. A frequency list is available from Audience Relations, CBC, Station A, Toronto, Ontario, Canada.

Next, a letter from W2WLJ, who is my kind of DX'er! He is a true broadcast experimenter. In the mid-50's he built his own FM car radio. He even taped a dipole antenna to the window of his car. Took a lot of ribbing, I'm sure. I remember putting a horizontally polarized hoop on my auto antenna in order to receive the only horizontal FM stations. Many a big guy, when stopped beside me at a traffic light, would lean out of



The engineers of WFIL. Chief Russ on the left, Bob Janney and the Corporate Chief. They are resting their feet on the top plate of the tower on which the upper beacon sat. Notice how buried the top end of the tower is. The smiles are because everything went so well.

Call Letter Changes

Location	Old	New
AM Stations		
Lompoc, CA	KLLB	KTME
Palm Springs, CA	KKAM	KDES
Bushnell, FL	WWLB	WBEA
Orlando, FL	WWMA	WHOO
Albany, GA	WQDE	WANL
Joliet, IL	WJRC	WWHN
Monticello, ME	WOZW	WREM
Marshall, MI	WELL	WALM
Flemington, NJ	New	WJHR
Knoxville, TN	WKGN	WLIQ
Waynesboro, TN	WNBG	WTNR
San Angelo, TX	KQSA	KIXY
West Allis, WI	WAWA	WLUM
FM Stations		
Fort Mitchell, AL	New	WAGH
Oracle, AZ	KTTZ	KHYT-FM
Humnoke, AR	New	KZIX
Freedom, CA	New	KLZC
Palm Springs, CA	KDES	KDES-FM
San Rafael, CA	KTIM-FM	KWVF
Security, CA	KWYD	KWYD-FM
Cross City, FL	New	WDFL-FM
Indianapolis, IN	WEAG	WKLR
Weir, KS	KJWR	KRPS
Lincoln, ME	WLKN-FM	WGUY
Salisbury, MD	New	WDIH
Little Falls, MN	New	KFML
Faribault, MN	KDHL-FM	KOFN
Billings, MT	KKLO	KOHZ
Las Vegas, NV	New	KLRV
Pleasantville, NJ	WLQE	WMID-FM
Tupper Lake, NY	WTPL-FM	WRGR
Big Flats, NY	New	WNBR
Florence, OR	KDUK	KWOW
Ontario, OR	KXBQ	KSRV-FM
Gallatine, TN	WWKX	WGFX
Bremerton, WA	KHIT	KNUA
Milwaukee, WI	WBGK	WZTR
Milwaukee, WI	WLUM	WLUM-FM

the car window and mime the dribbling of a basketball and shoot for the hoop!

Many of us keep track of stations the way Maurie Webster keeps track of formats—radio station formats. Webster can pretty much tell you anything you want to know about formats according to a recent article in *Insight*. He says the 8958 stations of the U.S. use a *mere* seventeen formats. I believe him. Here they are: country 2305; adult contemporary, 1950; middle-of-the-road, 934; contemporary hit radio, 836; religious, 487; easy listening, 405; news/talk, 271; album-oriented rock, 253; variety, 221; oldies, 161; black music/pre-Motown, 158; Spanish, 153; soft middle-of-the-road, 106; news, 43; classical, 39; ethnic, 28; jazz, 12. Notice only a few hundred difference between the top two while a thousand separates number two and three. Notice that no separate mention is made of big band/nostalgia—it is lumped in with the MOR.

Others mentioned have a few new "experimental" formats such as new age music, which is electronic, soft jazz, mood music. Some say this will be the beautiful music format of the '90's. In Los Angeles, KTWV is using it. So is WBMW in Washington, DC. This type of music has been aired on many public stations for years, running a couple of hours at a time.

I mentioned a few months back about KMNY (MoNeY) in L.A. using an all business/financial format. What formats have not worked in recent years? I can recall WJOK, an all comedy radio, and an all classified ads stations—there's only so much one can do with Uncle Al's yard sale! All-girl formats never seemed to catch on and neither did the never more than a "Minute from Music" ideas. Probably the newest format is the all-sports station in NYC, WFAN. We'll see how that goes along with the winner's network starting in Miami on WWNN, all winner's radio! Too bad they couldn't swap the Baltimore station, WWIN call letters.

The metro Washington/Baltimore market certainly has its share of the above-mentioned formats. The striking thing is the lack of minority formats mentioned. Some that appear on stations here are successful to the point that they should appear in other metropolitan areas as well. Black urban is the first one that comes to mind—it is used in various forms on about 10 stations in these markets. Jazz is on two DC stations and classical on five stations in the two markets. One would think the religious count to be higher also since we have almost a dozen stations in this area. Guess our Congresspeople need all the help they can get!

Send all mail and pictures to P.O. Box 5624, Baltimore, 21210. Thanks much for all the fine comments . . . see you next month.

The real engineers of WFIL, Janney's junior ops, Chris and Mike, passing out Dad's business cards.

ON THE LINE

NEW AND EXCITING TELEPHONE TECHNOLOGY

BY JULIAN MACASSEY, N6ARE

Telephone Interference Causes And Cures

Sooner or later, you are going to become the victim, or cause of, interference to a telephone or phone system. The sort of interference we are discussing here is Radio Frequency Interference (RFI). It is obvious that RFI can be caused by radio transmitters. The radio transmitters can be AM broadcast, two-way, CB, ham, FM broadcast and studio links. Less obvious can be garage door openers as well as anything that generates electric sparks such as electric motors and transformers that are breaking down.

Any device registered with the FCC as a Part 15 Subpart J device is liable to cause RFI. A Part 15 subpart J device is any device using a microprocessor and generating square waves. This means any digital device, including the onboard computer in the family chariot and the lawn sprinkler timer. Favorite generators of RFI of this type that are often overlooked are programmable scanners.

Bear in mind that many "feature" phones have microprocessors on board and can interfere with themselves, other phones, or even nearby radios and TV's. Of all types of phones, the old style desk phones—rotary types known as the 500 set and the Touch-Tone version 2500 set—are much less susceptible to interference than modern electronic phones, which tend to have transistors and integrated circuits in them. These semiconductors act as detectors like the old crystal sets. The amplifiers in these modern phones then tend to amplify the detected signals. The result . . . your good buddy from Channel 16 tends to get on the phone line with you. So a fast simple cure for interference can often be to drag the old black rotary phone back out of the closet.

There is some hope when it comes to interference. The FCC has issued a field bulletin on RFI. The document is called "Bulletin FO-10, Telephone Interference." Copies of it can be obtained from any FCC field office. The Bell System has also considered the problem and approaches it from the viewpoint of interference to regular 500 and 2500 type phone sets. The Bell document concerning RFI is known as a Bell Systems Practice (BSP). The document is BSP Section 500-150-100.

The FCC document is quite adamant that *only authorized personnel* can open phones to modify them against RFI and that only telephone company personnel can add coils and capacitors to the telephone protector. Modifications to protectors and internal modifications to phones are described here for those who are authorized to do such work.

There are many quick, inexpensive and effective modifications that can be done by the consumer. One is the addition of ferrite cores to handset cords and line cords. Also easy to add are modular plug-in filters. Requiring more work is the re-routing of phone wire or the installation of shielded wire. Don't forget that although opening your phone or fooling with the protector may be a no-no, you can do whatever you want with the wire in your home.

Before you tear things apart and spend money, there are a few things to check. These checks can be done with an adjustable wrench and a screwdriver. What is checked is anything on the line itself that could be acting as an antenna or detector. A dirty connection can work as a diode to detect RF signals. Go over the internal wiring looking for the following:

- Corroded connections. Clean and tighten.
- Loose wire terminations, including set wiring and all jacks and junction boxes. Tighten any loose screws.
- Abandoned wire still connected to the line. Remove any wire not connected to a working phone.
- Old unused devices still connected to the line. Remove abandoned phone answering machines, old telephones and bells, etc.

All of the above fixes are legal for any subscriber to do without falling foul of the FCC or local telephone company. the exception is, of course, those with party lines. Party line subscribers should be wary of adjustments to wires and telephones. There are many ways of wiring party lines and the telephone company will be familiar with their own equipment, so call them.

The other legal do-it-yourself fix is attachment of toroid cores. These cores look like small black doughnuts and, by wrapping

INFORMATION BULLETIN

Federal Communications Commission
Field Operations Bureau

Telephone Interference

This document has been prepared to assist you in understanding why interference to your telephone system occurs. Recommended solutions for you and your authorized telephone service technician are also provided.

Bulletin FO-10
September 1986

wire round a ferrite core, a simple effective RF filter or choke can be made. Ferrite cores are frequency selective, so by the choice of the right material, interference can be effectively diminished.

With modern phones, the most RF sensitive part is the electret microphone and its preamplifier circuit. By application of ferrite cores to the handset cord, there is a fair chance of fixing the problem easily and cheaply. If you are hearing radio signals on the phone, there is a way of checking if the microphone/handset cord is to blame. Dial a partial number to give you silence, listen for the interfering signals and grab the handset cord. If the signal changes in volume—gets better or worse—try a ferrite core.

The best source of ferrite cores in small quantities is Amidon Associates, 12033 Otsego Street, North Hollywood, CA 91607. Amidon Associates has several ferrite "mixes" available. For interference from 500 kHz to 10 MHz, i.e., AM broadcast RFI, they recommend their 75 material. For interference from 1 to 30 MHz they recommend their 73 material. The 73 material should take care of all shortwave ham and CB interference. For low VHF and Channels 2-7 RFI you can try a ferrite core made with the 43 material which should take care of RFI between 1 and 70 MHz. For best results, use the material that has the lowest cutoff point for your problem. If the local AM transmitter at 1070 kHz is your problem, use the 75 material, it will give much better attenuation at that frequency than the 73 material.

For a handset cord, a half-inch core is ideal. Wrap four or five turns of the handset cord through the core and plug it back into the handset. The cord can be held in place with black vinyl tape, glue, or hot melt glue. Experiment with the positioning of the core. Often having the core by the handset works best, other times plugging in the cord with the core at each end of the cord is needed to do the trick. The cores may look kind of clunky, but if they provide relief, why complain.

The numbers for the half-inch cores are: FT-50A-75, FT-50A-73 and FT-50A-43. Yes, you guessed it, the last two digits tell you the material being used. For one and a half-inch cores used with line cords explained below, the numbers are: FT-140-75. The last two digits being the same as for the half-inch cores.

For RFI that you suspect to be entering via the phone line, wrapping the line cord round a large core can help. Usually it is best to place the core at the telephone end of the line cord. Like all RFI cures, experimentation does a better job than hard and fast rules. With the large core on the line cord, between six and twenty turns on the cord should do the trick. A core on each end of the line cord may help in stubborn cases.

The FCC document mentions plug-in modular RFI filters. These may be hard to find. AT&T phone stores carry a device called a "Radio Frequency Filter," it's about

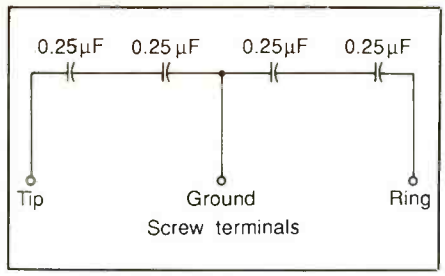


Figure 1: AT&T 40BA capacitor schematic and connection diagram.

$6.00 and is modular. You may order one by phone by calling (800) 555-8111.

For authorized phone repair stations, telephone personnel and those willing to risk "open circuit surgery," there are several solutions. Using ferrite cores, twenty turns or so of scrap 24 gauge telephone wire can be wrapped around a half-inch ferrite core. Use two cores, one for Tip and one for Ring and place them inside the phone. The same kind of cores and windings can also be used, inside the phone, on the transmitter (microphone) leads.

For those really handy with a smoking soldering iron there are some more fixes to try. For phones using electret microphones, some well placed capacitors may do the trick. Try a 0.01 μF across the electret element. If that doesn't work, try the same value of cap across the hot side of the element to the "ground" of the pc board. Regular phones with carbon transmitters can be helped with a 0.01 or 0.1 μF capacitor across the element. Solder the capacitor across the contact fingers in the handset, not across the element, so if the transmitter is changed, the RF proofing will stay with the phone. Also, inside the phone, a 0.1 μF 250V capacitor across Tip and Ring can be helpful. The type of capacitor to use is a ceramic or mylar.

For those with access to AT&T parts there are a couple of bits of helpful hardware mentioned in Bell Systems Practice 500-150-100. First, there is a coil 1542A inductor, that should be spliced into the phone line as near as the offending telephone set as possible. This means putting it right before the modular jack. It has six terminals, two for Tip, two for Ring and two for a ground, should the phone still need a ground (yellow wire) for the ringer or party line. The ground terminals are not in any way connected to the coil, so bringing a ground to the inductor, unless needed in the phone, will not help cure any RFI.

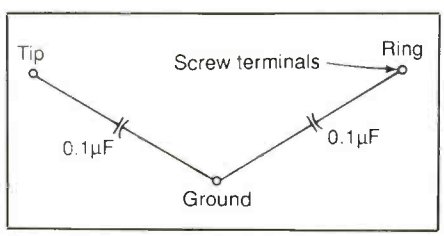


Figure 2: Schematic for 0.1μF capacitors on telephone protector.

The Bell document also mentions a capacitor, designated a 40BA capacitor. It is actually four capacitors (see Fig. 1) and the intent is to place a capacitor between each leg of the phone line and ground. The 40BA is usually installed at the telephone protector. There is always a good ground available at the protector, often a heavy gauge solid gray jacketed wire. Those telephone personnel who do not have access to a 40BA capacitor should find that a couple of 0.1 μF 250V mylar capacitors will work just as well (see Fig. 2). To install the 40BA or 0.1 μF capacitors, find the protector. The protector is usually outside the building in a wall mounted small box, in the basement or in a closet for businesses and apartment buildings. If the phone line comes in on overhead cable, the protector will be in the first box the cable goes to after entering the premises.

This should be some help in beating the problem. Don't forget that some types of phones are more sensitive than others. Some cases may be so severe that nothing helps. AT&T no longer has RFI-proofed phones available, although an old style desk phone with some capacitors added will be pretty immune to RFI. Alas, AT&T no longer makes old style 500 and 2500 desk sets, although they sell reconditioned ones. Several manufacturers such as ITT, Comdial, and Northern Telecom still make old style phones. **PC**

PIRATES DEN

FOCUS ON FREE RADIO BROADCASTING

BY EDWARD TEACH

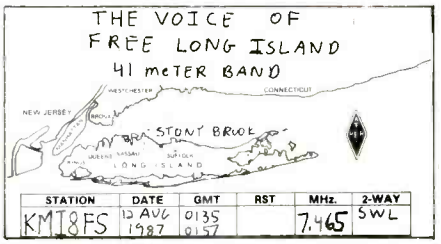
Pirate broadcasting activity continues to be on the increase! This is true if we go by the reception reports finding their way into the *Den* and the greater numbers of stations advising of future plans.

