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FEATURES

This month's cover: *Sanctuary office talking to his HQ in Key Largo on the marine band. Photo by Larry Mulvehill*

DEPARTMENTS

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CIRCLE 13 ON READER SERVICE CARD

BEAMING IN

AN EDITORIAL

BY TOM KNEITEL, K2AES

The Law Of The Land?

The idea behind the so-called Electronic Communication Privacy Act (ECPA) was to convince car phone owners that there was a federal law in effect that prohibited anybody from tuning in on and listening to their mobile telephone calls. Of course, the whole thing was a sales gimmick dumped on a gullible public that certainly would prefer to believe that such a law would insure mobile telephone call privacy from eavesdropping, even though such monitoring was easy (and interesting) to accomplish, and could be done without detection or fear of persecution. That members of Congress chose to become involved in such a blatantly commercial hoax served only to confirm some of our worst fears about how malleable these people can become in the hands of high pressure special interest groups.

The ECPA was actually propelled through Congress by the hot air and doubletalk generated by its sponsors. Those who eventually voted it into law were, for the most part, basically well meaning, but ignorant of what was really involved. They were sold a bill of goods by the ECPA's congressional sponsors who had managed to cleverly bury the true intent of the ECPA beneath many layers of meaningless, but impressive, decoration. This included arousing the old fears of government snooping into the private communications of its citizens; usually guaranteed to assure lots of supportive votes.

Rep. Robert Kastenmeier (of Wisc.), one of the ECPA's main sponsors, said things like, "Today we have large-scale electronic mail operations, cellular and cordless telephones . . . and a dazzling array of digitized information networks . . . This array of technologies enhances the risk that our communications will be intercepted by either private parties or the government." Who could disagree with such noble sounding sentiments?

The ECPA was passed, the public was reassured, but the agencies who would have to enforce the law scarcely yawned. One more piece of junk legislation run through to satisfy some lobbyists. The FBI was quoted as saying that they wouldn't enforce the ECPA except under the most exceptional instances, such as blackmail. After that, the ECPA was generally forgotten except for its basic commercial purposes of "assuring" mobile phone users that their calls were being made in complete privacy because the ECPA said so.

Then one day something strange and unexpected happened. As if even the main point of the ECPA weren't meaningless enough, someone picked up on one of the more decorative aspects of the law and pressed for protection under the ECPA. The demand seemed to cause no concern at all from any number of quarters where the ECPA was neither not understood, or else not taken very seriously.

Yes, it happened in California, and in connection with an investigation concerning a cryogenic foundation. The foundation is a group that freezes corpses with the hope that they can be thawed out years into the future when they can be brought back to life and provided with cures for whatever caused their original demise. Controversial, but a notion that appears to be taken seriously by more and more people. The investigation by the Riverside County Coroner's office related to claims surrounding the possibility that one of the foundation's clients may still have been alive while being frozen.

When the Riverside County Coroner's people went to the foundation's facilities in January of 1988, they seized various records and computer equipment used as an electronic mail station by members of the foundation.

Recalling the professed ideals of the ECPA, H.K. Henson, one of the foundation's members, contacted the FBI by telephone in March and by letter in April. He requested the FBI to investigate the apparent violation of the ECPA, inasmuch as the privacy of his electronic mail had been violated. The FBI (according to Henson) was disinclined to investigate and referred the matter to the office of the U.S. Attorney in Los Angeles. That office, too, expressed disinterest and declined to prosecute, claiming that the ECPA hadn't been violated.

Henson demanded a specific explanation as to why this wasn't a clear cut and blatant violation of the ECPA and why prosecution was refused. He sent letters to the FBI, the U.S. Attorney, to state legislators, to various congressional people in Washington. Also, he made telephone calls, but it seems that there just weren't any substantive answers.

By the end of April, 1988, it appeared quite apparent that his efforts to get the ECPA enforced on his behalf were failing. He wrote a letter to the FBI expressing disappointment. A copy of that letter was sent to Rep. Kastenmeier, the ECPA's most eloquent spokesmen prior to its passage. Hensen hoped that Kastenmeier would be moved to action when made aware of what was happening. Kastenmeier never even bothered to reply.

After months of failure to get either answers or action, Henson and two other members of the foundation finally filed a suit in U.S. District Court for the Northern District of California (*Henson v. Federal Bureau of Investigation*, C-88-20788 RPA) against the FBI, the U.S. Attorney in Los Angeles, and others for their failure to prosecute the Riverside County Coroner's office for what the plaintiffs felt was improper seizure of their ECPA-protected electronic mail.

The suit, filed without an attorney last December, claims that the ECPA assures electronic mail the same privacy privileges as First Class Mail, which requires a search warrant prior to being seized. The plaintiffs don't dispute that the Coroner's office had a warrant to take the computer itself, but not the electronic mail that was stored within the computer.

Christopher Ashworth, a Los Angeles attorney who specializes in cases involving federal constitutional law, commented on these claims (as reported in the Bay Area newspaper, *The Reporter*) by noting that, "The underlying theory is sort of intriguing. Taking computer data that had been the recorded adjunct to wire communication is no different than tapping the telephone."

To those within the monitoring community who continue to write us so many letters asking about *this* or *that* enforcement potential aspect of the ECPA, I can hold up this strange case for consideration. Perhaps by attempting to pursue some of the protection it promised, Henson and the others had done something that wasn't expected—actually try to get the ECPA function on behalf of the public.

Still, the cellular industry itself has been successful in obtaining some degree of pressure from the ECPA. They have seemingly been the cause for federal agents to visit those who commercially restore cellular frequencies in scanners to stop performing and offering such services to the public.

Apparently the ECPA was created by and for this one particular industry and its own commercial purposes. Which is what we've been saying all along!

I Told Me So

Last August, I wrote to about a dozen of what I felt were the top monitoring clubs around. I told them I wanted to put together information on leading clubs and publish it in a feature in POP'COMM. I suggested that if they wished to be included, to furnish me as soon as possible with various bits of information that I needed. After a month or two wait, the only clubs that had bothered to send me any information were the ASWLC,

(Continued on page 72)

MAILBAG LETTERS TO THE EDITOR

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

PRO-34 Scanner Modification

In regard to the information presented (March issue) on the handheld Radio Shack PRO-34 scanner, my own observations on the modifications have been:

1. To restore missing 800 MHz frequencies, remove D-11.
2. To add 66 to 88 MHz (European coverage), install a diode at D-9.
3. D-10 must remain in place for full 800 MHz coverage.
4. If a diode is added at D-13 it cuts out aero band, also seems to affect 800 MHz channel spacing.
5. D-12 added doesn't seem to have any affect.
6. Only D-10 and D-11 are factory installed.

I wish to thank you for your fine and informative magazine. I have had much reading enjoyment.

Sam S. Jones,
Rebel Antenna,
Falls Church, VA

Fame Has Its Price

In regard to the letter by John Price (January Mailbag), station KIEV abides by the rules of the FCC and does not "regularly" continue to operate with high power day pattern at night as stated by Mr. Price. If Mr. Price (who is an ex-employee of KIEV) knows of us "regularly" violating our power pattern and allocation, why doesn't he contact us as this would certainly be more creative than throwing stones via the medium of your magazine.

Hal Williams,
Chief Engineer,
KIEV Radio,
Glendale, CA

I read an alarming and completely inaccurate comment about our station in your "Letters To The Editor" column for January. A reader claims we operate in an illegal mode "through all hours of the night." Nothing could be further from the truth! KPZE has just completed a move to a new transmitting site. During this move, under approval of the FCC, we have operated in a non-directional mode at reduced power. Perhaps your reader was able to hear us during one of these periods.