One station checking in for that purpose is **WCFR—Chicago Free Radio**. They were active around three years ago but then were burglarized. It's taken awhile to get things back together again. WCFR announced a sked from 0300 to 0500 UTC, using 7350, 15350 and 104.5 FM. Programming includes a mix of Top 40, hard rock and "moldy oldies" with disc jockeys Danny T. from Chicago and Larry Mellencamp of Atlanta. QSL's were planned as soon as a mail drop could be arranged.

WCFR planned to use a pretty hefty 1250 watts input for their shortwave and about 750 watts on the FM frequency. Let's hope some readers heard it.

Bradley Lucken of Cincinnati checked in a month or two ago with problems in getting a reception report to the **Voice of Tomorrow**. Now he writes in to say that the second address he tried, in Ferndale, Michigan, is *also* obsolete. So Brad's appealing to *Den* readers for some help on an address for this station. Unfortunately, my files don't turn up anything beyond the two Bradley has already tried. Anyone from the Voice of Tomorrow reading this?

"Rocco Gibralter" of pirate **KNRH** tells me that the European pirate **Radio Pamela** is off the air and "probably won't return." The Pamela DJ's, however, are producing shows for such stations as **Radio Canzoni** and KNRH itself. Rocco notes that KNRH is active again on 11975, at least for awhile. He says if the response to the broadcasts doesn't pick up they'll "give in and move to 41 meters." KNRH does have crystal for 7317 but dropping down to that frequency would necessitate building a bigger dipole antenna. If I remember correctly, when KNRH last wrote they had been on 11975 for a number of years but had never received a reception report!



Tim Tromp's QSL from the Voice of Free Long Island.

Tim Tromp in Michigan has received a QSL from the **Voice of Free Long Island**, which clears up the station's name. Info from the station notes the power as 150 watts into a vertical antenna. Tim gives the address as: Tagar, Union Building, Stony Brook, NY 11794. As noted a month or two back the station says it supports the Nicaraguan freedom fighters, the African freedom fighters, Soviet Jewry, UNITA and so on. Tim points out that the QSL the station sent was originally a ham QSL card. The ARRL emblem is still on the card!

Lyle Feldman in New York heard the station using 1620 kHz. He says that, in between playing contemporary rock and roll, the transmitter kept going off the air and coming back on. The station gave no location, other than Long Island.

Steven Sachs of Illinois also heard the Voice of Free Long Island, but also using the "Pubar" tag which others have noted many times. Steve's reception was at 0130 and 0310 UTC respectively, on 4765. Steve also sent in the address for this station.

The AM transmitter of WCFR—Chicago Free Radio.

WCFR's FM transmitter.

Lyle Feldman also heard something calling itself **WTPR**, claiming to serve the Hempstead Turnpike strip in East Meadow and Levittown, Long Island, New York. This was on 1620 kHz. The TPR stands for "Turnpike Radio."

Monitors KFL4WC and KFL4OC, in Florida, made up this card to report to pirate stations.

This great logo was received from the gang at Radio Newyork International (RNI).

Tim Tromp logged **KBFA – Broadcasters of Free America**, on 8002 from 0305-0315. The DJ called himself "The Archer" and featured rock music from compact disc and claimed to be "blowing WRNO right out of the airwaves." The station said mail should be sent to this column. (No way, Jose! We'll be glad to hear about your reception but we're *not* a mail drop for pirates.) Anyone know of an address for KBFA?

A new Canadian pirate is **CSW – Canadian Short Wave**, heard by Vic Griffiths in British Columbia who says the station claims to be on during the third weekend of each month. Vic heard CSW on 6240 from around 0320 to 0659. The DJ's call themselves simply "One" and "Two." An address was given but the static got this instead of Vic. Anyone else hear this one who copies an address?

Old standby **Radio Caroline** was found by Steve Sachs at 0410-0455 on 3444.

In California, Robert Brown caught FM pirate **Phantom 104** on 104.1 with commercial free rock for the San Jose area. They broadcast mostly in the later hours and play "the music the South Bay stations don't play."

That's it for now but keep those cards and letters coming! Your loggings, news clippings, pirate station information, station QSL's and station photos, future operating plans, QSL addresses and so on are needed here each and every month.

I'll be with you again next month and, in the meantime, hope you log some new ones!

RTTY

BY ROBERT MARGOLIS

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

For those of you who monitor RTTY broadcasts of AP news from Western Union's Westar III satellite, you now may have to point your dish antennas elsewhere in the sky to pick up the news agency. The AP contracted with GTE Spacenet Corporation to purchase two transponders on the Spacenet III satellite, a new C-Band and Ku-Band satellite that was to have been launched December 4.

If there was a delay in the launching of the new satellite (this column was written before the target date), the contract calls for temporarily using the existing GTE Spacenet I satellite.

The AP is moving onto another satellite because Westar III is nearing the end of its operational service. Spacenet III, when launched, is expected to function for 10 years.

The Armed Forces Radio and Television Service, which provides RTTY broadcasts of AP and UPI news on HF radio, moved a few months ago from Hollywood, CA to its new broadcast facility at Sun Valley, CA, according to an item in a military magazine.

POP'COMM Editor Tom Kneitel shares with us a highly informative QSL letter he received from AT&T for his monitoring report of WOO in Ocean Gate, New Jesey on 8051.5 kHz in the FEC mode.

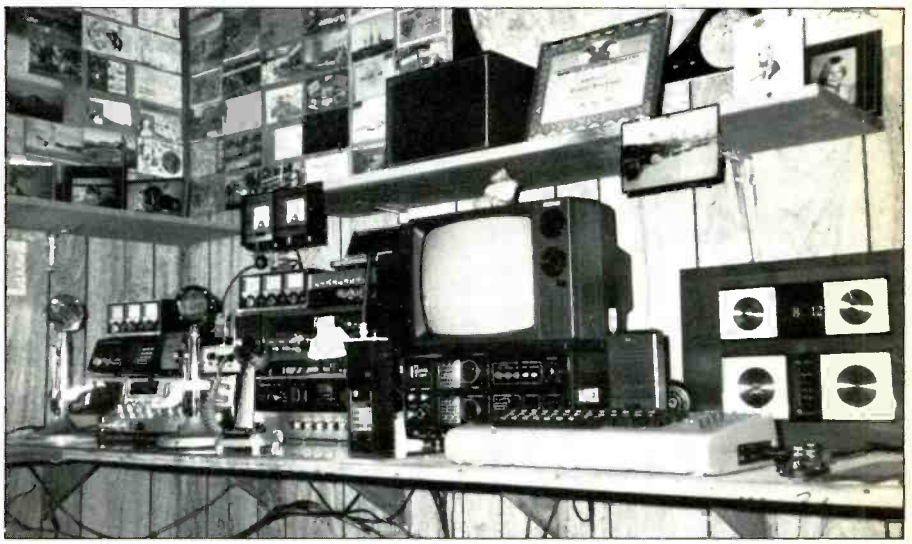
AT&T says the 24-hour-a-day operation of SITOR/FEC broadcasts began in December 1986. The transmitter is a Western Electric LD-T2HS and feeds a Granger omni-directional antenna. Transmitter output power is about 900 watts.

WOO will send QSL's whenever station managers have free time. Responses, AT&T says, usually will be within one month. Send your reports to Station Manager, AT&T, Station WOO, Ocean Gate Radio, Post Office Box 550, Manahawkin, NJ 08050.

In last September's column, I showed a printout of a test tape from a station using RY's with what appeared to be the callsign "LRS." I said that the test tape prefaced a news broadcast by the VOA in Monrovia, Liberia (on 7478 kHz).

A reader, who requested anonimity, tells me that "LRS" stands for "Liberia Relay Station." The letters are not to be intercepted as a callsign but as the site of the transmitter, the reader said.

It's that time of year when the groundhog leaves his burrow, not to look for his shadow, but to see what RTTY intercepts you readers have logged. Here they are:



The monitoring post of Ron Bruckman of Maryland. He's registered monitor KMD3GJ.

RTTY Intercepts
(Settings- Hz/Baud/Polarity)

122.5: CFH, Canadian Forces, Halifax, NS at 0500 w/wx, 425/75R (Tom Kneitel, NY).

518: NMF, USCG Boston, MA in FEC at 0505 with notices for mariners (Kneitel, NY).

2307: AAR2BV, U.S. Army MARS w/tfc at 170/45N, noted at 0120 (J.M., KY).

2812: EBA, Madrid Navrad, Spain w/RY & SG to FUG, LaRegine Navrad, France, 850/75R at 0324. Been a long time since we've seen ID as EBA instead of oddball ID's like 72JKL. Maybe they figured FUG wouldn't know who 72JKL was. See loggings on 4607.3 & 6288.3 kHz (Ed.).

4230.5: 98OQJ calling 95XRA w/RYRY. Probably Spanish Navy at 0003, 850/75R (Kneitel).

4245: Un-ID USCG sta w/lookout msg for possible smuggler ship, 170/75R at 1034. Believe msg sent from NMA in Miami (Ed.).

4532: WLO, Mobile R., AL w/wx in FEC at 2342 (J.M., KY).

4454.7-4456.4: Un-ID w/foxes on 6 freqs in this range. All were 170/75N at 2357 (Ed.).

4487.6: TNL, Brazzaville Aero, Congo w/RYRY & aero wx at 0110, 425/50N (Ed.).

4489: GFL, Bracknell R., England w/coded wx at 0127, 425/50R (Ed.).

4607.3: 96OQZ, Spanish Navrad w/RYRY & SGSG + tfc to 99PAB, 850/75R at 0134. While we're awaiting the Daw Jones average to reach a new plateau, we also wait for the Spanish Navy to break the 100 barrier (Ed).

5135: 5TY, Nouakchott Meteo, Mauritania w/aero wx to Dakar, TDM 425/96B at 0553 (Ed.).

5740: HZN, Jeddah Meteo, Saudi Arabia w/coded wx at 0130, 850/50N (Jerry Brumm, IL).

5887.5: IMB2, Rome Meteo, Italy, w/coded wx at 0028, 850/50N (Kneitel, NY).

6268: WTEW, NOAA ship **Whiting (S-329)** w/tfc for Atlantic Marine Center at 1335, 170/75R (J.M., KY). A survey ship w/8 officers, 33 civilians, 2 scientists. In service since 1963. The 3/83 issue of POP'COMM had a story about the NOAA research ships (Ed.).

6288.3: 98BGL, guess who w/RYRY & SGSG to 98BGP at 2315, 850/75R (Editor).

6652.4: Golf Cero X-Ray w/tfc in SS + crypto to Romeo Cuatro Juliet at 0425, 850/75R (Ed.).

6866.5: D4B, Amilcar Cabral Air, Cape Verde Islands, at 0058 w/RYRY, 850/50N (Kneitel, NY).

7475.4: GXQ, British Army, London, England

Paul H. of London, England sent us this pix of the beam antenna atop the Omani Embassy in London.

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**

w/foxes & RYI's at 0210, 170/50R (Ed.).

7511.8: TZH, Bamako Meteo, Mali w/coded wx, TDM 425/96A & B at 0326 (Ed.).

7532: FSB, INTERPOL, Paris, France w/police bulletins in ARQ at 0556 (Ed.).

7614: 5UA, ASECNA Niamey, Niger w/RYRY & QJH1 at 0124, 425/50N (Ed.).

7618: 6VY42, Dakar Meteo, Senegal w/coded aero wx at 0132, 425/50R (Ed.).

7695.3: 3MA26, CNA Taipei, Taiwan w/nx in EE at 0953, 850/50R (Ed.).

7833: AFF4TR/AFA4FM, USAF MARS w/RTTY training session, 2321 in 170/45R (Kneitel)

7850: ZAA, ATA Tirana, Albania w/RYRY at 1855, 600/50N (Kneitel, NY).

7941: Un-ID w/foxes, 1-0 count, at 2332, 170/75N (Kneitel, NY).

7954.5: LRN85, DyN Buenos Aires, Argentina w/wx in SS at 0152, 850/75R (Ed.); same at 0119 (Kneitel, NY).

7962: Foxes w/o ID at 0233, 170/50R. Probably MKD in Cyprus (Ed.).

8118: 9ZJ4, Lusaka Aero, Zambia w/RYRY & QJH1 at 0440, 500/50N (Ed.).

8131.7: Egyptian Embassy, Washington, DC w/nx in AA/EE to MFA Cairo, ARQ at 0041 (Ed.).

8328.5: Polish merchant ships here sending telexes in Polish, ARQ after 0000 (Ed.).

8442.3: Juliet Tres Yankee w/"rutina" tfc to Mike Uno Kilo, 850/75N at 1105 (Ed.).

8707.5: VIP33, Perth R., Australia relaying EQPC, **Iran Shariat,** in ARQ at 1030 (Fred Hetherington, FL).

8709: WPD, Tampa R., FL w/tfc list in FEC at 1622, J.M., KY).

8912: November Tres Kilo w/RY & SG to Echo Seis Romeo, 850/50N at 0438 (J.M., JY).

9105: 5NL, Lagos Air, Nigeria at 0400 w/RYRY, 850/50R (Kneitel, NY).

9184.3: TLO, ASECNA Bangui, Central African Republic w/coded wx, 850/50R (Hetherington, FL). Time not given-- Ed.

9261.7: MFA Cairo, Egypt w/tfc in AA/EE to the consulate in Montreal, ARQ at 0015 (Ed.).

9277: CKN, Canadian Forces, Vancouver, BC w/foxes, RY's, & test at 2355, 850/75N (Brumm).

10213: HZN48, Jeddah Meteo, Saudi Arabia at 0338 w/coded wx, 850/100N (Kneitel, NY).

10402: Un-ID w/foxes at 1930, 850/75R (J.M.).

10607: CLP1, MFA Havana, Cuba w/encrypted tfc to CLP2, Embacuba, Panama, 425/50N at 1624 (Editor).

10615: GYU, Royal Navy, Gibraltar, w/foxes at 0008, 850/75R (J.M., KY).

10635: SUG, Cairo, Egypt, w/RYRY at 2316, 850/50R (J.M., KY).

10650: BZJ23, Wuhan Meteo, PRC w/coded wx at 0945, 425/50R (Ed.).

10688: Un-ID w/crypto at 1356, TDM 850/96B. Has anyone ever copied and ID here? Ed.

10805.5: LOR, NA Buenos Aires, Argentino w/nx in SS at 2227, 850/75R (Ed.).

10834.2-10835.9: VER, Canadian Forces, Ottawa, ONT w/RYRY & foxes on 6 of 7 freqs here on a circuit to Shilo, MAN. The 7th freq carried crypto. All 170/75N (Ed.).

10893.5: TELAM, Buenos Aires, Argentina w/nx briefs & synaps in SS at 0930, 850/50R (Ed.).

10960.3: 3MA28, CNA Taipei, Taiwan w/RYRY & QRA at 1327, 950/50R (Ed.).

11443: 9ZJ9, Lusaka Air, Zambia w/coded wx at 2120, 425/50R (Kneitel, NY).

11497: SOL349, PAP Warsaw, Poland w/nx in EE at 1411, 850/50N (Brumm, IL).

11515: FDY, French AF, Orleons, France w/brick tape at 2320, 425/50R (J.M., KY).

11502: LZH4, BTA Sofia, Bulgaria w/nx in EE at 1343, 425/50R (Ed.).

11593: Un-ID sta w/coded wx at 2130, 170/50R (Kneitel, NY).

11638: DDK8, Quickborn Metea, FRG w/coded wx at 2227, 425/50R (Dallas Williams, CO); Same at 2134 (Kneitel, NY).

11677.5: TJK, ASECNA, Douala, Cameroon w/RYRY at 2136, 425/50N (Kneitel, NY).

12132.5: A Yugoslav diplo post somewhere w/crypto & tfc in Serba-Croat at 1245, 425/75N (Ed.).

12174.5: HMR23, KCNA Pyangyang, N. Korea w/nx in EE at 2145, 250/50N (Ed.).

12212.2: RUES, U.S. State Dept., w/foxes at 2334, 850/75N (J.M., KY).

12212.5: YZO7, TANJUG, Belgrade, Yugoslavia w/nx in EE at 0403, 700/50R (Williams, CO).

12224.5: FSB, INTERPOL, Paris, France w/tfc in FF/EE/SS, ARQ mode at 1934. Msgs re drug smuggling (Ed.).

12265.3: BZR62, XINHUA Beijing, PRC w/nx in EE at 1551, 425/50R (Ed.).

12520: UFSV, Soviet cargo vessel **Kapitan Kamiskii** calling UFB & sending RYRY at 2148, 170/50N (Kneitel, NY).

12678: WWD, Scripps Fisheries, La Jolla, CA w/tfc about wind speed measurements for WECB at 1958, 170/75R (J.M., KY). WECB seems to be the oceanographic research ship **Melville (AGOR 14),** operated by Scripps for the USN w/50 POB-- Ed.

12682.6: LFC, Rogaland R., Narway, w/tfc list in FEC at 1605 (Ed.).

12900.3: PWZ33, Rio de Janeiro Navrad, Brazil w/CQ, RYRY, SGSG in 850/50R, 2357 (Ed.).

13418: CCF of Chilean Navy w/RYRY & SGSG to LOL, Pto. Belgrano Navrad, Argentina, 850/75N at 1244. Still looking for the location of CCF (Ed.).

13516.4-13517.1: Un-ID w/faxes at 1624, was 170/50N on 1 freq & 170/50R on others (Ed.).

13527: 2 UN-ID stas w/tfc in Dutch, ARQ at 1125-1224. Could this possibly be PCK83 in Kootwijk, Halland? Listed here with a telephone circuit to Bonaire (Ed.).

13566.4-13567.9: Un-ID w/foxes on 3 freqs & crypto on 2, all 170/50R at 1639 (Ed.).

13622.1: Un-ID w/5L tfc at 1834, 425/75R. S/off only wQRU SK (Hetherington, FL).

13840: KRH51, U.S. embassy, London, England w/faxes at 2218, 850/75N (Williams, CO).

14419.1: Un-ID w.msg in FF headed "urgent," ARQ at 0720. Weak but readable till about 0827 (Ed.).

14773.3: RUEHC, w/U.S. diplo info to all embassies & consular posts, 850/75N at 1005. Has anybody got a listing of these U.S. HF RTTY routing indicators?-- Ed.

14630.5: ISX46, ANSA Rome, Italy w/RYRY at 1700, 425/50N (Editor).

14642: 7L1, Czech embassy, Havana, Cuba w/5L tfc at 1535, 425/75N. ID in CW at 1602 (J.M., KY). Actual callsign here is CME326, the 7L1 is a tacticol ID-- Ed.

14645.7: An Egyptian embassy somewhrere w/tfc in AA, ARQ at 1705 (Ed.).

14754.5: Un-ID sta w/what looked like a telex in Dutch, ARQ at 1909 (Ed.).

14755: CLP1, MFA Havana, Cuba w/crypto tfc to CLP33, Embacuba in Addis Ababa, Ethiopia, 425/50N at 1850 (J.M., KY).

14764: A9M70, TANJUG, Belgrade, Yugoslavia w/nx in EE at 1536, 325/75R (Williams, CO).

15462: JANA Tripoli, Libya w/nx in FF at 1802, 425/50R (Kneitel, NY).

15705: YZJ6, TANJUG Yugoslavia w/nx in FF at 1540, 425/50R (J.M., KY).

15717: VOA Greenville calling VOA Rhodes w/RYRY at 1402, 85/75N (Williams, CO).

15875.1: 5LA25, VOA Monrovia, Liberia w/nx in EE at 0006, 425/75R (Ed.).

15945: GXQ, British Army, London, England at 1807 w/RY & foxes, 425/50N (Kneitel, NY).

15973: KNY20, Polish embassy, Washington, DC w/tfc at 1547, 500/100N (Williams, CO).

15978: FPP97F, AFP Paris, France w/nx in FF at 1418, 325/50N (Williams, CO).

16117: CLP1, MFA Havana, Cuba w/5L tfc to CLP18, Embacuba, Dar-es-Salaam, Tanzania at 1923, 425/50N (J.M., KY).

16136.7: Egyptian embassy, Washington, DC in AA at 1656, ARQ (Ed.).

16149.7: Un-ID w/foxes, 170/50N at 0023. Probable RAF facility in England or Cyprus (Ed.).

16194.4: NBA, USN Balboa, Panama w/crypto followed by ID at 1510, 850/75R (Ed.).

16234.4: Telexes from Geneva to Addis Ababa at 1540, 350/75R. Probably UN station 4UZ (Ed.).

16265: Un-ID idling in ARQ 1547 to 1630+; guess it to be SDK3 in Varberg, Sweden (Ed.).

16302: "DFZG," a Yugoslav diplo past w/RYRY & 3F tfc at 1431, 425/75N (Williams, CO).

16332: Probably MFA Havana w/"urgente" 5F tfc for Nigeria at 2020, 425/50R. S/off w/Fin del texto (Kneitel, NY).

16402.5: Y2V57, ADN Berlin, GDR w/nx in SS at 1538, 425/50N (Ed.).

16694: GXES, British tanker **Adviser** w/telexes in ARQ at 1249 (Kneitel, NY).

16704: UJPL, un-ID Soviet ship w/RYRY at 1455, 170/50N (Kneitel, NY).

17118: PBC3, Dutch Navrad, Goeree Island, Halland w/RYRY at 1722, 850/75R (Ed.).

17201: FFT81, St. Lys R., France w/tfc list in FEC at 2000 (J.M., KY).

17468.2: PWZ33, Rio de Janeiro Navrad, Brazil w/RY & SG then calling HDN, Quito Navrad (which was on 17517.4 kHz). Was 850/75R at 2205 (Ed.).

17517.4: HDN, Quito Navrad, Ecuador w/RY & SG to PWZ33 on 17468.2 kHz, 850/75N at 2213 (Ed.).

18010: CLP1, MFA Havana, Cuba w/Prensa-minrex nx in SS at 1540, 425/50N (J.M., KY).

18303: OLD, PTT Prague, Czechoslovakia w/RYRY to BAC27 (on 10596 kHz), 425/50R at 1253 (Ed.).

18173.3: DU58, who/whatever that might be, w/CQ, RY & foxes at 1618, 170/50N. The lookbook shows some sta lagged here in 1/86 w/same test tape. Any guesses on this one? Ed.

18242: ZRO4, Pretoria Metea, RSA w/plaintext wx in EE at 1441. Was 500/75N (Williams, CO).

18543.5: STK, Khartoum Air, Sudan at 1847 w/RYRY, 425/50R (Kneitel, NY).

18690: Un-ID w/RYRY at 1851, 425/45R. Just kept grinding out RYRY w/o any ID's (Kneitel, NY).

19438.1: LOR, Pto. Belgrano Navrad, Argentina w/notices to mariners, 170/75N at 2227 (Ed.).

19529: JMG5, Tokyo Meteo, Japan w/coded wx at 1944, 850/50R (Williams, CO).

20020: Y7A80, MFA Berlin, GDR w/nx in GG at 1947, 425/50R (Ed.).

20078.5: FTU8B, DIPLO Paris, France w/nx in FF at 1840, 425/50N (Ed.); same at 1910 (Kneitel, NY).

20095.2: CLP1, MFA Havana w/5F tfc to CLP4, Guinea-Bissau at 1820, 525/50N (Ed.).

20420: Same as above w/SS & crypto to CLP45, Luanda, Angola, 425/75N at 1916 (Ed.).

20431: IRS24, ANSA Rome, Italy w/nx in FF at 1450, 425/50N (Williams, CO).

20907: A N. Korean embassy, not sure where, w/telex in Korean at 1938, 425/50N (Ed.).

22915: FTW91, DIPLO Paris, France w/RYRY at 1925, 425/50N (Kneitel, NY).

24110: AYA29, INTERPOL Buenos Aires, Argentina calling FSB, ARQ at 1705 (Hetherington).

PC

SCANNER SCENE

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

It's a topic you won't read about anywhere else, but it's very real. While there are constant stories of pirates and bootleggers on the broadcast and shortwave bands, you'll very rarely hear of bootleggers on the VHF and UHF two-way radio bands. The variety of bootleggers range from amateur (not in the sense of "hams") broadcasters to intentional jammers.

Recent news items in the amateur radio press have called attention to people who have interfered with emergency and government communications on VHF channels. It's an occurrence that happens every single day across the United States.

Why?

First of all, there is an abundance of radio equipment in the public's hands that can be modified to transmit on various public safety, business, government and amateur radio channels in the VHF and UHF radio bands. In fact, the problem is severe enough that the Federal Communications Commission is proposing new guidelines on keyboard-programmable transceivers that can transmit on any frequency in a given band.

For as little as $300 to $600, you can buy a mobile or handheld VHF or UHF transceiver that can be programmed through the keyboard to transmit and receive on any radio channel within the radio's bandwidth. In some radios, all it takes to program the radio is to connect the two sides of a jumper wire inside the radio. On some it is necessary to install a switch to allow switching back and forth between programming and transmitting modes. In other versions, once the jumper wire is connected, nothing else is needs to be be done for normal operation.

Earlier versions of one radio were ready to program right out of the box. Newer versions have a diode inside the radio that must be unsoldered by the dealer prior to programming. Once programmed, the dealer is requested by the manufacturer to resolder the diode to prevent unauthorized programming. However, some dealers may be willing to leave the diode snipped to allow user programming. With or without the diode, all one needs to do to program an ICOM handheld radio is enter the special factory six-digit code to "unlock" the keyboard. This then allows the user to program the radio on any frequency within the radio's bandwidth, plus select other options such as subaudible CTCSS tone and transmit-receive frequency split.

A bootlegger doesn't have to buy commercial radio gear to come up on unauthorized channels, however. Some amateur radio equipment also can be easily modified to transmit out of band. Many 2 meter amateur mobile transceivers boast of being capable of receiving 148-174 MHz, just north of the 144-148 MHz 2 meter band. That means, usually, that the radios can be modified to transmit on those frequencies as well—with the snip or replacement of a diode somewhere inside the radio.

With all this radio equipment floating around that can transmit on unauthorized frequencies, does that mean everybody behaves themselves? No way! If a hacker can figure out a user's repeater input frequency and CTCSS tone (of which there are only a standard 38 tones), he or she can interfere with the legitimate user's communications.

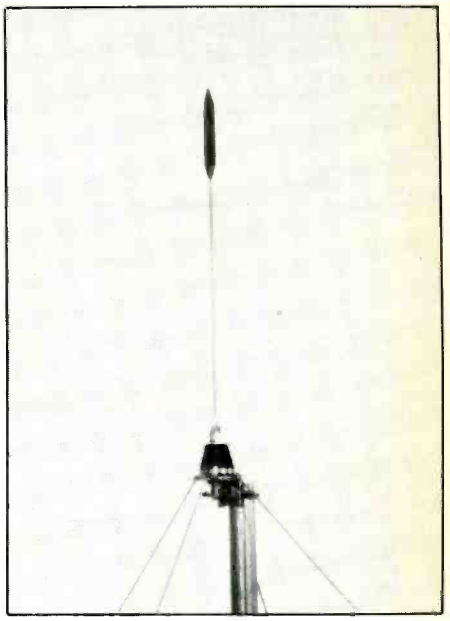
Recent reports have told about how one crank intentionally interfered with the FBI's VHF high-band radio system in California by driving to a high point and intentionally interfering with repeater communications between agents. After a few days, the FBI started working with the FCC radio boys in tracking down the source of the problem. (You'd think that someone who had enough knowledge to do this also would consider listening to the FCC's tracking units.)

Another case of similar intentional interference in the past year occurred with the Orland Park, IL police department when a ham radio operator was caught causing intentional interference to their communications, as well as making bogus calls and harassing the department. The source of the modified amateur radio transmitter was found and criminal action was taken against the 18-year old operator.

Also in recent memory is a case the Pittsburgh, PA fire department had to deal with. Someone who could key up that city's repeaters for the fire department started playing taped Hitler speeches at various intervals. No one was ever caught causing the interference, but it was enough of a problem to merit the attention of the national press.

It doesn't end there, however. Because of the abundance of programmable transceivers in existence today, problems are caused in just about every city. Some causes of interference aren't as much of a nuisance. In some cases, the owner of a programmable two-way radio will try transmitting various CTCSS tones over a system's repeater input in an attempt to find the system's repeater CTCSS tone. This information may be sought innocently enough to allow the user to monitor the company or agency in tone squelch, thus shutting out any other undesired user on the same frequency from coming through the radio's receiver.

But in other cases, the information may be used to cause a ruckus on the user's frequency. I know because I have been a victim of a bootlegger. Recently, someone found the CTCSS tone of a UHF repeater I use. It was late on a Sunday evening and all of a sudden someone came on and interfered with two of my company's units who were on the air. He carried on a conversation with one of my units—enough to get his voice on tape in case the problem arises again. It also gave several of my units the opportunity to listen in the repeater's input frequency and rotate their beam antennas to get an idea of the station's location.



The Antenna Specialists MON-38 ground plane base station scanner antenna is popular with many hobbyists because it affords good reception on the primary high and low VHF and UHF bands.

Interference isn't limited to public safety, government and business channels. In many areas, marine radios are used for illicit purposes. Persons cultivating large-scale plots of marijuana may use marine radio handhelds for surveillance purposes. The marine radios are relatively cheap and readily available. If you listen to certain marine channels closely enough, you're bound to hear some illicit traffic. Other frequencies to watch out for illicit communications include CB, the 49 MHz low-power channels and itinerant business channels such as 151.625, 464.500 and 464.550 MHz. Some really odd split channels between other channels, such as 151.6425 MHz (which is somewhere between legal business band channels 151.625 and 151.655 MHz), also might be used for illicit purposes.

Another place illegal operations may turn up is on amateur radio frequencies. A factory near my home used 440 MHz ham handhelds (and still might as far as I know) for in-plant communications. The dealer

who sold them the radios told them they didn't need a license to operate the radios and even set them up on a 444 MHz channel. The dealer didn't tell the factory's owner, however, that he was being charged about twice the amateur net price of the handhelds. Another case of illegal use of amateur radio equipment surfaced when the FCC announced a little more than a year ago that they had found a commercial hot-air balloon crew using 220 MHz handheld transceivers for chase communications.