Jeff Salgo, VP Operations
Station KPZE,
Anaheim, CA

Missing Statue

On January 7, 1989, the bronze sculptured bust of Guglielmo Marconi was stolen from its pedestal at the Marconi site within the Cape Code National Seashore. In 1974, the sculpture was presented to the people of the United States by Italian industrialists to commemorate the 100th anniversary of Marconi's birth. Its artistic value is estimated at $25,000, but its commemorative significance is irreplaceable. The Marconi bust is a hollow bronze casting approximately 18-20 inches high, 12 inches wide, and weighs approximately 65 pounds. The base of the bust was damaged when it was pried from it's pedestal.

The National Park Service is offering a

$2,500 reward for information leading to the recovery of the Marconi bust and the apprehension of those responsible for its theft. The Service also welcomes donations to the reward fund.

If any of your readers have information they believe might be helpful in our efforts to recover the bust, they ar encouraged to call this office at (508) 349-3785, the Wellfleet (MA) Police Department at (508) 349-3702, or any FBI office.

Anthony J. Bonanno,
Chief Ranger,
Cape Cod National Seashore,
South Wellfeet, MA

A Brainy Night In Georgia

Your March issue *Beaming In* editorial was in favor of eliminating the CW for getting an entry-grade ham license. Hams have traditionally been asked to demonstrate at least some knowledge of CW, and I don't believe that having to learn 5 wpm should strain the intellect of a computer whiz who can cope with ROM's, MS/DOS', bytes and the like. There's something to be said for the old ways, let's not ditch them so casually.

B.D.C.,
Georgia

Just because your great-grandpa may have walked ten miles to and from school every day, it doesn't mean than school buses should be eliminated because they fly in the face of tradition. Or were you the one kid who insisted on walking to and from school just to maintain the old ways? Let's face it, there is a certain point when even good ideas do wear out. —Editor

Frozen Wine Cooler?

Hello from the Wine Country! In January, when you were on Ray Briem's ABC TalkRadio Network call-in program, I stood in a phone booth for 45 minutes trying to get through to you. It wouldn't have been so bad if it weren't for the fact that the temperature was 28 degrees, and when I finally got through to the program, Ma Bell's phone connection was so bad that talking was all but impossible. It took an hour afterwards for me to thaw out from trying to make that call. I was disappointed that KGO in San Francisco doesn't carry Ray's program and that the only way I could hear the show was DX'ing it via KABC in Los Angeles. Still, the program was worth hearing, even though I never did get to talk with you directly. One of the things I wanted to ask you was to repeat the full name and address of the broadcast band DX club at the P.O. Box in Connecticut. Wasn't able to copy it down the first time it was given.

John ("Sparky") Morehouse,
Cloverdale, CA

For some odd reason, the Ray Briem Program isn't carried in the Bay Area, and in few major areas of the Pacific Northwest. Even so, plenty of calls came in from those areas. We even got a call from Hawaii, where Ray's program is heard several hours later by tape delay and wasn't on the air there during the call. The club in question is the National Radio Club, P.O. Box 118, Poquonok, CT 06064. —Editor

A Place In The Sun(spots)

Keep up the good work with POP'COMM! My primary interest is listening to international shortwave broadcasts, and your quarterly listings of English Language Broadcasts is for worldband radio what *TV Guide* is for TV viewing. POP'COMM adds an invaluable dimension for individuals interested in monitoring all types of broadcasts and communications.

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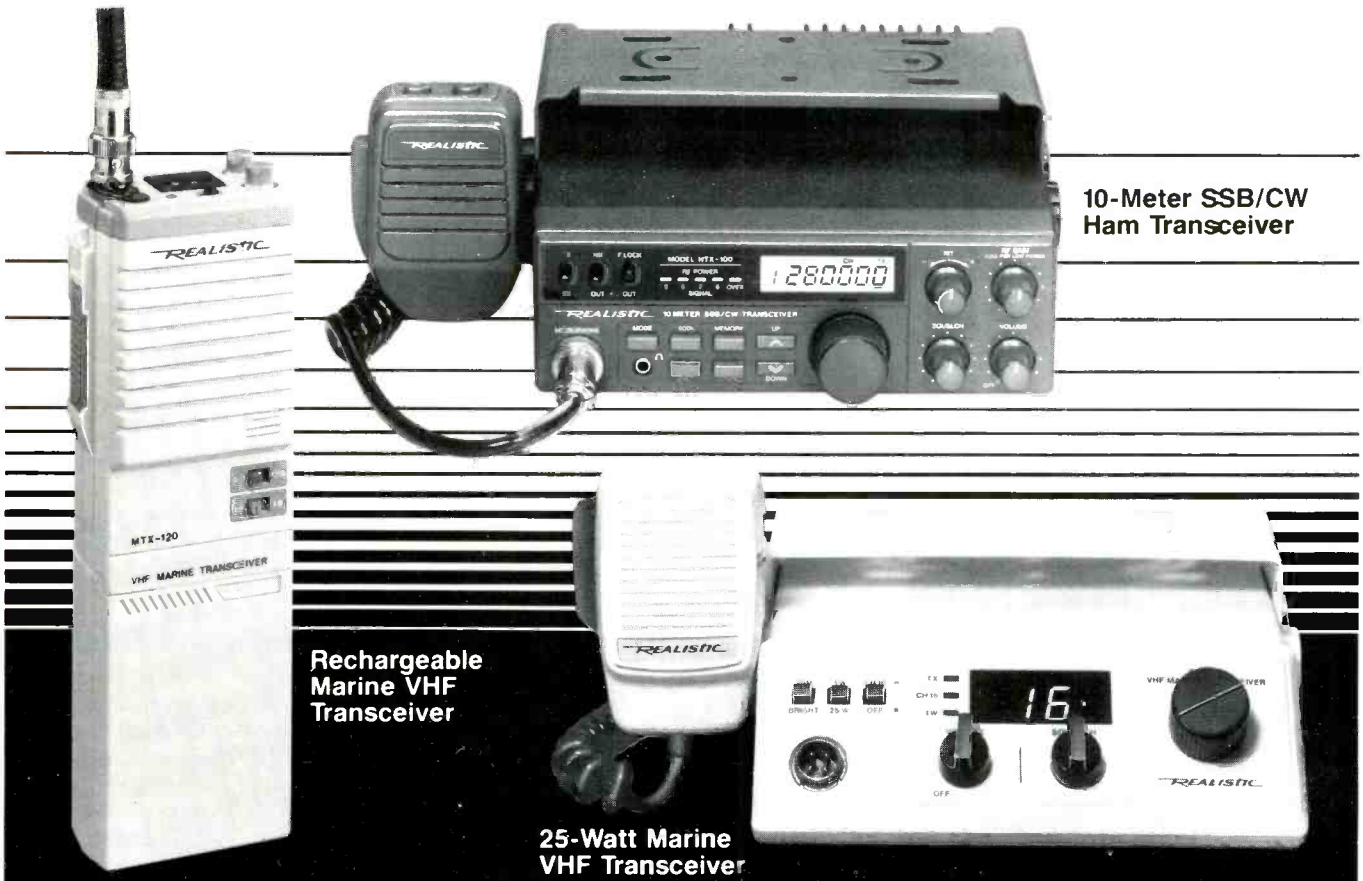

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HTX-100 is a compact 10-meter SSB/CW Amateur Radio transceiver with mike-mounted tuning controls, easy-to-program 10-frequency memory, CW sidetone, and selectable 5 or 25-watt power. #19-1101, only $259.95

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Designed for commercial or pleasure craft, MTX-100 features selectable 25-watt or 1-watt power output, full 54-channel coverage, NOAA weather reception, and instant access to channel 16. #19-1001, only $229.95

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CIRCLE 80 ON READER SERVICE CARD

Reports Surface That FBI Coerces Mail Order Scanner Dealer

Normally we don't print unconfirmed stories, but at press time this one comes from a very reliable source. It seems that a national mail-order scanner dealer, who publishes his own scanner "magazine" (designed primarily to promote his own business) came to the attention of some people in a cellular phone trade association. Specifically, he mailed a copy of his magazine/promotional flyer to an officer of this cellular association. What caught their attention was the promotion of scanners modified by the dealer to receive the cellular phone frequencies. The trade association reportedly took their case to the FBI who promptly called upon the mail order dealer and extracted a promise not to sell any more modified scanners!