If you look beyond the routine users of the VHF and UHF spectrum, you're bound to find some illegal users as well. A network of scanner users in Florida uses a VHF low-band land transportation channel allocated to bus lines for communications between their homes. The list could go on and on. However, pay attention next time you turn on your scanner. Those microphone clicks you're hearing on your police department's frequency may not be from a lonely cop; it may be a bootlegger just warming up to cause a ruckus. If you hear of bootleg activity on the VHF or UHF land mobile bands, let us know here at *POP'COMM*. We know the bootleggers are out there—just listen.

We welcome your comments, letters, frequency lists, suggestions, photographs (preferably black and white or good contrast color photos) and tips. You can write to *Scanner Scene* directly at: Chuck Gysi, N2DUP, P.O. Box 544, New Hope, PA 18938-0544.

SCAN

Where Oh Where Do I Send . . .

There still is understandable confusion about what to send to SCAN and what to send to *Popular Communications*. Even we were confused at first, so don't feel alone! Here's a brief rundown you may want to save for reference.

Change of Address: If you're a SCAN member, your old mailing label and new address should be sent directly to: SCAN Address Change, P.O. Box 414, Western Springs, IL 60558. Sending it to *Popular Communications* will cause delays if you're a SCAN member. On the other hand, if you're *not* a SCAN member, address changes should go to *Popular Communications*.

Communications Shop Ads: These should go directly to: PC Communications Shop, 76 N. Broadway, Hicksville, NY 11801. Please, please type your ad or print very clearly.

Membership Renewal: Please send your SCAN membership renewal (which includes subscription to *Popular Communications*) only to SCAN, P.O. Box 414, Western Springs, IL 60558. *Popular Communications* subscribers who are not SCAN members should continue to send renewals to *Popular Communications*.

Photo Contest Entries: Send to SCAN Photo Contest, P.O. Box 414, Western Springs, IL 60558.

Public Service Award Nominations: Send to SCAN Public Service Award, P.O. Box 414, Western Springs, IL 60558.

Co-Op Service Orders: Send to SCAN Co-Op Service, P.O. Box 414, Western Springs, IL 60558.

SCAN Insurance Claims: Send directly to Hartford Insurance using the address shown on the policy.

Comments and Suggestions: Always welcome at either *Popular Communications* or SCAN, or both!

LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

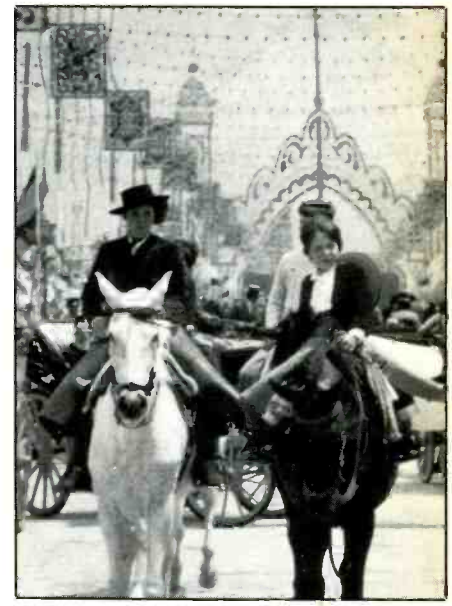
Last month we noted that the new Costa Rica station, Radio For Peace International, was due to go on the air at any time. And so it has. The station is a joint operation of the Oregon-based World Peace University and the United Nations-affiliated University For Peace in Costa Rica. The station is programming non-commercial material—entertainment and educational programs on such subjects as food self-sufficiency, ecology, social justice and such. Although 7380 was used initially, 15405 should also be on—the latter from about 2000 to 2300 and the former frequency 0000 to 0300. 7380 suffers considerable interference from utility stations. So far the programming is in English and Spanish but eventually will be in all the official languages of the UN. Speedy verifications are sent from P.O. Box 188, Sweet Home, Oregon.

About the same time that RFPI went on the air there was also fresh activity in Guatemala. There, in a tiny town called San Sebastian de Huehuetenango, a station calling itself Radio Buenas Nuevas started broadcasts around 13 September on 4800. This one appears to be a non-commercial, religious broadcaster, though the name of the group which owns the station isn't known yet. There's a lot of utility and co-channel broadcaster QRM on this frequency so copy is sometimes difficult. On the other hand, the station begins its evening transmission at 0030, making it easy to spot. Programs seem to be in one or more of the Central American Indian languages, as well as Spanish.

Standby for still another shortwave broadcaster to come on the air from the continental U.S. KUSW will operate a 100-kW transmitter beamed to Ontario and Southern Europe from a site near Kearns, Utah, a few miles south of Salt Lake City. Actually, the station will be the shortwave outlet of an already existing commercial broadcaster in Salt Lake City—KRSP AM and FM. The shortwave facility is planning to get on by the end of the year and already has this initial schedule: 0000-0200 on 11980, 0200-0500 on 9850, 0500-0700 on 6175, 0700-0900 on 6185, 0900-1200 on 5980, 1200-1600 on 9850, 1600-1900 on 15225, 1900-2200 on 17715 and 2200-0000 on 15580.

The TV Tower in Tokyo. (Courtesy: Luke Farnsworth)

Radio Japan is located in the NHK headquarters building. (Courtesy: L. Farnsworth)



This QSL from Radio Nacional de Espana is an early start on the 1992 observance of the 500th anniversary of the discovery of the Americas.

Two generations of Hammarlund receivers are the mainstays in the listening post of John R. Leary, W9WHM, from Indiana.

Carl Schmoyer in Breingsville, PA has rearranged his shack a bit since this photo was taken.

up a facility. Maybe the third guess is the charm. According to a report on Radio Netherlands Media Network, the LeSea Broadcasting Company has announced that they will put a religious broadcasting station on the air from Hawaii in the next year or two. The new station would beam to the Far East. Meantime, WHRI, the LeSea shortwave station in Indiana, now has a second 100-kW transmitter on the air.

Unless you count WWVH, the station of the National Bureau of Standards, Hawaii has been without a shortwave broadcaster since the Voice of America closed its relay there many years ago. DX'ers who been looking to notch Magnum Land have been left to be teased by the occasional rumors that the Billy Graham Organization is putting a station there, or that HCJB is opening

We've been trumpeting the coming of a new 500-kW facility which was expected to make Radio Yugoslavia a more hearable target. It has taken a couple of years but at least part of this facility is now on the air. That's the good news. The bad news is that it isn't being used at times or on frequencies that do us very much good. Early usage was at 1730 and 1900 on 5980 and 6100. Later, the station was reported in English at 1430 on 15240. The station seeks reception reports on these new high power transmissions, to P.O. Box 200, Belgrade. Radio Yugoslavia hasn't been the best of QSL'ers over the past years but perhaps shiny new transmitters will mean an improvement, at least for awhile.

High Adventure Ministries (KVOH in California and the Voice of Hope in Lebanon) is now appealing for money to help fund a shortwave station they want to build in the Philippines and use to get religious programming into China. The Philippines has replaced Singapore as the desired location which, in turn, appears to have replaced the idea of broadcasting from a ship.

IN THE MAIL: Philip Ryals of Fremont, California checks in and notes that it's been 18 months since the last check-in. Philip says it took that long to save up for an ICOM R71A which he now has. He didn't listen much during the wait as he couldn't handle the drifting of his old set. Congrats on reaching the goal, Philip, and we look forward to your reports.

Michele Shute of Pensacola, Florida sends another of her quality log reports. Michele is a 21-year-old college student majoring in international studies. She's spent some time FM DX'ing lately but seems back on the shortwave trail now. Latin American stations are her primary interest on shortwave. Thanks for the photo, Michele, and we'll be featuring it in a future column.

Brian N. of Tempe, Arizona starts by praising this and several *POP'COMM* columns and then says, "I trust you like popular contemporary music." Now that presents a moral dilemma. Do we lie and say we're absolutely crazy about it and thus keep a happy reader, or do we tell truth? At any rate, exploring the "progressive music scene" in other countries was the reason Brian got into shortwave and he'd like to correspond with any others out there who bought a shortwave radio for the same reason and/or listeners to Radio Australia's "Soundabout," the BBC's "Multitrack" and so on. His address is 945 East Magdalena Drive, Tempe, AZ 85283.

Thomas Maciazek of Bayville, New Jersey has been an SWL'er and DX'er for over 20 years but hasn't been active for much of that time. Now, though, he says he is back "with a vengence." Tom says he's amazed by the change in the equipment available today as compared to two decades ago. He's using an FRG-7 and two longwires. Tom is also in radio as a career: he's an engineer/announcer at WOBM, Toms River, NJ.

Carl Schmoyer III in Breingsville, Pennsylvania sends us a photo of his shack, featured this month. He's been into SWL'ing for about seven years and QSL collecting for about three of those.

Capital Radio in Transkei, South Africa does indeed take a long time to send its QSL. That's reaffirmed by Steven C. Behrendt in Lincoln, Nebraska who says his reply took eight months. His QSL came with a note saying the station had only a small staff, hence the delays in getting to answering mail. Don't bother sending IRC's, says Steve, as they don't work there. We can add that there are reports that Capital Radio was going to leave shortwave and may, indeed, have done so by now.

Luke Farnsworth of Manassas, Virginia sends a couple of great shots of both the Tokyo TV tower and the NHK Building in Tokyo. Luke says he can just picture Godzilla walking up the tower! Thanks, Luke. Much appreciated!

John R. Leary, W9WHM, in Fortville, Indiana sends along photos of his ham shack, his listening post, and his CB set-up. We're including the shot of his listening post this month. It features a "much modified" Hammarlund HQ-180 and a 1940 Hammarlund SP200 below that. The other gear pictured includes homebrew pre-selectors, SSB adaptors and such.

Thomas Zawadzki in Kenmore, New York says he's now using a Sony ICF-2010 with an AN-1 active antenna and is happy with its many features. Thanks for your letter and report Thomas. Please use only one side of the paper and include your last name and state abbreviation after each item.

Solar activity is on the rise, shortwave reception conditions are steadily improving and more and more people are tuning the shortwave bands. Based upon that you'd think this and other shortwave columns would find themselves overwhelmed with monitor's log reports but just the opposite seems to be happening to yours truly and even club section editors. That's not a welcome situation. If you are listening and logging stations, *please* let us have your reports on a regular basis.

In addition to your logs we always welcome your comments, questions, news clipping, shack photos, good quality copies of QSL's or spare originals you don't need returned and anything else related to activity on the shortwave broadcasting bands. Your participation is important.

Here's this month's listing:

SWBC Loggings
(All times UTC. Unless otherwise noted, all programs in English.)

Albania: R. Tirana at 1040 w/nx in SS on 6305 w/o ID (Northrup, CT); 7065 at 0330 w/nx (McDonough, PA); 9480 at 0435 w/talk, mx (Amoroso, CO). Note that this station not listed on 6305, perhaps was actually La V. del CID-- Ed.

Algeria: R. Alger, 9510 in FF at 2055-2135 w/African & AA music. Never got a QSL out of them despite letters in EE & FF + many IRC's. Any advice? (Behrendt, NE). Just keep trying-- Ed.

Antigua: DW relay, 6085 in GG at 0230 (Zirkelbach, CA).

Argentina: RAE, 9690 at 0600 w/ID's in EE, FF & Indonesian. Into EE pgm w/request for letters (Shute, FL); 0420 here (Gilbert, CA).

Australia: R. Australia at 1110 on 5995, 1115 on 7215, 1100 on 9540 & 9580 (Northrup, CT); 17795 w/mailbag at 2243 (Ryals, CA).

ABC Perth (Waneroo) w/comedy routine at 0635 (Zirkelbach, CA).

Belize: R. Belize, 3285 at 0600 to 0600 s/off (Loran, CT).

Botswana: R. Botswana, 4820 at 0355 w/barnyord IS (Zirkelbach, CA); Nx & US-style soul mx 0415-0434 (Amoroso, CO).

Brazil: R. Brazil Central, Goiania, 4985 w/PP ID at 0759, mx (Rath, MD).

Radiobras, 11745 at 0220 w/mx, feature re videotape in Brazil (Northrup, CT).

Bulgaria: R. Sofia, YL w/nx at 0302 on 7115 (McDonough, PA).

Burkina Faso: RTV Burkina at 0538 on 4815, rapid talks in un-ID language, beautiful mx (Shute, FL); Mx & talks in FF 0600-0615 (Roth, MD).

Cameroon: R. Garoua, 5010 in FF at 0510 (Guidry, LA).

R. Douala, 4795 in national languages at 0619, mx & talk (Gilbert, CA).

R. Bertoua, 4750 at 0505 in FF, heavy QRM from a ute sta (Guidry, LA).

Canada: CFRX Toronto, 6070 w/local CFRB relay 2300-0200 (Behrendt, NE); 2304 (Loran, CT).

CHNX Halifax, 6130 at 2308 (Loran, CT); 1045 w/DJ Smokey Robinson, QRM from HCJB (Northrup, CT).

Chile: R. Nacional, 15140 at 2245 in SS, live soccer excerpts & "Musica Nacional de Chile" (Ross, ONT). Has dropped "Sistema" & back to just "Radio Nacional" now-- Ed.

China: CPBS in CC at 1525 on 11290 (Zirkelbach, CA).

R. Beijing, 7120 at 1045 w/mx & OM in CC (Northrup, CT); 15455 at 0016 (Jacques, NE).

Colombia: Coracol Neiva, 4945 in SS at 0526 (Loran, CT).

La V. del Llano, 6115 at 1030 w/mx in SS (Northrup, CT).

R. Sutatenza, 5095 at 1045 language lesson ½ in SS & ½ in un-ID language (Northrup, CT).

Cook Islands: R. Cook Islands, 11760 at 0600 in EE & Maori (Zirkelbach, CA); local vernaculars & islands mx 0645-0715 (Behrendt, NE).

Costa Rica: R. Reloj, 4832 in SS at 0426 (Loran, CT); at 0658 (Gilbert, CA).

Cuba: R. Havana Cuba, 6090 at 0141-0240 (Jacques, NE); at 1048 (Lord); 0245 on 6140 (Zirkelbach, CA); 9550 at 1055 s/on in SS (Northrup).

R. Rebelde, 5025 in SS w/mx at 0245 (McDonough).

Czechoslovakia: R. Prague, 5930 at 2300 (Loran, CT).

Djibouti: R. Djibouti, 4780 at 0630 w/talk in FF, mx (Rath, MD).

Dominican Rep.: R. Clarin, 11700 w/mx & talk in SS at 0344 (Gilbert, CA); lively mx at 0259 (McDonough, PA).

East Germany: R. Berlin Int'l., 6040 in SS at 2302; in EE at 2305 (Loran, CT).

Ecuador: HCJB on 6130 w/rx mx & talk at 1040 (Northrup, CT); 6230 at 0625 (Gilbert)

La V. del Napo, 3280 in SS at 0145 (Rempala, FL).

R. Quito, 4920 in SS at 0452 (Loran, CT).

R. Luz y Vida, Loja, 4851 at 0520 in SS (Loran).

R. Jesus del Gran Poder, 5050 at 1040 w/rx svcs (Northrup, CT).

Egypt: R. Cairo w/"Listeners' Mail" at 0245 on 9475 (Gilbert, CA); 17720 in AA at 2350 (Zirkelbach, CA).