Now, if true, there is a great deal of irony with these events which should cause us great concern. First, it is NOT illegal under the Electronic Communications Privacy Act (ECPA) to manufacture scanners that receive "protected" communications, such as cellular phones. Your Association, SCAN, spent countless hours, travel expense, and legal fees (supported by your generous donations) to make sure a ban on manufacturing was not included. We won the battle despite some very heavily financed professional opposition! Shortly after the law was passed, the losers in this battle attempted an "end run". They tried to convince the FCC that it should no longer approve manufacture of any receiver that could receive current cellular frequencies. The FCC said flatly "no"! They pointed out that these are not exclusive phone frequencies and could be assigned to other unprotected uses in some areas. Furthermore, all frequencies are subject to reassignment and future changes. In other words, it was another defeat for this cellular lobby.

Persistent lot they are, however. Now we have this FBI raid report. One can only speculate the rationale used. Perhaps it is based on openly advocating intentional interception of cellular phone calls. Intentional interception of a cellular phone call is, or course, illegal under ECPA. This attack would be aided by this particular dealer's insistence over the years of promoting scanners as somehow clandestine or quasi-legal. Perhaps he thinks that it helps him sell more scanners to some of his readers. In any case, this is all pure speculation until we get more details. There is certainly irony in the fact that one of the targets of the ECPA legislation was the unauthorized interception of phone calls by the FBI itself! The ECPA sponsor's original intent was to prevent the equivalent of unauthorized phone tapping using new technologies such as cellular. Our position on the subject remains consistent: Open (non-encrypted) radio communications sent in an omnidirectional broadcast pattern cannot be expected to be protected from interception. Originally, the FBI seemed to agree with this position. Is this a case of the FBI saying, "If we can't play, nobody else can either"? Maybe we'll never find out more than we know now, but we're going to attempt to get more facts about what really happened.

SCAN Projects Nearing Completion. . .

As mentioned in last month's column, a number of important SCAN projects are nearing completion. One of the most popular, and useful items, is the SCAN Legal Guide for traveling. It gives a summary on a state-by-state basis and is especially useful for summer travel. We periodically update this informative folder with the expert help of an attorney with extensive experience in the area. Not only are each state's new laws exhaustively researched, but personal contact is made with the State's Attorney offices whenever clarification or amplification is needed. Despite the compact size of the summary (which is ideal to keep in a glove compartment), it is a big research project! The new edition is well under way and will be announced to all SCAN members as soon as it's available.

The SCAN frequency date file update, including many new 800-900 MHz frequencies, is finally ready to go to the printer. As many of you know, this data is made available to several scanner manufacturers for us in their own directories. Partly in return for this service, SCAN receives valuable help in attracting new members through product stuffers, etc. The SCAN frequency data file, kept on a large main-frame high speed computer system, is the product of hundreds of thousands of hours work by volunteer SCAN member. Because, in most cases, the frequencies are actually listened to and verified by volunteer SCAN members, the frequency data file is totally unique. We know that it is used by various government agencies because the government's own computer data banks often don't reflect the "real world". The FCC recently admitted this, indicating that even in the public safety area, they have found police and fire agencies that had failed to renew their licenses but had continued to use those frequencies. There were many othe cases where certification was made about the use of new 800-900 Mhz assignments—perhaps in fear of protecting future usage—when the equipment to operate there had not even been ordered. So, you can see why the verified SCAN frequency data file is the most accurate available and why it is prohibitively expensive for anyone else to duplicate that effort as a purely commercial venture with a paid staff.

Also underway is a new easy-to-understand (hopefully!) guide to surviving the Electronic Communications Privacy Act. We're attempting to stay away from legal jargon as much as possible, making it an easily read digest for people like you and I. We would also like it to be as succinct and brief as possible . . . which is proving not to be an easy task given the complexities of ECPA!

There are also many other projects in the planning or investigative stage. You'll be hearing more about them as they get closer to reality. If you have any suggestions, please be sure to pass them along.

Amplitude Compandored Single Sideband (ACSB) . . . Lets Get Ready!

As we mentioned in last month's column, it is now time to do some planning on how to deal with the new ACSB systems. This is especially true in light of the United Parcel Service's persistent efforts to accelerate the availability of the newly assigned narrow-band technology band. Some members are under the misconception that the band is exclusively for UPS. As one member recently put it, "Who cares about listening into a bunch of delivery trucks, anyway?" The fact of the matter is that the new band will immediately be available to many types of users with the goal of quickly evaluating the practicality and benefits of narrow-band technology. The latest UPS suggested plan calls for dividing up the 220-222 MHz band into 20 blocks of 10 channel pairs each. Base stations would transmit at 220-21 MHz, while mobiles would use 221-222 MHz. Since there are almost no receivers or scanners aimed at monitoring the new band, and no scanners we know of that can receive ACSB, we think that it's time to get the ball rolling with a contest. For those SCAN members with some technical background and the inclination, this could be both fun and profitable! Here's how it will work . . .

The goal of the contest is to produce a design concept (or even a working prototype) that meets these criteria:

- Operates like a regular scanner (including squelch, search functions, etc.)
- Is as economical to build as current scanners
- Ideally, can also receive normal FM transmissions in addition to ACSB

(Continued on page 72)

uniden®

$12,000,000 Scanner Sale

Uniden Corporation of America has purchased the consumer products line of Regency Electronics Inc. for $12,000,000. To celebrate this purchase, we're having our largest scanner sale in history! Use the coupon in this ad for big savings. Hurry...offer ends September 30, 1989.

★★★ MONEY SAVING COUPON ★★★

COUPON COUPON

Get special savings on the scanners listed in this coupon. This coupon must be included with your prepaid order. Credit cards, personal checks and quantity discounts are excluded from this offer. Offer valid only on prepaid orders mailed directly to Communications Electronics Inc., P.O. Box 1045 – Dept. UNI6, Ann Arbor, Michigan 48106-1045 U.S.A. Coupon expires September 30, 1989. Coupon may not be used in conjunction with any other offer from CEI. Coupon may be photocopied. Add $11.00 for shipping in the continental U.S.A.

Regency TS2-T **$259.95**
Regency INF5-T.....**$79.95**
Regency R2060-T1 .....**$114.95**
Regency UC102-T **$109.95**
Regency RH606B-T.....**$419.95**
Regency RH256B-T.....**$294.95**
Bearcat 200XLT-T **$249.95**
Bearcat 100XLT-T **$184.95**
Bearcat 800XLT-T **$249.95**
Uniden HR2510-T **$229.95**
Uniden PRO500D-T1.....**$32.95**

★★★★ VALUABLE COUPON ★★★★

Bearcat® 760XLT-T

List price $499.95/**CE price $244.95/SPECIAL**
12-Band, 100 Channel • Crystalless • AC/DC
Frequency range: 29-54, 118-174, 406-512, 806-956 MHz. Excludes 823.9875-849.0125 and 868.9875-894.0125 MHz.
The *Bearcat* 760XLT has 100 programmable channels organized as five channel banks for easy use, and 12 bands of coverage including the 800 MHz. band. The *Bearcat* 760XLT mounts neatly under the dash and connects directly to fuse block or battery. The unit also has an AC adaptor, flip down stand and telescopic antenna for desk top use. 6-5/16" W x 1⅝" H x 7⅜" D. Model **BC 590XLT-T** is a similar version without the 800 MHz. band for only $194.95. Order your scanner from CEI today.