England: (Incl. other sites) BBC 5975 at 0145, 60056005 same time, 7325 at 0205, 9510 at 1215 & 9590 at 2300 (Northrup, CT); 9915 at 2356 (Gilbert, CA).

Finland: R. Finland, 11755 at 0450 w/"Starting

Abbreviations Used in Listening Post

AA	Arabic
BC	Broadcast/ing
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

Finnish" (Gilbert, CA); US toll-free # for latest freq info: 1-800-221-9539 (Behrendt, NE).

France: RFI, 7135 in FF at 0350 (McDonough, PA).

Fr. Guyana: RFI relay, 9800 in FF at 0155, into PP at 0200 (Ryals, CA).

RFO-Cayenne, 3385 in FF at 0015 w/pops (Behrendt, NE).

Gabon: Africa #1, 4830 in FF w/Afro pops at 0545 (Zirkelbach, CA); 15475 at 2027 (Loran, CT); 1914 (Gilbert, CA); EE/FF 2030-2130 (Rath, MD)

R. Japan (via Africa #1), 21470 at 1545 (Rempala, FL).

Ghana: Ghana BC, 3366 at 0620 (Guidry, LA); 4915 w/nx at 2245 (Amoroso, CO) Are your times UTC?-- Ed.; 0550 w/African mx, time checks (Zirkelbach, CA); 0530-0630 ID as "This is the Ghana Broadcasting Corporation" at 0600, nx (Behrendt, NE).

Greece: V. of Greece, 7430 in Greek. They prefer recorded reports tho I got my QSL w/o sending a tape (Behrendt, NE). Time logged?-- Ed.

Guam: KTWR at 1450 on 9840, 1500 on 9820 (Zirkelboch, CA); 15420 at 2300 w/rx mx, Indonesian, organ mx, ID & s/off (Rempala, FL).

Guatemala: La V. de Nahuala, 3350 at 0200, mx about Guatemala (Rempala, FL).

TGNC R. Cultural on 3300 at 0250 in SS, into EE at 0300 (Rath, MD); 0704 w/soft mx (Gilbert, CA).

Honduras: R. Luz y Vida, 3250 at 0300 in SS (Guidry, LA).

La V. de Mosquita, SS on 4910 w/annct in EE dedicating a song to EE-speaking audience, 0042; ID 0045 (Shute, FL).

India: AIR, 11620 at 2200 w/nx & mx-- but weak & fading (Zawadzki, NY).

Indonesia: V. of Indonesia, 11790 at 1510 w/mx (Gilbert, CA).

Iran: VOIRI on 9022 at 0530, presumed in Farsi, rx recitations (Shute, FL); 1930-2000 in presumed Farsi, then EE at 2000 w/anti-US commentary (Behrendt, NE).

Iraq: R. Baghdad, 11750 at 0014 w/nx (Gilbert, CA)

Israel: Kol Israel at 2300, 0000 & 0100 on 9435 w/nx & commentary (Zowadzki, NY); 0100-0130 w/nx features (Behrendt, NY); 11605 w/DJ playing mx at 0322 (McDonough, PA); 9435//9856// 11610 at 0020 (Zirkelbach, CA).

Italy: RAI on 9575 at 0100 w/nx (Gilbert, CA, & Amoroso, CO).

Ivory Coast: RTV Ivoirienne, 4940 at 0600 s/on, anthem (Gilbert, CA); 0630 in FF (Guidry, LA).

Japan: R. Japan (var. sites) 5960 (via Canada) at 0315 (Jacques, NE); 0200 in JJ, 0300 in EE (Zawadzki, NY); 6120 at 1050 in JJ (Northrup, CT); 11705 at 1829 (Lard, CA); 1900 w/"Takyo Pop-In" (Zirkelbach, CA); 11870 in JJ at 0315, ID & off 0330 (McDonough, PA); 11775 at 2100 w/"Japan Scene" (Zirkelbach, CA).

Liberia: ELWA, 0615 on 3230 (Guidry, LA).

VOA relay at 0602 on 3990 (Loran, CT); 15600 w/African svc at 1700-1830 (Behrendt, NE).

Malaysia (Sarawak): R. Malaysia, Kuching, 4950 at 1430 w/nx & sports (Zirkelbach, CA); 1455 w/Kuala Lumpur stock market rpt, ID & mx at 1511, nx 1515, DJ & rock to 1530 (Watson, CA).

Mali: RTVM on 4838 at 2334-0000 in FF w/OM annor, instrumental mx, ID, anthem & off (Ross, ONT).

Marshall Islands: WSZO on 4940 from 0530-1000 w/variety of pgms (Behrendt, NE).

Mauritania: RTM Nouakchott on 4845, tentative at 0635 in FF (Guidry, LA).

Mexico: R. Universidad de Sonora, Hermosillo, 6115 at 0712 in SS (Gilbert, CA).

Morocco: RTV Marocaine, 17595 at 1540-1600 w/mx & talk in FF (Amoroso, CO).

Netherlands: R. Netherlands at 1045 w/nx on 9650 (Northrup, CT).

Netherlands Antilles: R. Netherlands relay, 6165 at 1030 (Lord, CA).

TWR Bonaire, 9535 at 0316 (Jacques, NE).

Nicaragua: V. of Nicaragua, 6100 at 0600 w/nx, Latin American mx to 0702 s/off (Watson, CA); 0640 w/nx, 0520 in SS but QRM from time sta YVTO (Ryals, CA); 0647 (Gilbert, CA); EE 0350-0400 then SS to 0415 (Rath, MD).

Nigeria: V. of Nigeria, 7255 at 0500 (Zawadzki, NY); mx, nx, many ID's, into FF 0600 (Behrendt).

FRCN Kaduna, 4770 at 0530 (Guidry, LA) 0445 w/country mx (Loran, CT).

N. Korea: R. Pyongyang, 11655 at 1300 w/nx & comment (Zawadzki, NY).

N. Marianas: KYOI Saipan, 11900 at 1625 & 0515 on 17780 (Zirkelbach, CA).

Norway: R. Norway Int'l., 15310 w/"Norwoy Today" at 1400, then rx svc in NN at 1430 (Behrendt, NE).

Oman: BBE Eastern Relay to 1600 fade on 21700 (Rempala, FL).

Paraguay: R. Nacional, 9735 at 0200 w/political speeches in SS (Gilbert, CA).

Peru: R. Qollasuyo, 3250 at 0140 in SS (Rempala, FL). Would like to catch this one myself-- or even hear a tape of it!-- Ed.

R. Atlantida, 4790 at 0230 in SS (Guidry, LA).

Poland: R. Polonia, 2247 w/listeners' letters & Polish pops on 6135//7125//7270 (Loran, CT).

Portugal: AWR (via the Sines xmtr-- Ed.) on 9605 at 0659 w/IS & ID's in EE/SS/GG/FF (Shute, FL).

R. Portugal, 9705 at 0300 w/anthem & s/on (Gilbert, CA).

Rwanda: DW relay, Kigali, w/African svc on 7225 at 0430-0455 (Behrendt, NE).

Singapore: BBC Far East Relay, 17880 at 1630-1640. Sked fits WRTH listing for BBCFE relay (Rempala, FL).

Solomon Islands: SIBC, 0730-0805 in EE & Pidgin w/nx & annets. Freq annod at 0759. Usual bad QRM from WYFR mast of time (Behrendt); 0803 in Pidgin, off at 0805 (Gilbert)

S. Africa, Rep. of: Radio RSA, 4990 at 0429 (Loran, CT); from 0155 w/IS on 6010 (Northrup, CT); 9615 at 0200 (Zawadzki, NY).

SABC, 0532 on 3215 (Guidry, LA).

Radio 5, 4880 at 0445 (Loran, CT); 0420-0505 (Amoroso, CO); 0345 w/pops, ads (Zirkelbach, CA).

S. Korea: R. Korea, 0500 in FF on 7270 (Zawadzki, NY); 9570 at 1337 (Lord, CA); 15575 at 2330-0000 incl address & freq info, into different language at 0000 (Behrendt, NE); 0558-0603 (Jacques, NE).

Spain: R. Exterior Espana on 9630 at 0030 has YL giving national wx (Zirkelbach, CA).

Sweden: R. Sweden Int'l., 9695 at 0255 w/sports (Gilbert, CA).

Switzerland: Swiss R. Int'l., 2020 on 15570 (Loran, CT).

Syria: R. Damascus, AA-type mx at 0413 on 12085 (McDonough, PA); 2046 in EE (Loran, CT); 15020 at 2014, off at 2105 w/anthem-- annod only 12085 which wasn't heard (Watson, CA); nx & mx 2115-2259 on 9950 (Amoroso, CO); & 2005-2105 on 7455//12085, & 2105-2205 on 7455//9950 (Zawadzki, NY).

Tahiti: R. Tahiti, 11825 at 0550 in FF w/island mx (Zirkelbach, CA); 15170 at 0403 in language, into FF 0430, island mx 0438 (Watson, CA). Reported as un-ID but surely Tahiti-- Ed.

Tanzania: R. Tanzania, 9684 from 0545-0600 w/usual mix of country & African mx, YL annor, drum solo & time pips at 0600 (Shute, FL).

Togo: RTT Lome, 5047 at 0601 in FF (Gilbert, CA); 0639 (Guidry, LA).

Unidentified: 3200 kHz in SS w/top 40 pops, strong at 0530, no ID (Guidry, LA); 21685 in FF at 2018 (Watson, CA). Probably R. Netherlands-- Ed.

United Arab Emirates: UAE Radio, Dubai on 11730 at 1611-1641 w/listeners' letters, mx, nx, into AA 1641 (Jacques, NE); 11940 at 0300 (McDonough, PA).

United States: R. Marti (via VOA) in SS at 2330 on 9525 (Zirkelbach, CA).

KCBI at 1923 on 11735 (Jacques, NE).

VOA African Svc at 2038 on 17785//17800 (Loran, CT); 15410 at 2118 *Ryals, CA); 5995 at 0145; 6190 at 0150; 9650 at 0225 (Northrup, CT).

WCSN on 9815 at 0212 w/nx (Ryals, CA); 0245 (McDonough, PA).

WYFR on 15375 at 2028 (Loran, CT); 2050 (Ryals, CA); 11580 at 0720 (McDonough, PA).

WHRI on 5995 at 1110 (Northrup, PA).

AFRTS at 1050 on 6030 (Northrup, CT).

KGEI at 1040 in SS on 6150 (Northrup, CT).

USSR: R. Moscow (var sites incl Cuba) 7115 at 2300, 7290 at 0300, 7355 at 1100, 9600 at 1125 (Northrup, CT); 9640 at 1859 (Lord, CA); 11900 at 1530 (Gilbert, CA); 13605 at 2027(Ryals, CA).

Radiostansiya Atlantika, in RR (freq?-- Ed) s/on 1530 after some on/off audio tones that began at 1517, kocking out R. Australia on same freq (Watson, CA).

Vatican: Vatican R., 9605 0050-0110 (Behrendt, NE); 6185 at 0503-0616 (Jacques, NE); 6145 at 2000 (Northrup, CT).

Venezuela: R. Capital, Caracas, 4850 at 0500 s/off in SS (Laran, CT).

R. Rumbos, 4970 in SS at 0923 (Gilbert, CA); 0455 (Loran, CT).

R. Occidente, 3225 in SS at 0230 (Guidry, LA).

R. Valera, 4840 in SS at 9235 (Guidry, LA).

R. Mara, 3275 in SS at 0230 (Guidry, LA).

Ecos del Torbes, 4980 in SS at 0237 (Guidry, LA).

R. Nacional, 11860 w/external svc in SS 2125-2200 (Rath, MD).

Vietnam: V. of Vietnam (tentative), 15010 at 1229 w/oriental mx. Typical polar flutter on sigs so certainly Asia, likely Vietnam (Shute, FL) Probably so-- Ed.); at 1245 on 12035 also at 1300 in FF an 15010; 1330 in EE (Zawadzki)

W. Germany: DW, 15210 in GG at 2100 (Ryals, CA); 2038 in GG on 17810//17860 (Loran, CT).

That's the lot for this time 'round and we give a lot of thanks to the following: Michele Shute, Pensacola, FL; Thomas Zawadzki, Kenmore, NY; Stephen C. Behrendt, Lincoln, NE; Pat McDonough, Pittsburgh, PA; Larry Rempala, Pompano Beach, FL; Jeff Guidry, Raceland, LA; Mike Loran, Azusa, CA; Michael R. Watson, Sonoma, CA; Philip D. Ryals, Fremont, CA; Bob Zirkelbach, Pleasant Hill, CA; Mark A. Northrup, Danbury, CT; Robert S. Ross, London, ONT; Jerome Jacques, Omaha, NE; Lee Amoroso, Grand Junction, CO; Warren Gilbert, Sherman Oaks, CA; Earle N. Lord, Westchester, CA and K. Rath, Upper Marlboro, MD.

'Til next month, good listening!

PC

RADAR REFLECTIONS

BY JANICE LEE

RADAR DETECTORS AND THEIR USE

The 65 MPH Speed Limit?

Even though speed limits have increased on rural interstate highways to 65 mph in 37 states, the threat of receiving an unwarranted speeding ticket is as high or higher than when all highways were posted at 55 mph, says a national organization of radar detector owners and manufacturers.

The Radio Association Defending Airwave Rights, Inc. (RADAR) points out that with the advent of 65 mph speed limits police agencies are less tolerant of slight speed limit infractions. Where most drivers could assume they wouldn't be ticketed for traveling 5 or 7 mph above the limit in the past on interstate highways, many states have instructed policemen to ticket all motorists traveling above the limit.

Our major concerns about such a policy are, first, that drivers should be allowed at least a small margin to compensate for speedometer and driver error, and second, that police radar has proven itself time and time again to be an error-prone tool. With police relying more on radar, motorists need radar detectors more than ever.

RADAR feels that much of that stricter enforcement is being concentrated on transition areas where the speed limit drops from 65 to 55 mph near urban centers. Often, these areas are not well signed, and tourists and other travelers unfamiliar with the area are most likely to fall prey to overzealous enforcement.

Frankly, the only real protection a motorist can have is a radar detector. A detector provides a reminder that a driver should make sure he isn't traveling above the speed limit, and it's a defense against improperly issued speeding citations.

I caution drivers against making the assumption that the 55-mph limit is a thing of the past. With the exception of certain rural Interstate highways, the national speed limit is *still* 55! In Texas, for example, even though 2,400 miles are posted at 65, that's only three percent of the state's roads.

There is still a lot of trouble waiting out there for unsuspecting drivers.

Janice Lee is editor of RADAR Reporter, *a monthly newsletter about radar, radar detectors, and transportation issues.*

BY GORDON WEST

Radionavigation

As an emergency communicator, you need to know exactly where you are. Local municipalities give you street signs and block numbers. Local rivers and harbors are marked by numbered buoys. Map books are plentiful and most rural highways and intersections well marked.