NEW! Regency® Products

R4030-T *Regency* 200 ch. handheld scanner $254.95
R4020-T *Regency* 100 ch. handheld scanner $189.95
R4010-T *Regency* 10 channel handheld scanner....$114.95
R1600-T *Regency* 100 channel mobile scanner $244.95
P200-T *Regency* 40 channel CB Mobile $38.95
P210-T *Regency* 40 channel CB Mobile $56.95
P220-T *Regency* 40 channel CB Mobile $79.95
P300-T *Regency* 40 channel SSB CB Mobile.....$137.95
P400-T *Regency* 40 channel SSB CB Base.....$174.95
PR100-T *Regency* visor mount radar detector $54.95
PR110-T *Regency* "Passport" size radar detector $114.95
PR120-T *Regency* "micro" size radar detector.....$144.95
MP5100XL-T *Regency* 40 Ch. marine transceiver....$139.95
MP5510XL-T *Regency* 60 Ch. marine transceiver....$159.95
MP6000XL-T *Regency* 60 Ch. marine transceiver....$209.95
MP2000XL-T *Regency* handheld marine trans.....$189.95

Regency® RH256B-T

List price $799.95/**CE price $299.95/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-T** is available for $429.95. A UHF 15 watt, 16 channel version of this radio called the **RU156B-T** is also available and covers 450-482 MHz. but the cost is $454.95.

★★★ 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 810E to the 310E handheld, there is no better Citizens Band radio on the market today.

PRO310E-T *Uniden* 40 Ch. Portable/Mobile CB....$83.95
PRO330E-T *Uniden* 40 Ch. Remote mount CB....$104.95
PRO500D-T *Uniden* 40 Channel CB Mobile $38.95
KARATE-T *Uniden* 40 channel rescue radio $53.95
GRANT-T *Uniden* 40 channel SSB CB mobile....$166.95
MADISON-T *Uniden* 40 channel SSB CB base....$244.95
PC122-T *Uniden* 40 channel SSB CB mobile.....$119.95
PRO510XL-T *Uniden* 40 channel CB Mobile.....$38.95
PRO520XL-T *Uniden* 40 channel CB Mobile.....$56.95
PRO530XL-T *Uniden* 40 channel CB Mobile.....$79.95
PRO540E-T *Uniden* 40 channel CB Mobile.....$97.95
PRO640E-T *Uniden* 40 channel SSB CB Mobile....$137.95
PRO710E-T *Uniden* 40 channel CB Base $119.95
PRO810E-T *Uniden* 40 channel SSB CB Base....$174.95

★★★ Uniden Radar Detectors ★★★

Buy the finest *Uniden* radar detectors from CEI today.
TALKER-T *Uniden* talking radar detector.....$184.95
RD7-T *Uniden* visor mount radar detector $99.95
RD9-T *Uniden* "Passport" size radar detector.....$114.95
RD9XL-T *Uniden* "micro" size radar detector.....$144.95
RD25-T *Uniden* visor mount radar detector.....$54.95
RD500-T Uniden visor mount radar detector.....$74.95

Bearcat® 200XLT-T

List price $509.95/**CE price $254.95/SPECIAL**
12-Band, 200 Channel • 800 MHz. Handheld Search • Limit • Hold • Priority • Lockout
Frequency range: 29-54, 118-174, 406-512, 806-956 MHz. Excludes 823.9875-849.0125 and 868.9875-894.0125 MHz.
The *Bearcat* 200XLT sets a new standard for handheld scanners in performance and dependability. This full featured unit has 200 programmable channels with 10 scanning banks and 12 band coverage. If you want a very similar model without the 800 MHz. band and 100 channels, order the **BC 100XLT-T** for only $189.95. Includes antenna, carrying case with belt loop, ni-cad battery pack, AC adapter and earphone. Order your scanner now.

Bearcat® 800XLT-T

List price $549.95/**CE price $259.95/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." If you do not need the 800 MHz. band, a similar model called the **BC 210XLT-T** is available for $178.95.

Bearcat® 145XL-T

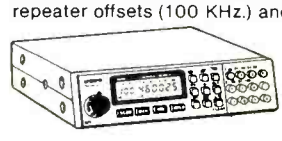
List price $189.95/**CE price $94.95/SPECIAL**
10-Band, 16 Channel • No-crystal scanner Priority control • Weather search • AC/DC
Bands: 29-54, 136-174, 406-512 MHz.
The *Bearcat* 145XL is a 16 channel, programmable scanner covering ten frequency bands. The unit features a built-in delay function that adds a three second delay on all channels to prevent missed transmissions. A mobile version called the **BC560XLT-T** featuring priority, weather search, channel lockout and more is available for $94.95. CEI's package price includes mobile mounting bracket and mobile power cord.

President® HR2510-T

List price $499.95/**CE price $239.95/SPECIAL**
10 Meter Mobile Transceiver • Digital VFO Full Band Coverage • All-Mode Operation Backlit liquid crystal display • Auto Squelch RIT • Preprogrammed 10 KHz. Channels
Frequency Coverage: 28.0000 MHz. to 29.6999 MHz.
The *President* HR2510 Mobile 10 Meter Transceiver made by Uniden, has everything you need for amateur radio communications. Up to 25 Watt PEP USB/LSB and 25 Watt CW mode. Noise Blanker. PA mode. Digital VFO. Built-in S/RF/MOD/SWR meter. Channel switch on the microphone, and much more! The HR2510 lets you operate AM, FM, USB, LSB or CW. The digitally synthesized frequency control gives you maximum stability and you may choose either pre-programmed 10 KHz. channel steps, or use the built-in VFO for steps down to 100 Hz. There's also RIT (Receiver Incremental Tuning) to give you perfectly tuned signals. With receive scanning, you can scan 50 channels in any one of four band segments to find out where the action is. Order your HR2510 from CEI today.

NEW! President® HR2600-T

List price $599.95/**CE price $299.95/SPECIAL**
10 Meter Mobile Transceiver • New Features
Delivery for this new product is scheduled for June, 1989.
The new *President* HR2600 Mobile 10 Meter Transceiver is similar to the *Uniden* HR2510 but now has repeater offsets (100 KHz.) and CTCSS encode.



BC760XLT
800 MHz. mobile scanner
SPECIAL!

★★★ Facsimile Machines & Phones ★★★

FAX3300-T *Pactel* Fax machine with phone $1,099.95
XE750-T *Uniden* Cordless Phone with speaker $99.95
XE550-T *Uniden* Cordless Phone.....$79.95
XE300-T *Uniden* Cordless Phone.....$69.95

★★★ Extended Service Contract ★★★

If you purchase a scanner, CB, radar detector or cordless phone from any store in the U.S. or Canada within the last 30 days, you can get up to three years of extended service contract from Warrantech. This service extension plan begins *after* the manufacturer's warranty expires. Warrantech will perform all necessary labor and will not charge for return shipping. Extended service contracts are not refundable and apply only to the original purchaser. A two year extended contract on a mobile or base scanner is $29.99 and three years is $39.99. For handheld scanners, 2 years is $59.99 and 3 years is $79.99. For radar detectors, two years is $29.99. For CB radios, 2 years is $39.99. For cordless phones, 3 years is $34.99. Order your extended service contract today.