But what happens when you are out on the ocean, a wide river, or a lake, without navigational buoys? What happens when you hike the mountains, or the desert, and there are no road signs? Up in an aircraft, mountainous terrain may be tough to interpret when trying to find yourself on a topographical chart.

Our Federal government provides an elaborate radionavigation system at absolutely no charge (except for taxes)! These systems operate 24 hours a day, and they provide remarkable position accuracy with modestly priced radio receivers. Let's take a look and see what's on the air, its area of use and what type of receiver is necessary to take advantage of this radionavigation information.

Radiobeacons

Marine, military, and aeronautical radiobeacons transmit continuously on assigned frequencies between 200 kHz to 500 kHz (LF). Their range is approximately 100 miles, and radiobeacons are useful for homing, tracking away, and position finding through triangulation. All major boating areas are covered with radiobeacons. Rural airports may also use radiobeacons, but aeronautical and military use of radiobeacons is rapidly decreasing with more sophisticated systems available. A simple marine radio direction finder may cost as little as $200, and through triangulation, you may position-find yourself out on open land or on the water with half-mile accuracy. Marine and aeronautical charts list those radiobeacon transmitting stations that are on the air.

Omega

Omega is a global navigation system serving maritime and aeronautical users. The Voyager aircraft team used Omega as their sole means of navigation because of its worldwide capabilities. There are eight transmitting stations throughout the world that provide the very low frequency (VLF) Omega 10 kHz signals. An expensive $5,000 Omega receiver is necessary for position finding. The Omega receiver computes the time delays of the incoming signals from the eight worldwide stations. Omega accuracy is usually better than one mile. However, the Department of Defense (DOD) will phase out military air use of Omega by 1992. It is expected that the system may ultimately be shut off by the year 2000.

Loran-C

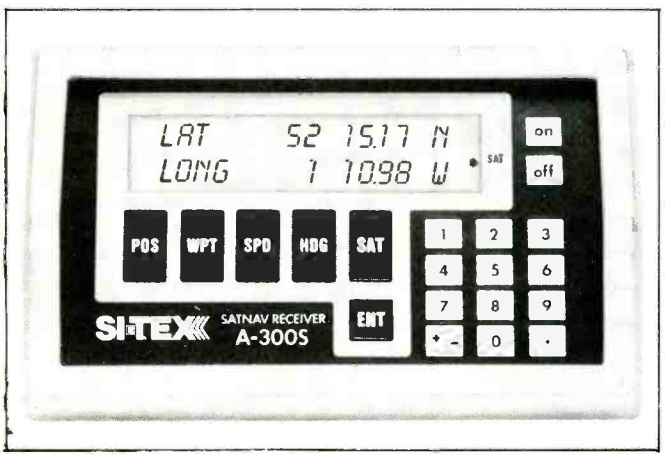
This has been one of the most popular and well-received position-finding systems ever developed by our Federal government (see *POP'COMM* issue, August 1986). There are eight United States loran chains that transmit synchronized signals near 100 kHz. This coverage provides 100 percent coastal cruising navigational information to mariners, and covers approximately 80 percent of the inland United States for aeronautical users and mobile stations. Position accuracy is one-quarter mile! Repeatability—being able to get back to exactly where you were before—is better than an astonishing 50 feet! Loran-C receivers are plentiful in the marine electronics industry, and a good receiver is available for under $500. The antenna, containing a preamplifier, is also smaller than a conventional CB whip—even though it's operating at 100 kHz.

Loran-C is used by many police departments and trucking companies to keep track of their vehicles. It's used extensively by mariners navigating along the coast line. Pilots also use loran for extremely accurate position fixes in the air. Loran receivers are even portable and could be used by hikers and searchers.

The Department of Defense will phase out military use of *overseas* Loran-C chains by 1992. The United States will discontinue Loran-C transmitting stations established for military use that do not serve the North American continent, as military Loran-C users become equipped with an even more sophisticated system. However, domestic Loran-C chains will stay on the air and be an integral part of the navigation system mix well into the next century. Loran-C is, by far, your number one choice for low-cost position finding.

Transit Satellites

Transit is a satellite-based navigation system operated by the Department of Defense. Polar-orbiting satellites provide position fixes within 25 meters of your exact spot every hour to hour and a half. Since the satellites are not geostationary, the Transit sys-



Transit Satnav receiver.

Magnavox MX 4400 GPS Positioning and Navigation System.

Radio direction finder.

Loran-C receiver and battery pack.

tem is best used by mariners that don't require an instant update of position. The Transit system is primarily used by mariners and surveyors, and is expected to stay on the air only for another 10 to 15 years. Marine Transit satellite receivers cost under $1,000. They operate near 136 MHz.

GPS

The Global Positioning System (GPS) was developed by the Department of Defense to become the ultimate radionavigation system with three-dimensional coverage by 1995. Many of the satellites are already in position providing at least 12 hours of two-dimensional coverage every day. Three-D gives you altitude.

It is expected that civilian users of GPS will receive position accuracy better than 25 yards. The military purposely degrades civilian user accuracy for security reasons. The military can position find within feet and inches with special uplink codes. The GPS system operates on frequencies in the 1300 MHz region. Dish antennas are NOT required to receive the signals—and GPS antennas are extremely small.

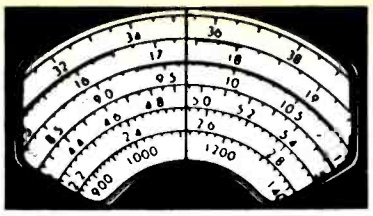
GPS will become the nation's primary navigational system when all of the satellites are in place. When the GPS system becomes fully tested by the year 2000, it will ultimately replace all the before-mentioned navigational systems.

GPS receivers are very expensive today. Mariners may pay up to $20,000 for a GPS system. However, 20 years from now, the GPS receiver may be as small and as inexpensive as today's Loran-C receiver.

There are other more exotic short-range navigational systems also available. This would include VOR/DME and Tacan for aeronautical use. There is Decca, Shoran, and other forms of microwave hyperbolic navigational systems that are on the air, but aimed primarily at specific user types.

As emergency communicators—as well as mariners and pilots—you should first explore Loran-C. The United States Coast Guard publishes information on Loran-C, too, showing coverage areas, Loran-C facts, and other pertinent Loran information. Write for this information: Commandant, U.S. Coast Guard Headquarters, 2100 Second Street, S.W., Washington, D.C. 20593; 202/267-0990. This same office also publishes a monthly "radionavigation bulletin" that is also free. If you want more information about the on-the-air navigational systems I have just mentioned, sign up for this monthly 20-page booklet.

If you provide communications beyond areas marked with street signs and road routes, then certainly consider a radionavigation receiver. Except for the Midwest, a Loran-C receiver will bring you surprising position accuracy and amazing repeatability.



COMMUNICATIONS CONFIDENTIAL

BY DON SCHIMMEL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Well it looks like another "numbers" station compromised itself. Simon Mason, England, writes to tell us that he picked up a GG/YL repeating at 1800 "HERE IS DFD21" on 11107 kHz, a frequency used by the "PAPA NOVEMBER" broadcasts. At the same time, the normal DFD21 frequency of 4010 kHz was carrying the GG/YL PAPA NOVEMBER announcement. It would seem that one of the transmission center personnel must have mixed up the tapes. DFD21 is a West German station located in Frankfurt. The callsign is assigned to "Deutsche Bundespost," the German Postal Service.

Tracy Sands, CA, advises that the Anaheim, CA Traffic Information Station, WNFG-219 is back on the air on 530 kHz after having been silent for some months due to problems.

Nolan Lee, LA, says, "I'm using an ICOM R71A and a Collins R390A. The antenna is a 200-foot longwire stretched in an E/W direction 20 feet above the mud (remember, I live in Louisiana)!"

Newcomer Michael Steele, WI, operates a Sony ICF-2010 and wants to know what is the most effective antenna for the least amount of money? I would have to cast my vote for a simple longwire antenna.

Another fine batch of loggings and QSL's were received from Patrick O'Connor, NH. Patrick indicated he had been doing some antenna work and has restrung his outside antenna. The total length of it is now around 400 feet, running in several directions.

A request for some QSL addresses was received from Randy Bradford, NE. Gander Aeradio, 89 Edinburgh Ave, Gander, NFLD A1V 1C9 and New York VOLMET-FAA, Kennedy International Airport, Jamaica, NY 11430.

David Sabo, who normally reports from Korea, went on leave and took along his Panasonic RF-B300 receiver and did some monitoring while at home in California.

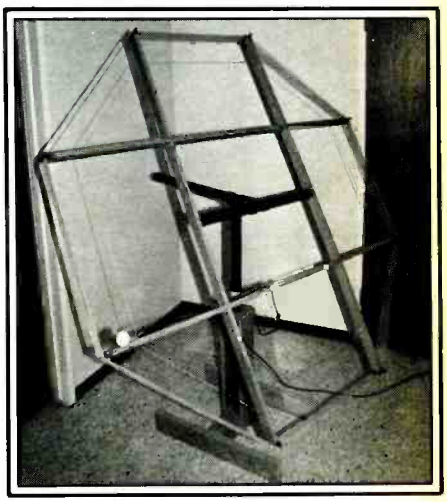
William Fernandez, MA, uses a Yaesu FRG 8800 and a 11 MHz dipole fed with TV twinlead. He has oriented the antenna at a 90-degree angle from the power lines thus reducing local line noise by about 80%.

Some strange sweeping signals were reported by Michael Watson, CA. I have also encountered these signals from 4 MHz up to 13 MHz with the bulk of such activity noted during 1200-1600 UTC. I believe I first observed these signals in July or August of 1986 and have since seen them frequently. At times I have observed two signals. Sometimes they were sweeping in the same direction, one behind the other, while at other times the signals have been noted sweeping in opposite directions. I have not been able to identify the activity but can't help but wonder if these signals are from Soviet trawlers off the East Coast.

Ed Fuhrmann, SC, tells of copying some traffic and, in looking at it, "The phase 'cut numbers' came to mind so I dug through the last few issues of *POP'COMM* and sure enough, I found discussion of the topic in the August '87 Mailbag." Ed said he copies a AUV4E6BDNT = 1-Ø system.

A most interesting account of a "close call" was sent in by Philip Ryals, CA. Here are some extracts from his letter:

> I'm rejoining the world of SWL'ing after years of inactivity. I got rebitten by the bug about 18 months ago and dug out my old Heathkit GR-54 tube receiver. After a bit of listening, I decided I needed a receiver upgrade and now have an ICOM R71A and a trapped dipole antenna and am having a lot of fun.
>
> I'm also a pilot, so I frequently check frequencies used for ATC between the mainland and Hawaii. While most traffic is routine position and wx reports, I happened upon a real saga one evening: A pilot ferrying a Beechcraft Baron (twin-engine) from Hawaii to Oakland, CA, asked the coast station (KMA) to contact the CG and request they intercept him. He was predicting four hours to landfall and had, at current fuel consumption rate, 3:55 of fuel left.
>
> I stayed with this adventure until (by leaning the engines' mixtures to the point of overheating and valve burning) the pilot landed at San Francisco International at 0830 UTC with approx two minutes worth of fuel remaining.
>
> Highlights: Pilot's brother was flight crew member on Hawaiian Airlines flight crossing Pacific to Seattle at same time. Brother in frequent contact, offering advice/moral support until HA flight landed. He came back on frequency from plane on ground at gate in Seattle.
>
> CG launched C-130 Hercules (CG-1704) from McClellan AFB to intercept distressed aircraft. Intercept occurred approx 200 miles offshore. Additional C-130 (CG-1790) joined effort about 60 miles offshore.
>
> CG launched H-3 S & R Helicopter (CG-1471) from San Francisco to pick up pilot in case plane ditched at sea. Helo and distressed aircraft met approx 40 miles offshore.
>
> CG requested assistance of aircraft carrier *USS Carl Vinson* (callsign GOLDEN EAGLE), which about 200 miles off coast of San Francisco. GOLDEN EAGLE provided radar tracking assistance to CG during intercept, plus had two S & R helicopters standing by, if needed.
>
> It was very interesting following the pilot's emotional state by the tone of his voice, which ranged from initial active concern to pretty low when it looked like he was going to have to ditch in the ocean, followed by determination when it started to look like he could make it. All this time, I was thinking how I, as a pilot, would react under the same circumstances. There were some notable comments, such as when GOLDEN EAGLE requested the pilot's intentions. He replied, 'My intentions are to go to the bar in Oakland, but the reality is that I think I'm going swimming!'
>
> The entire adventure was played out over several HF and VHF frequencies.
>
> This was an excellent example of how well-coordinated communications should work. The coast operators at KMA did an especially good job. I heard all participants for most of the session, losing the distressed aircraft on 8843 kHz for a while, and not initially hearing him on VHF. CG-1704 seemed to have an especially bad HF receiver (or antenna). Everyone was hearing everyone else, but the C-130 couldn't hear the coast station. KMA had to relay msgs between ATC and CG-1704 via the distressed aircraft!
>
> All in all, it was an exciting six hours. Who says the utility frequencies are boring?



Steve McDonald's homemade loop antenna.

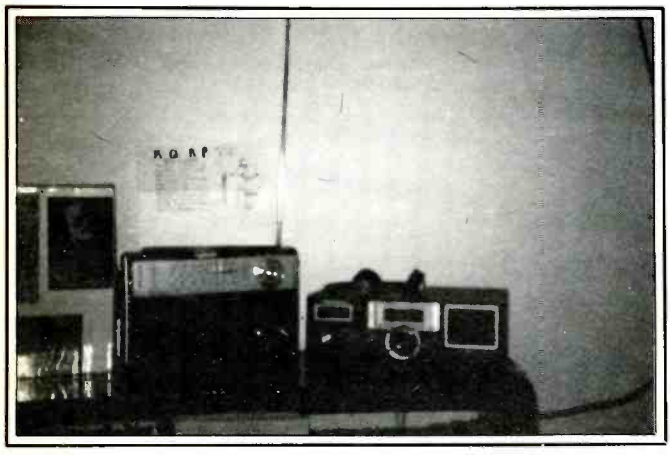
With his recent purchase of a Kenwood R-5000 receiver and the installation of a 90-foot longwire antenna, Bob Pearce, TX, says he has gotten serious about LF monitoring. He sent in a list of 67 identified beacon stations plus some he could not identify.

From Steve McDonald, Canada, we re-

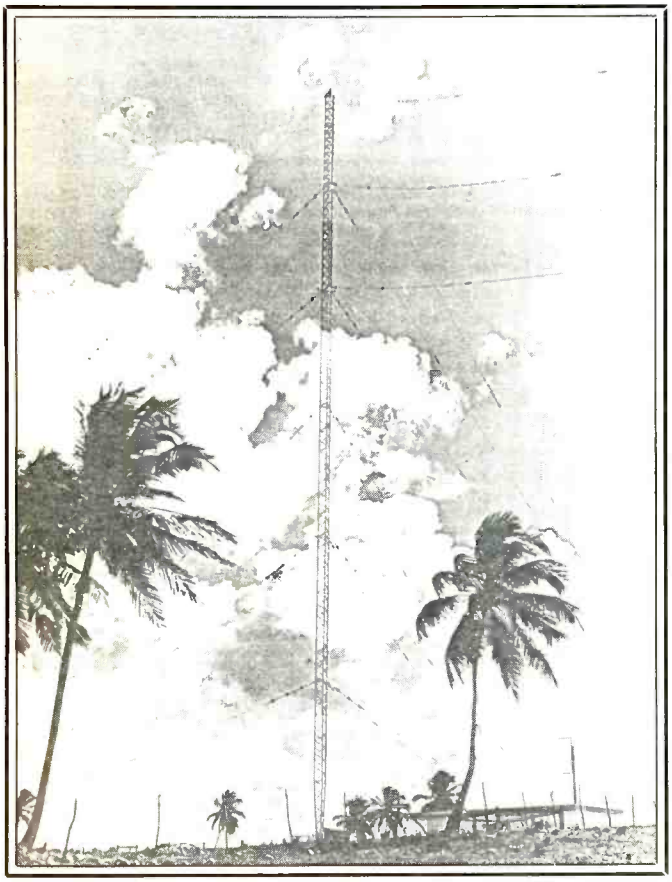
ceived some PRC's for NDB stations, some loggings, and a photo of his homemade loop antenna. Here is what he had to say. "My home QTH is a typical noise-polluted suburban location. What made the difference between no reception and noise-free reception was the construction of the 5-foot loop. (See photo.) It is tunable form 180 kHz-600 kHz and, thanks to the PVC mounting scheme I devised, is adjustable in azimuth and altitude thus allowing noise sources to be nulled out completely. I have been using the loop with an ICOM R-71A receiver. In the first 11 nights of using the loop, I logged 151 'new catches' most of them completely undetectable on my 50'-high long-wire. As you can see, the loop is located in the basement near the shack where it can be easily tuned and adjusted."

Intercepts
All times are UTC)

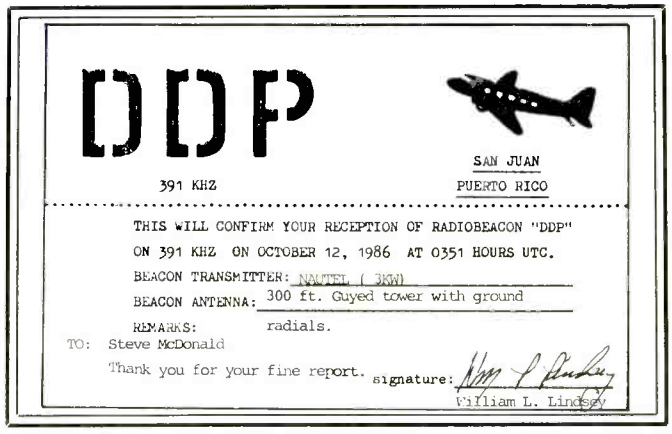
254: Beacon HLB, Batesville, IN at 1505 (J.M., KY)
263: Beacon GGP, Logansport, IN at 0628 (J.M.)
272: Beacon TYC, Campbellsville, KY at 0646 (JM)
290: Beacon EKQ, Monticello, KY at 0617 (J.M.).
304: Beacon BN, Nashville, TN at 0710 (J.M., KY).
350: Beacon DF, Deer Lk., NF, at 0314 (Pat O'Connor, NH).
359: Beacon AMT, W. Union, OH at 0529 (J.M.)
384: Beacon F8, Victoriaville, PQ at 0320 (O'Connor, NH).
396: Beacon NEL, USN Lakehurst NAEC, NJ at 2315 (Roslowski, NJ).
468/472: JFAN, Japanese auto carrier **Fuji Maru** wkg NMF re collision with f/v **Daronoc** in dense fog. Hrd at 1712 (Dole, MA).
2514: WLC, Rogers City, MI in USB w/wx report at 0518 (Ross, ONT).
2670: NMF, USCG Boston wkg WQZ4428, f/v **Cordova** re collision w/Japanese vessel monitored on 468/472 kHz. **USCGC Point Jackson** dispatched to scene & carries out comms w/NMF, also USCG Woods Hole & vessels **Cordovo** & **Daronoc** (Dole, MA).
3130: UIL, 9WB, V9A, R3M, a mil net in USB at 2349. After a while said they were all switching to "Delta 6 Tac 8" freq (Tom Kneitel, NY).
4000: USMC MARS net in USB at 0309 (Sabo, CA).
4007: NNN0WRX, USN MARS net # 1H3B in USB at 2015. Included NNN0WAL, --WVI, --WRG, others (Kneitel, NY).
4020: AT4KI, AT4UT, AT4KU & about 20 more w/similar ID's in LSB at 0342. Possibly some kind of outbander net? (Lee, LA).
4041: NNN0XDJ, USN MARS net in USB at 2019 included NNN0WRR, --EAD (Kneitel, NY).
4125: KJA478, Seattle, WA to WTU8484, **M/V Island Princess** in USB at 1516 asking re ETA Dutch Harbor, AK. Appears to be a large trawler (Holl, WA).
4148: Many mil-type tactical ID's in USB at 0540 (Ryals, CA).



Here is a snapshot of the monitoring post of Paul Hollesen, Iowa.



Antenna of beacon station DDP located in San Juan, Puerto Rico.

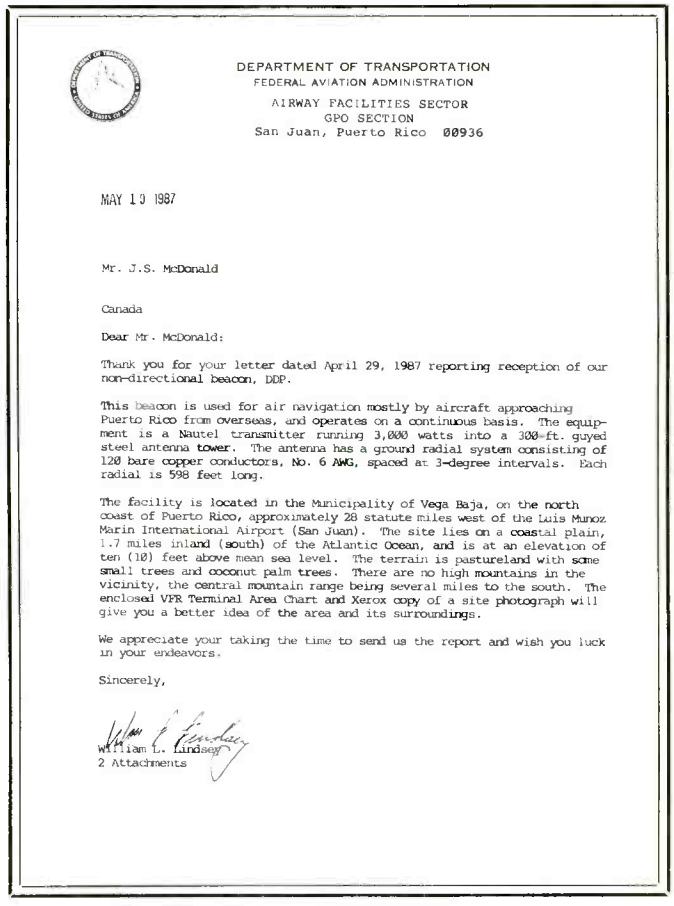


DDP

391 KHZ

SAN JUAN
PUERTO RICO

THIS WILL CONFIRM YOUR RECEPTION OF RADIOBEACON "DDP"
ON 391 KHZ ON OCTOBER 12, 1986 AT 0351 HOURS UTC.
BEACON TRANSMITTER: NAUTEL (3KW)
BEACON ANTENNA: 300 ft. Guyed tower with ground
REMARKS: radials.
TO: Steve McDonald
Thank you for your fine report. signature:
William L. Lindsey



DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRWAY FACILITIES SECTOR
GPO SECTION
San Juan, Puerto Rico 00936

MAY 13 1987

Mr. J.S. McDonald

Canada

Dear Mr. McDonald:

Thank you for your letter dated April 29, 1987 reporting reception of our non-directional beacon, DDP.

This beacon is used for air navigation mostly by aircraft approaching Puerto Rico from overseas, and operates on a continuous basis. The equipment is a Nautel transmitter running 3,000 watts into a 300-ft. guyed steel antenna tower. The antenna has a ground radial system consisting of 120 bare copper conductors, No. 6 AWG, spaced at 3-degree intervals. Each radial is 598 feet long.

The facility is located in the Municipality of Vega Baja, on the north coast of Puerto Rico, approximately 28 statute miles west of the Luis Munoz Marin International Airport (San Juan). The site lies on a coastal plain, 1.7 miles inland (south) of the Atlantic Ocean, and is at an elevation of ten (10) feet above mean sea level. The terrain is pastureland with some small trees and coconut palm trees. There are no high mountains in the vicinity, the central mountain range being several miles to the south. The enclosed VFR Terminal Area Chart and Xerox copy of a site photograph will give you a better idea of the area and its surroundings.

We appreciate your taking the time to send us the report and wish you luck in your endeavors.

Sincerely,

William L. Lindsey
2 Attachments

Here is the reception verification received by Steve McDonald for his monitoring of a beacon station. He also received an informative letter plus a photo from the station.

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)**

4175: Several fishing boats in USB at 0455 chatting re their luck (Fernandez, MA).

4416: K8R to S9R in USB at 0652 re radio problems. S9R asked him to "QS: that circuit when troubleshooting is complete." Freq is used by USN Pacific Fleet (Sabo, CA).

4419: KNG, Seattle, WA wkg WYP8537, **MV Guardsman** in USB at 0533 w/wx rpt. Also WHF710 Ketchikan, AK to **Marie K** enroute Petersburg, AK (Hall, WA).

4428.7: USCG Comsto Kodiak, AK to **USCGC Woodrush** w/msg from Commander CG District 17, USB at 0713 (Sabo, CA).

4462: Canadian Mil 8165/CCGS Cygnus in USB at 0357 w/comms re vessel in distress. Aircraft flew over Cygnus for Omega calibration (Dole, MA).

4470.5: USN/USMC MARS net in USB at 0030 w/NNN0WFR sending tfc to --FNQ. Net control --HIL wkg --YDU, --AKR, --WGP, --ALD then closed 4B1B Net at 0100. Then the A1B net opened with --CKA as NCS (Watts, KY).

4640//5045: YL/EE in AM-mode at 0001 w/065 1-0 count till 0010 (Bush, OH).

4642: Red Horse 9 Romeo, Red Horse Echo Charlie Charlie, Lang Knofe Romeo, Campfire Romeo, & Red Horse Mike in USB net at 1650 (Bob Margolis, IL).

4663: Khabarovsk R., YL/EE w/av wx in USB at 1008-1010 s/off (Sabo, S. Korea).

4760: "1031" testing in USB at 1409 (Blair, CA).

4861: OM ID'ing as "01" in USB at 0959 w/lengthy alphanumeric msg as 6X & 7X grps consisting of random single-character "figures" (Sabo, S. Korea).

5215: CFY82, Whitehorse, YT wkg several other stations, USB at 0450 (Hall, WA).

5244.5: AFRTS Los Angeles, USB at 2355, presumed feeder w/London Taxicab races, then anthem at 2358, AP nx at 0000 (Kneitel, NY).

5272: V4E & J1D, mil stas in USB at 0028 (Kneitel, NY).

5285: YL/GG rpts Kilo Whiskey from 2130-2133. Hrd much shuffling of feet & tape recorder switching. The YL/GG w/Sierra Tango till 2135 & into 5F grps (Mason, England).

5320: **USCG Salvia** in USB at 0125 wkg CG New Orleans w/request to shift to RTTY (Dole, MA).

5547: KMA7, San Francisco wkg United 187 at 0011, also others in USB (Szalony, CA).

5574: Hawaiian 14 in USB at 0209 w/pos rpt to Honolulu (Ryals, CA).

5628: KUA3, Honolulu Aeradio, HI wkg various airliners in USB around 0130 (Szalony, CA).

5695: Plymouth CG (England) in USB at 0059 wkg Rescue Helos 51 & 52, dropping rafts & coordinating rescue of lone sailor into Soviet trawler **Josef**. This was the unplanned end of Guy Lemomier's attempt to row a boat across the Atlantic (Dole, MA).

5696: CG Comsta San Juan, PR at 2349 wkg **USS Sellers** re downed plane, USB (Battles, NH); NMA, CG Miami in USB to CG2140 re SAR in vic of Dove Rocks (Dole, MA).

5747: Central Wireless Station, Pyongyang, N. Korea in LSB at 1101 w/test tape, OM/EE announcer (Sabo, S. Korea).

6100: YVTO, Caracas, Venezuela at 0520 w/time sigs under V. of Nicaragua SWBC sta on this freq (Ryals, VA).

6277.5: ELCJ9, Liberian ship **Havkatt** in CW at 0232 clg LFU (O'Connor, NH).

6506: USCG Comsta, Guam w/high seas wx bc, USB at 0930 (Sabo, S. Korea).

6508: NMY, CG New York w/wx info in USB at 0409 (Scalzo, PQ).

6509: WTEW, NOAA ship **Whiting** w/tfc for KVH, Atlantic Marine Center, USB at 2010 (J.M., KY).

6655: KUA3, Honolulu Aeradio to various airliners, USB 1221-1301 (Szalony, CA).

6676: Bangkok Radio, Thailand, OM/EE w/av wx bc 1543-1545, but beneath Tokyo VOLMET on 6679. Singapore R., YL/EE w/av wx at 1753-1757. All USB (Sabo, S. Korea).

6679: Aukland VOLMET, New Zealand, USB 0624; Honolulu VOLMET in USB at 0626, Tokyo VOLMET at 0814, all USB (Sabo, CA).

6685: YL/EE repeating "10491" in BBC-caliber EE accent at 1900. At 1905 "Ready, Ready 32, 32" then into 5F grps (Mason, England).

6723: Alameda Raspberry (Alameda NAS, CA) to Golden Eagle (**USS Carl Vinson**) w/request for aid to aircraft w/low fuel over Pacific, USB at 0223 (Ryals, CA).

6738: A/c MI342 on Medevac mission from Japan w/patch thru Yokoto re landing instructions, USB at 1510 (Sabo, S. Korea); Andros Flight Watch in USB at 0555 to Architect (Fernandez, MA).

6755: VXA, Cold Lake VOLMET, Alberta w/wx in USB at 0724 (Scalzo, PQ).

6761: A/c Drake 20 in USB at 1805 w/patch to Bunker Hill (via Bayfish). About to declare emergency as gunner's escape hatch became partly deployed (A. Nonymous, MO).

6767: AAD23, Ft. Gordon, GA calling AAD32, Ft. Rucker, AL in USB at 1349. Also hrd AAD60, Ft. McClellan, AL & AAD20, Ft. Benning, GA w/various radio checks & authentications. At 1505 they were in CW (J.M., KY).

6786.2: 5L grps w/cut #'s using ADGIMNRTUW in CW at 0213. At 0215 sent AR AR SK SK (Margolis, IL).

6803: WNIM867, St. Louis, MO; WNHI785, Little Rock, AR; WNFT417, New Jersey, all discussing propagation problems & making sked for a few days later on Channel 50. In USB at 1455 (J.M., KY).

6885: 5L grps in CW at 2335 (Fuhrmann, SC).