OTHER RADIOS AND ACCESSORIES

BC55XLT-T *Bearcat* 10 channel scanner $114.95
BC70XLT-T *Bearcat* 20 channel scanner.....$159.95
BC175XLT-T *Bearcat* 16 channel scanner $156.95
R2060-T *Regency* 60 channel scanner $149.95
TS2-T *Regency* 75 channel scanner $269.95
UC102-T *Regency* VHF 2 ch. 1 Watt transceiver....$114.95
BPS5-T *Regency* 16 amp reg. power supply.....$179.95
BP205-T Ni-Cad batt. pack for BC200/BC100XLT....$49.95
B8-T 1.2 V AA Ni-Cad batteries (set of eight).....$17.95
FBE-T Frequency Directory for Eastern U.S.A.....$14.95
FBW-T Frequency Directory for Western U.S.A.....$14.95
RFD1-T Great Lakes Frequency Directory.....$14.95
RFD2-T New England Frequency Directory.....$14.95
RFD3-T Mid Atlantic Frequency Directory.....$14.95
RFD4-T Southeast Frequency Directory.....$14.95
RFD5-T N.W & Northern Plains Frequency Dir.....$14.95
ASD-T Airplane Scanner Directory.....$14.95
SRF-T Survival Radio Frequency Directory.....$14.95
TSG-T "Top Secret" Registry of U.S. Govt. Freq....$14.95
TTC-T Tune in on telephone calls.....$14.95
CBH-T Big CB Handbook/AM/FM/Freeband.....$14.95
TIC-T Techniques for Intercepting Communications....$14.95
RRF-T Railroad frequency directory.....$14.95
EEC-T Embassy & Espionage Communications....$14.95
CIE-T Covert Intelligence, Elect. Eavesdropping....$14.95
MFF-T Midwest Federal Frequency directory.....$14.95
A60-T Magnet mount mobile scanner antenna.....$35.95
A70-T Base station scanner antenna.....$35.95
A1300-T 25 MHz–1.3 GHz Discone antenna.....$109.95
USAMM-T Mag mount VHF ant. w/ 12' cable.....$39.95
USAK-T ¾" hole mount VHF ant. w/ 17' cable.....$35.95
Add $4.00 shipping for all *accessories* ordered at the same time. Add $11.00 shipping per radio and $4.00 per antenna.

BUY WITH CONFIDENCE

To ***get the fastest delivery from CEI*** of any scanner, send or phone your order directly to our Scanner Distribution Center™ Michigan residents please add 4% sales tax or supply your tax I.D. number. Written purchase orders are accepted from approved government agencies and most well rated firms at a 10% surcharge for net 10 billing. All sales are subject to availability, acceptance and verification. All sales on accessories are final. Prices, terms and specifications are subject to change without notice. All prices are in U.S. dollars. Out of stock items will be placed on backorder automatically unless CEI is instructed differently. A $5.00 additional handling fee will be charged for all orders with a merchandise total under $50.00. Shipments are F.O.B. CEI warehouse in Ann Arbor, Michigan. No COD's. Most items listed have a manufacturer's warranty. Free copies of warranties on these products are available by writing to CEI. Non-certified checks require bank clearance. Not responsible for typographical errors.

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Sale dates 3/8/89 — 9/30/89 AD #030889-T

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CIRCLE 92 ON READER SERVICE CARD

Radio's Most Bizarre Frequency Band

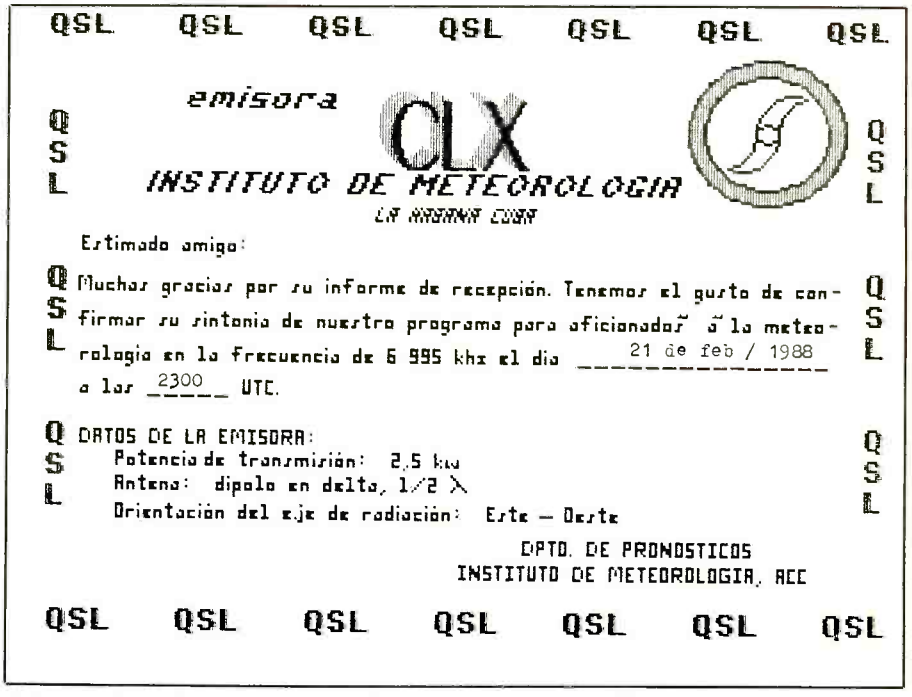
Only 800 kHz Wide, But A Strange Dumping Ground For Left Over Broadcasters, Spy Stations, Smugglers, Pirates, Clandestines, Weather Stations, Maritime, Military, Aviation, And Other Curious Bedfellows!

BY GERRY L. DEXTER

The shortwave radio bands—all of them—classify as wild and wonderfully strange lands. No listener who's had more than a fly's antenna length of experience would argue with that. Shortwave is a land where, literally, no two seconds are ever exactly alike. Some station is always going off the air or coming on the air or moving or doing *something*!

To our knowledge, no one has ever conducted an opinion poll amongst SWL's to find out which part of the shortwave realm may be the craziest, which may contain the biggest variety of assorted sounds and signals. And you know what? We're not about to conduct such a poll here, either. We're simply going to tell you, flat out, what it is: 6.200, where the 49 meter broadcast band more or less ends, on up to 7.000. within that 800 kHz segment, there is a mind-boggling array of legit broadcasters, pirates, clandestines. There's a wacky assortment of so-called numbers stations plying their trade (whatever it may be), Volmet weather broadcasts and broadcast "feeder" stations. Military transmissions are everywhere and there are hundreds of channels occupied by maritime and aeronautical mobile communications.

Not all of the signals you'll hear in this range are in voice mode. Some are dressed up in CW, facsimile, various forms of RTTY or even more esoteric clothes. The average SWL, including yours truly, hasn't the equipment to translate all this stuff into anything more than noise so we'll leave most of those for someone else to worry about and will look at the voice signals you may hear, and mostly the broadcast type at that. Beyond broadcasting, maybe we can at least tempt your DX appetite for seeing what else you can pick up.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emisora CLX

INSTITUTO DE METEOROLOGIA

LA HABANA CUBA

Estimado amigo:

Muchas gracias por su informe de recepción. Tenemos el gusto de confirmar su sintonia de nuestro programa para aficionados y la meteorologia en la frecuencia de 6 995 khz el dia 21 de feb / 1988 a las 2300 UTC.

DATOS DE LA EMISORA:

Potencia de transmisión: 2,5 kw

Antena: dipolo en delta, 1/2 λ

Orientación del eje de radiación: Este – Oeste

DPTO. DE PRONOSTICOS

INSTITUTO DE METEOROLOGIA, ACC

QSL QSL QSL QSL QSL QSL QSL

Cuba's Institute of meterology sends this computer-generated QSL for reception of weather broadcasts on CLX.

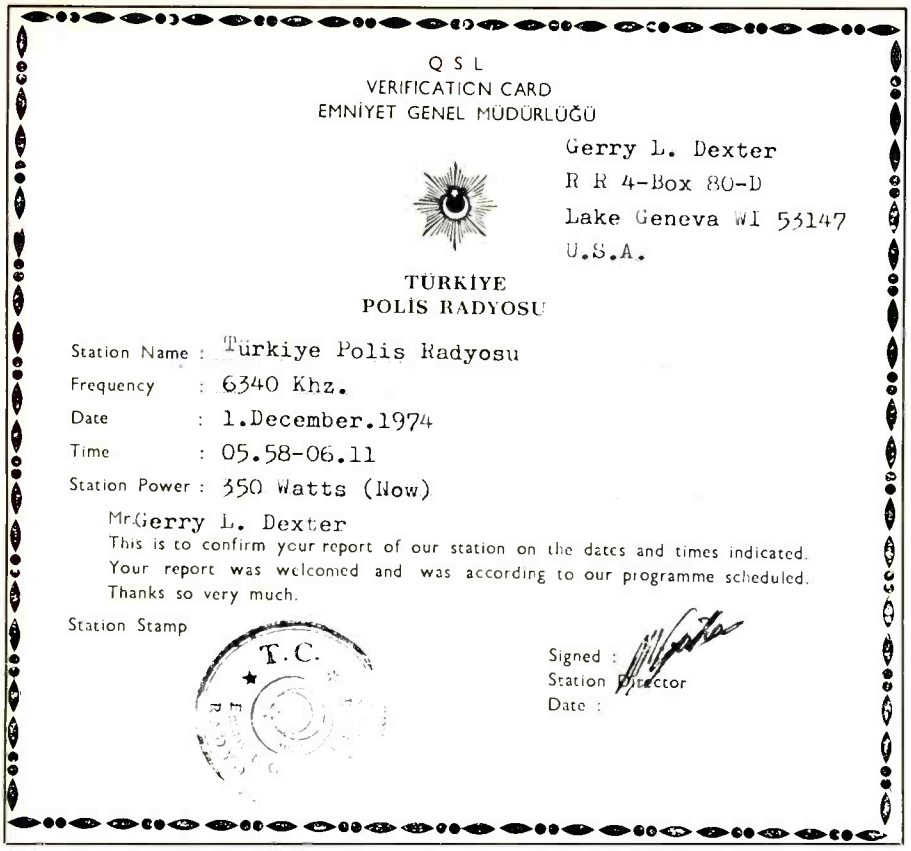
Assorted Broadcasters

For an area that isn't designated as a broadcast segment of the spectrum, 6.2 to 7.0 has a lot of that very thing going on! Europe, Africa, the mideast, the far east and South America are all represented. Very few of the stations classify as international broadcasters, either. HCJB is on 6205 and 6230. Family Radio's WYFR is on 6210, 6300 and 6565 at various times, not from Florida but via their Voice of Free China relay in Taiwan. The Voice of Greece recently put 6210 and 6225 into use. Vatican Radio can be heard most evenings on 6248 or 6250. Radio Bangladesh uses 6220 and 6240 (try the latter around 1300); VOIRI, Iran is on 6220 some hours. Radio Pakistan from Rawalpindi also uses 6220 with Islamabad on 6235 and 6295. Trans World Radio, Monaco uses 6230, sometimes heard at 0830 sign on.

But most of the broadcasters between 6.2 and 7.0 are concerned strictly with local or regional coverage. Because of this the area is a fantastic place to fish for the really hard-to-hear SWBC stations.

No country makes more use of this area for local broadcasting than Peru. There are around 15 Peruvian stations listed in this segment, though perhaps only one-third of them may be active at any one time. Most of the following are, or have been active at one time or another over the past year or so:

6201 - La Voz de Haumanga, Ayacucho
6242 - Radio Calca, Calca
6281 - Radio Huancabamba, Huancabamba
6304 - Radio Acari, Caravel
6324 - Estacion C, Moyobamba



Q S L
VERIFICATION CARD
EMNİYET GENEL MÜDÜRLÜĞÜ

Gerry L. Dexter
R R 4-Box 80-D
Lake Geneva WI 53147
U.S.A.

TÜRKİYE
POLİS RADYOSU

Station Name : Türkiye Polis Radyosu
Frequency : 6340 Khz.
Date : 1.December.1974
Time : 05.58-06.11
Station Power : 350 Watts (Now)

Mr.Gerry L. Dexter
This is to confirm your report of our station on the dates and times indicated. Your report was welcomed and was according to our programme scheduled. Thanks so very much.

Station Stamp

T.C.

Signed :
Station Director
Date :

Turkish Police Radio at Ankara has long used 6340.

6334 - Radio Frecuencia Cultural, Mamapapa (tentative)
6429 - Radio Punacarpa (tentative ID, unknown location)
6571 - Radio Tacna, Tacna
6691 - Radio Cutervo, Cutervo
6726 - Radio Satellite, Santa Cruz
6771 - Radio Estrela Polar, San Miguel de Pallaques
6791 - Radio Selecta, Viru
6815 - Radio Universo, Pandell
6824 - Radio Commercial Cosmos (uncertain location)
6895 - Radio Sensacion, Huancabamba

Of these the currently best heard are Radio Cutervo, Radio Satellite and Radio Tacna. "Best heard" is a relative term, though. We're not talking Deutsche Welle here!

Other South American stations include the *never* reported Radiodifusora Possense in Santo Antonio Posse, Brazil, listed for 6250, as well as Radio 17 de Julio, Huanuni, Bolivia on roughly 6327. Occasionally heard is La Voz de Juventud in Catacocha, Ecuador. But save your efforts for Sunday evenings because this is apparently the only night of the week they get the rig warmed up!

Lots of frequencies are active with far east broadcasters and many of them are audible here in the early mornings, as well as sometimes in the late afternoons or early evenings (2200 and later). Among these, the Chinese make use of several frequencies. Radio Beijing, CPBS and local outlets are all represented. Radio Beijing uses 6290, 6470, 6550, 6590, 6810, 6825, 6860, 6935, 6955 and 6995. The domestic service of the Chinese People's Broadcasting Service operate one network or the other on 6570, 6790, 6840, 6890, 6920 and 6974. The Taiwan-aimed Voice of the Straight holds forth on 6400 and 6765. Qinghai PBS at Xining is on 6260 and 6500; Yunnan PBS in Kinming operates on 6937 and Nei Mongol PBS at Hohhot is on 6974.

Not far behind, activity-wise, is Vietnam. These stations are a real challenge because powers are low, frequencies wander a lot and some may not even be active at times. Try for regional stations at Lai Chau on 6253, Son La on 6294, Hanoi 6451, Cao Bang on 6575 Bac Thai 6694; Hoang Lien Son on 6735 and Lam Dong 6988.

You can catch both Koreas. Radio Pyongyang operates on 6250 and 6400 (watch the Chinese here) and 6560, 6576 and 6595. 6576 is used for some of the foreign service. Radio Korea in Seoul uses 6480 and 6540.

Other nifty Asian targets include Radio Ulan Bator, Mongolia on 6383, the Burmese Army Station on 6570 and some rare Laotians—including Pakse on widely variable 6640, and Louang Phrabang on 6970.

There's only one African broadcaster in this entire range—Radio Nacional Malabo in Equatorial Guinea on 6250. It signs on at 0500 and is reported fairly often in North America.