6888: FUE, French Naval R., Brest, France at 0309 in CW w/VVV marker (O'Connor, NH).

6918: Andrews AFB, MD to Air Force 2 re RTTY problems aboard a/c, LSB at 1841 (Dole, MA).

7335: CHU, Ottawa, ONT w/time pips & voice anncts in AM-mode at 0405 (Sabo, CA).

7410: YL/RR in AM-mode at 0411 w/5F grps (Bush, OH).

7500: VNG, Australian time sta w/pips 0452-0530, but very weak sigs (Lee, LA).

7529: OM/SS in AM-mode at 1003 w/5F grps (Bush, OH).

7588: YL/EE in AM-mode at 0004 w/922 & 1-0 count till 0010, distorted audio (Bush, OH).

7706: AOR, Rota, Spain w/plaintext wx bc in CW at 2310 (Kneitel, NY).

7724: KRH50, U.S. embassy, London, England in CW at 0110. Another station came up on freq for QSO 0115-0119 then nil hrd (D.P., NC).

7725: YL/SS in AM-mod at 1038 w/4F grps (Bush, OH).

7735: Musical notes F# & D repeating until 1915 then off (Mason, England).

7830: YL/GG in AM-mod at 0405 sending 3/2F grps (Bush, OH).

8062: Redtail Hawk telling un-ID sta the the 7ZWX circuit wasn't working properly. At 0455 in LSB (Scalzo, PQ).

8070: YL/SS w/"Atencion 960 01" in AM-mode at 0758. At 0800 "Atencion 915 60" (Scalzo, PQ).

8111: OM in Pidgin EE ID's as "This is Yap" & takes some local calls for Guam in both local Melanesian & EE via patch. Earlier hrd OM/EE construction types ordering lots of PVC piping (Hall, WA).

8195: NIUZ, **USS Sellers (DDG-11)** wkg Comsta Portsmouth in USB at 0315. Medevac of a crew member reparted (Dole, PA).

8204.3: Donna Martida in USB at 0538 w/patch via KMI (Ryals, CA).

8362: 3FIH2, cruise ship **Amerikanis** at 0356 in CW clg WCC (O'Connor, NH).

8440: C4CU, the ship **Kanaris** got a stern msg from VCS, Canadian CG in Halifax, CW at 1846: "QTA NR 1 (cancel telegram # 1) because I cannot understand your code. OM I am trying to cooperate. You are sending very bad code. I cannot understand what you are saying. You are sending gibberish. When you learn to send code then I will take your msg. I cannot QSL. I cannot understand you." (Margolis, IL).

8582: XFC, Cozumel, Mexico clg CQ in CW at 0209 (J.M., KY).

8650: NMO, USCG Comsta, Honolulu, HI calling CQ in CW at 1227 (Kneitel, NY).

8877.7: OM/EE aboard ship **Gypsy Rose** in contact w/sailing vessel **Terra** in USB at 1604. Unusual since these are ships, but the freq is in the aero band! (Margolis, IL).

8903: 5UA, Niamey Aeradio, Niger at 0341 in USB to Air Portugal flight 257 (O'Connor).

8964: Fireside 3, Shaw AFB, SC w/parch for Best 12 in USB at 1544 (J.M., KY).

8969: MAC40629 a/c to Rogers AFB w/coded flight plan, 0415 in USB (Scalzo, PQ).

8989: Several MAC a/c in USB to McClellan AFB w/patches. One a/c also on 6738 & 11239 (Fernandez, MA).

9008: Loud ringing tones followed by scrambled speech tfc (Sabo, CA).

9220: Basket Weaver sending alphanumeric tfc to Conquest, USB at 1440 (Margolis, IL).

9237: OM/SS w/5F grps in AM-mode at 1105 (Bush, OH).

10048: Tokyo Aeradio to Northwest 19 refers to this as primary freq, 5628 as secondary. USB at 0656 (Sabo, CA).

10066: Rangoon, Bombay, Madras, and Calcutta Aeradios in USB 1542-1559 wkg aircraft (Sabo, S. Korea).

10360: YL/EE rpts "00000 458 458 458" in AM-mode at 0433 (Blair CA).

10523: Yokota Monitor (USAF, Japan) to Marcus Island Loran in USB at 2225 (Sabo, S. Korea).

10871.6: Beacon A in CW at 1914 (O'Connor, NH).

10872.4: Beacon N in CW at 1914. The A & N both had different xmsn speeds, precluding the possibility that one was the "negative keying" of the other (O'Connor, NH).

10993: 1DM, 4DM, N1P, & Y4 exchanging crypto tfc, kept mentioning Gin Rummy, Spades, & Poker. ISB at 0115 (J.M., KY).

11035: SAM31685 in USB at 2330 wkg un-ID sta. A/c commented on view of Grand Canyon, mentioned VIP's & motorcade (Fernandez, MA).

11255: U3U to E5I w/comms re E5I's request for circuit termination. A USN Pacific freq (Sabo, S. Korea).

11286: Bird Dog trying w/o success to contact Fruitboat & Slingshot, USB at 0120 (Fernandez).

11288: Cougar clg Almighty in USB at 0347 but no luck, then Ambush called Slingshot & Almighty but negative contact. SAC's Yankee Delta freq (Fernandez, MA).

11300: 7OC, Aden Aeradio, S. Yemen at 0332 in USB wkg Sana'a Aeradio, YAR (O'Connor).

11610: Patrick clg Goldfish, USB at 1903 (A. Nonymous, MO).

12330: HMS Diomende wkg Portishead R. w/patches, USB at 2043. Also MHRE, **Melton Challenger** at 1816, & GSAB, **M/V Welsh Service** at 1825, all USB (Dole, MA).

12401.3: 5NEX, **M/V River Tima** in USB at 1947 to Portishead (Dole, MA).

12432: WTQ5140, trawler **Bluewave** & others talking over SS tfc; Also KHT Collins R. wkg tanker fleet; then OM/EE ID's as Romeo Quebec & calls Mike X-Ray. KAO, Redwood City, CA wkd **R/V Farnella** enroute Aleutian Islands. All USB, 1714-1928 (Hall, WA).

12435.5: WRGO, freighter **San Juan** on USB at 1912 to KXS311, San Juan, PR (Margolis, IL).

12543: YTXT, ship **Novigrad** in CW at 0321 clg LFN (O'Connor, NH).

12725: OSN, Oostende Naval R., Belgium in CW w/VVV at 2155 (Kneitel, NY).

12803: UDK2, Murmansk, USSR clg 4LS in CW at 0140 (J.M., KY).

12824: GYU, Royal Navy, Gibraltar in CW at 0113 (D.P., NC).

12978: ICB, Genoa, Italy in CW at 0154 (D.P., NC).

13042: FUV, French Navrad, Djibouti at 0320 w/CW VVV marker (O'Connor, NH).

13247: SAM200 w/patch thru SAM Command at Andrews AFB, USB at 1920 (A. Nonymous, MO).

13282: Honh Kong R., OM/EE w/VOLMET BC at 1118; Tokyo YL/EE w/VOLMET BC at 1343, both in USB mode (Sabo, S. Korea).

13730: YL/SS w/5F grps at 2100, ended w/Final Final (Mason, England).

13826: NNN0CZU, USN MARS aboard **USS Monongahela (AO-178)** & NNN0CQM on **USS Fresno (LST 1182)** wkg NNN0NRI USMC at Port Hueneme, CA w/patches. Both ships also work NNN0NPG in Guam here (Hall, WA).

14360: KRZ66, a U.S. embassy somewhere w/CW marker at 2130 (Tromp, MI).

14477.7: Beacon K in CW at 0045 (Tromp, MI).

14642: 7L1, Czech embassy in Havana w/62 62 Test 62 de 7L1-- CW at 1602 (J.M., KY).

14686: Slingshot & Atlas with anti-smuggler type tfc, USB at 1620. Mentioned freq Yankee Delta (11076 kHz) but sigs too weak to copy there (Hall, WA).

14722: 01 calling 07 in USB at 2035 with OM/EE op. Bird-like whistling to attract attention of 07 very similar to drug smugglers who like to use these freqs. QRM from TNL on 14724 kHz (Kneitel, NY).

14990.5: Un-ID SS sta w/patch in USB at 1525 (Blair, CA).

15004: ROD, Irkutsk, USSR in CW at 2350 w/time pips & ID (Ross, ONT).

15015: Albrook AFB, Panama wkg Mangrove. A/c says Scott AFB no longer has HF comms & asks for Global Bank Autovon patch, USB at 1442 (Battles, NH).

16180: NAM, USN Norfolk, VA w/overdue yacht notice, CW at 1611 (Margolis, IL).

16484: RCYU2, Soviet ship **Rijeka Express** wkg WOO w/patch, USB at 2008 (Hall, WA).

16584: Cruise ship **Celebration** wkg cruise ship **Jubilee** in USB at 1856 (Dole, MA).

16727.2: ELAG2, ship **Sunrise Trader** in CW at 1844 clg NMN (O'Connor, NH).

16727.8: CLAM, ship **Palma Mocha** in CW clg CLA (O'Connor, NH).

16768: S6EB, Singapore flag **M/V Alion** wkg KFS in CW at 2111 (Hall, WA).

16779: JADR, Japanese reefer **Khalij Freezer** to JCS in CW at 2052 (Hall, WA).

17191: LSA2/3/4/5/6, Boco, Argentina w/SS nx in CW at 0048 (J.M., KY).

17480: CLP1, MFA Havana, Cuba w/VVV in CW at 1734 (J.M., KY).

18005: Kidskin Glove w/Skyking bc on Tango freq, USB at 0807 (SAbo, S. Korea).

19961: One side of a 'phone call from Motor Pool on Ascension Island to Motor Pool on Antigua, LSB at 1455 (J.M., KY).

20635: Arabesque mx marker, USB at 1547 (Margolis, IL).

20736.5: Tick every second w/telemetry sounds at 1930 (A. Nonymous, MO).

20876: KFK92, Nat'l. Science Foundation sta wkg un-ID sta in LSB at 2028. Xmsn re fiber optic xmtr (Margolis, IL).

21964: KEP5, Houston Center, TX attempting to contact Sierra Juliette, USB at 1430. Also on 17240 kHz.

22330.5: D3E, Luanda R., Angola calling CQ in CW at 1921 (Kneitel, NY).

PC

SCANNING TODAY

(from page 8)

possible constitutional implications. People are starting to take note of encroachments caused by ECPA upon our traditional American rights.

Matchmaking—Scanner Clubs And New Scanner Owners

Judging from the number of new member applications here at SCAN, it appears that we have a very healthy influx of new scanner enthusiasts coming on board. That's very good for all of us who use scanners, professionally or as a hobby. It is also clear from the correspondence we get that many of these new scanner owners could use a helping hand. Many of the things that you and I may find second nature—like adjusting the squelch control—are mysteries to the new user. Then, too, they probably don't realize what a wide world of scanning possibilities there are. It is so much more than listening to only local police and fire. But putting these people and local scanner clubs together has always been a challenge. I was about to write a column suggesting that local clubs send us an address and phone number where they could be contacted if they are anxious to help novice scanner owners. (I think all clubs should!) Then I received a letter from Ed Noll (who also writes the *Better Signals* column here in *POP'COMM*). He has begun compiling a list of local scanner clubs . . . a great idea! If you are with a local club take a moment—right now while you are thinking about it—and jot down your meeting times and location and/or how someone can contact you to find out about the next meeting. Then send that postcard or letter to Ed Noll, P.O. Box 75, Chalfont, PA 18914.

SCAN

Where Oh Where Do I Send . . .

There still is understandable confusion about what to send to SCAN and what to send to *Popular Communications*. Even we were confused at first, so don't feel alone! Here's a brief rundown you may want to save for reference.

Change of Address: If you're a SCAN member, your old mailing label and new address should be sent directly to: SCAN Address Change, P.O. Box 414, Western Springs, IL 60558. Sending it to *Popular Communications* will cause delays if you're a SCAN member. On the other hand, if you're *not* a SCAN member, address changes should go to *Popular Communications*.

Communications Shop Ads: These should go directly to: PC Communications Shop, 76 N. Broadway, Hicksville, NY 11801. Please, please type your ad or print very clearly.

Membership Renewal: Please send your SCAN membership renewal (which includes subscription to *Popular Communications*) only to SCAN, P.O. Box 414, Western Springs, IL 60558. *Popular Communications* subscribers who are not SCAN members should continue to send renewals to *Popular Communications*.

Photo Contest Entries: Send to SCAN Photo Contest, P.O. Box 414, Western Springs, IL 60558.

Public Service Award Nominations: Send to SCAN Public Service Award, P.O. Box 414, Western Springs, IL 60558.

Co-Op Service Orders: Send to SCAN Co-Op Service, P.O. Box 414, Western Springs, IL 60558.

SCAN Insurance Claims: Send directly to Hartford Insurance using the address shown on the policy.

Comments and Suggestions: Always welcome at either *Popular Communications* or SCAN, or both!

COMMUNICATIONS SHOP

Advertising Rates: SCAN members and *POP'COMM* subscribers are entitled to one FREE 30-word, non-commercial classified ad per year. Enclose subscription name label with ad copy. For those people not in the previously mentioned groups, non-commercial ads are 30 cents per word, including abbreviations and addresses; minimum charge $6.00 per issue. Ads from firms offering commercial products or services are $1.00 per word; minimum charge $20.00 per issue. Boldface words are $1.20 each (specify which words). Leading key words set in all caps at no additional charge. All ads must be prepaid in full at time of insertion; a 5% discount is offered for prepaid 6 time insertions. All ads must be typewritten double spaced.
Approval: All ad copy is subject to Publisher's approval and may be modified to eliminate references to equipment and practices which are either illegal or otherwise not within the spirit or coverage scope of the magazine.
Closing Date: The 10th day in the third month preceding date of publication. Because the advertisers and equipment contained in Communications Shop have not been investigated, the Publisher of Popular Communications cannot vouch for the merchandise listed therein. Direct all correspondence and ad copy to: PC Communications Shop, 76 N. Broadway, Hicksville, NY 11801.

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Keep up with the latest Ham radio and all-band radio listening books as well as basic digital circuits and computer books. Let us know your needs and interests. Send SASE for current book list and a spot on our mailing list. ED NOLL, P.O. Box 75, Chalfont, PA 18914.

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INTRODUCING INTERNATIONAL RADIO—by Kenneth MacHarg. Non-technical beginner's guide to shortwave. From bookstores, or for $3.95 plus $1 shipping from: Radio, Box 1345, Jeffersonville, IN 47131.

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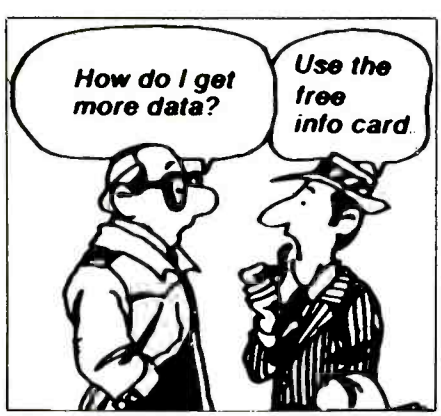

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