Both of the Lebanese stations operating in this range are currently being heard by sharp-eared DX'ers: High Adventure Ministries Voice of Hope from the Christian sector of Southern Lebanon on 6280 (alternate 6215) from around 0300 and the Phlangist Party's Voice of Lebanon on 6550 or a hair lower, best heard around 0300-0600.

There are three Turkish delights operating in this area. The Turkish State Meterological Station is on 6900 with an 0400 sign on and Turkish Police Radio at Ankara on 6340 coming on at 0500. Both were heard with nice signals over the past winter. The third station, Istanbul Police Radio on 6325, unfortunately, doesn't operate during our evening time frame and North American listeners have not yet been able to pick it up.

Pirates, Too!

Pirates? Aye, mate! Though it's largely a case of creating your own luck by checking for such stations every chance you get.

Most US-based pirates operate in the 7.3 to 7.5 range, but late last year, Falling Star Radio aired a few broadcasts on 6235 and

RADIO CUTERVO

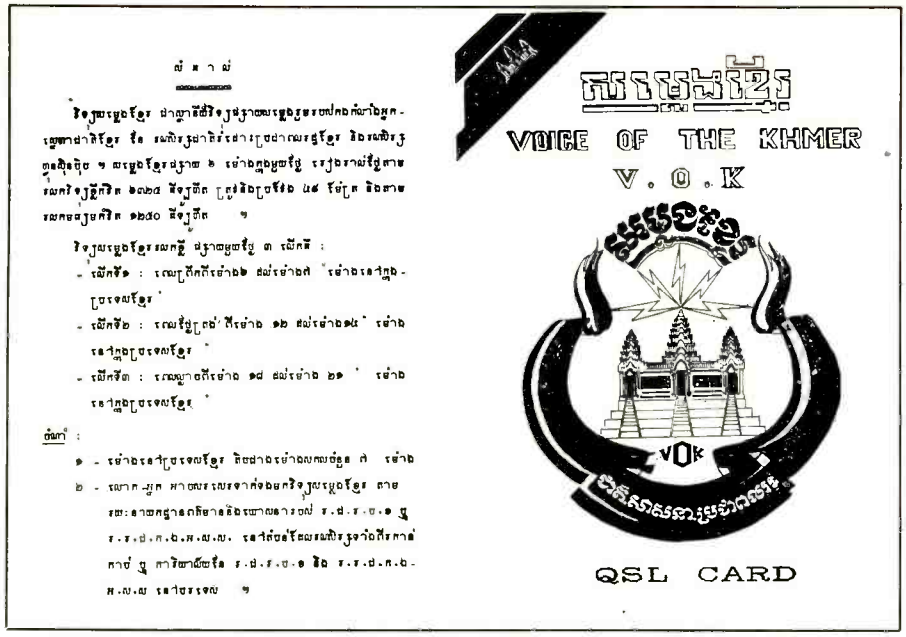
"EN LOS AIRES DEL PERU"
Afiliada a la Asociación de Radio y TV del Perú
OAX-2R 3300 KHz OC
Jr. Comercio 725 3er Piso
CUTERVO

G.L. Dexter

RADIO CUTERVO E.I.R. Ltda. — ADMINISTRACION —

RADIO CUTERVO E.I.R. Ltda.

Radio Cutervo in the town of the same name is one of many Peruvian broadcasters active between 6.2 and 7.0.



Clandestine station Voice of the Khmer issues a paper/folder QSL from its office in Bangkok. It operates on 6325.

6240. During last year's holiday season Scotish Pirate Weekend Music Radio was heard with tests on 6317. There are many European pirates between 6.2 and 6.4 on Sunday mornings, but the few signals which do make it "across the pond" are enjoyed mostly by listeners on the east coast.

Irish pirate Radio Fax was well heard on 6205 late last year but the station closed down after new anti-pirate legislation became law the first of this year. Radio Dublin International on 6910 planned to defy the law and continued to be heard into January. Offshore pirate Radio Caroline on 6215 is often heard in much of the US. The early evening hours our time seem to be Caroline programming with a switch later over to the religious programming of World Mission Radio.

Clandestines

There's plenty of clandestine broadcast activity on these frequencies, too. Latin America, alone, accounts for eight or more such stations. The contras' Radio Quince de Septiembre (often ID,ing as Radio Liberacion) is on 6214.4 at various times during the evenings. Anti-Castroite La Voz del CID holds forth with hefty sigs on 6305 from mid evening deep into the night.

Tune through the area from 6650 to 6750 any evening and chances are 50-50 or better that you'll run into two or three Spanish-speaking stations. One will be the FMLN's Radio Venceremos. The others? Hard to be sure. There's a counterfeit Radio Venceremos which surfaces sometimes and another station which never says a word—just plays Latin Music but only shows up when Venceremos is on. These stations play hopscotch up and down the dial in a nightly game of fakeout. The FMLN's other station, Radio Farabundo Marti, hangs out around 6740, but, frequency wise, it is squirrely. too.

Another anti-Cuban, La Voz de Alpha 66. is sometimes active around 6666 kHz and is more or less scheduled for UTC Tuesday, Thursday and Saturdays at 0100-0130. The Guatemalan opposition force has La Voz de Popular on the air on Friday evenings (Saturday UTC) at 0030 around 6965, though a recent report had them with a sign on around 2315. Then there's the new Radio patria Libre, operated by the Colombian guerrillas. Pretty good signals from this one around 0030 to 6765. A second Colombian clandestine—Voice of the Revolutionary Armed Forces of Colombia is scheduled on 6835 Sundays only at 1230 but as far as we know hasn't been logged by anyone yet.

The area has several mid and far east clandestines, too. The communist station Radio Iran Toilers is listed for 6230 and two stations. apparently supported by Iran, Voice of Iraqi Kurdistan (6230) and the Voice of the Iraqi People (6955 variable). Clandestines in this part of the world use these frequencies mostly during local daytimes so reception here is difficult if not impossible.

The whole spectrum of Kampuchean opposition is represented. The Son Sonn/Sihanouk groups cooperate in running the Voice of the Khmer on 6325, loggable sometimes between 1100-1400. The Chinese-backed Khmer Rouge Voice of Democratic Kampuchea uses Chinese facilities on 6550 and 6995 (try the latter around 1300). South Korea operates Echo of Hope on 6348 but not at an appropriate time for North American reception. Also the Voice of the People on 6600 variable. Best shot would seem to be at 0900. The communist Voice of Malaysian Democracy appears rarely on 6700 variable around 1200 or 1230.

Point-To-Point

Several broadcasters operate "feeders" in this area which supply broadcasts to a distant relay station. Radio Moscow has several frequencies in use at various times of the day: 6390, 6805, 6822, 6890 and 6910. A new one may be 6810. The Voice of America has one going on 6873, feeding one program on upper sideband, a second on lower sideband. Deutsche Welle sometimes operates a feeder from Elmshorn on 6975. Periodic checks in the late afternoon may turn it up. Radio Free Europe/Radio Liberty runs a feeder on 6995 during our morning and afternoon hours.

In addition you never know when you'll stumble across a one shot appearance of

Dear Mr Dexter,

We are glad to have your reception report on our program transmitted on 6840 kHz at 1256 hours- 1311 hours G.M.T. dated Jan. 5, 1979.

Your further reception reports on our broadcasts are welcome.

Nei Mengku
People's Broadcating Station

Some Chinese regional stations operate in the 6.2-7.0 area and some of these stations now verify direct.

some sort of feeder in this band. Various Latin American broadcasters have been heard being carried by a point-to-point facility as a marker or as an actual relay on special occasions. These are so infrequent and scattered it's impossible to provide any clues as to when and where to look for them. One oddity which may or may not fit into this category is Radio Consentida in Mexico City, a legitmate AM band broadcaster which sometimes shows up, most recently on 6219.5 though earlier on 6754.

Other voice stuff in the 6.2-7.0 area includes the VOLMET weather broadcasts from various sites around the world. Some can be heard regularly, some virtually never. These may run for 5 or 10 minutes once or twice per hour. Frequency 6679 has the Pacific region with stations at Honolulu, Tokyo, Hong Kong, Aukland and Anchorage. The North Atlantic area is covered in reports from Gander and New York on 6604. Then, 6580 carries Prague, Sofia and Tel Aviv for Europe. Africa and Indian Ocean weather is reported by Johannesburg, Brazzaville, Nairobi, Jeddah and Antananarivo on 6538. South East Asia sites at Sydney, Calcutta, Singapore, Bangkok and Bombay use 6676.

There's a Cuban weather station (in Spanish) on 6995 around 2300 UTC. And look for WAH in the U.S. Virgin Islands on 6515.7, upper sideband, at 0200.

Many ship/shore communications can be monitored using upper sideband mode in this band, too. The ships operate in the band 6200 to 6216 kHz, while the shore stations they're communicating with operate between 6506 and 6522 kHz. Among these frequencies, 6215.5 is considered the calling channel (shore stations reply on 6521.9 kHz). Interesting simplex channels include 6218.6 and 6221.6 kHz.

Loads of upper sideband air/ground airliner communications can be monitored between 6256 and 6682 kHz, with military aero communications to be heard from 6687 to 6761 kHz. You might even hear Air Force 1 or Air Force 2 operating in upper or lower sideband (especially check 6683, 6715, 6730, and 6756 kHz).

Spy Stations

Also, 6.2 to 7.0 is a playground for spies! It's loaded with Spanish language numbers transmissions. Too many possible frequencies to list here bu the most active area is 6.8 to 6.9. Spin through this 100 kHz segment a few times during an evening and you're almost certain to hit at least one.

Some monitors report what they're tagging the "Gypsy Music Station" on 6820 at around 0500. This is apparently an east-European numbers station but one that seems not to have many messages to pass. The music is the "Romanian Rhapsody." What appears to be a Bulgarian numbers station is also being noted on 6619.2 around 0000.

What appear to be drug smuggling communications have been noted recently on 6534. 6801 to 6085 is prime hunting ground for those wierd single letter beacons which transmit just one letter of the alphabet (in CW) over and over.

So it's as obvious as the lyrics of a country western song that 6.2 to 7.0 is one area of the shortwave dial that has something for everyone. Intrepid SWBC DX'ers will find challenges aplenty. Pirate and clandestine hunters can set their sights on a number of elusive targets. Spy seekers and numbers stations freaks have more material than could be fit into your normal size "drop." Marine and airadio monitors, RTTY readers and facsimile fans have no end of signals to check out.

Spend some quality tuning time in this area tonight. You'll agree that 6.2 to 7.0 offers more of an interesting variety than any other 800 kHz segment on shortwave! It's like a microcosm of most of the rest of the 2 to 28 MHz shortwave spectrum, all scrunched down into one wild and wooly little miniband. Try it, it's absolutely unique! **PC**

A Scanner Never Stops Chattering In South Florida

Of All The Things That Might Be Said About South Florida, Nobody Ever Accused It Of Being Dull! A Scanner Is A Definite Asset

BY THURSON WAINWRIGHT, KFL4PN

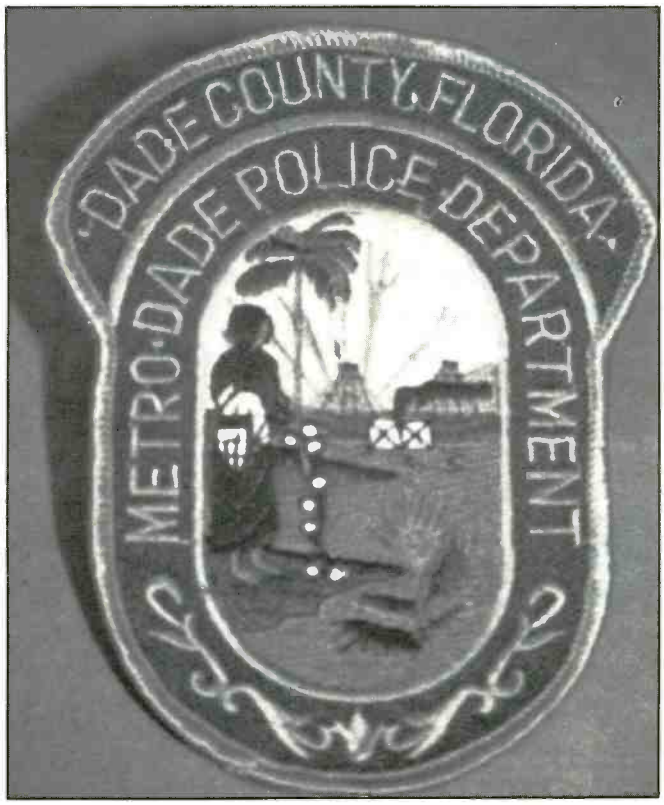
Dade and Broward Counties in South Florida are unmatched for their beauty. A wonderful climate, long stretches of white beaches, an inviting surf, sports, spectacular luxury hotels, a glittering nightlife, and an abundance of tourist attractions have long been a magnet for tourists from the Americas and Europe. Miami, Miami Beach, and Fort Lauderdale are names that have a well earned place in travel folders as well as airline and cruise ads.

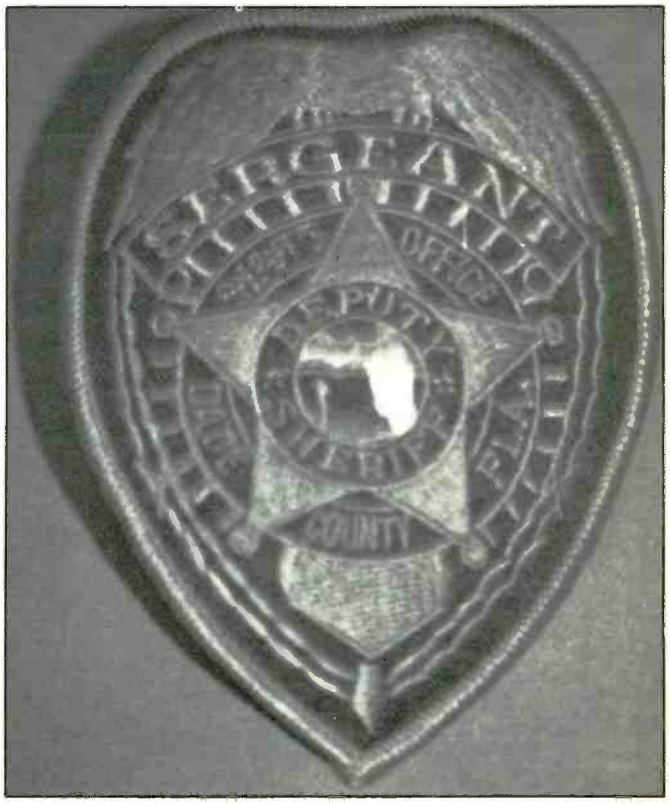
That alone would make this area just the kind of place you'd want to have a scanner, whether on a visit or as a resident. Still, South Florida's scanner band communications are more than that of a major vacation and recreation area, *much* more!

South Florida has come to mean illicit drug traffic, drug dealers, drug buyers, drug processors, drug money exchangers, and all sorts of other persons connected with this trade. To add even more pepper to the pot, the area has become a mecca for wave upon wave of immigrants who have fled several Central American and Caribbean nations for political reasons. This year alone there have been perhaps 3,000 Nicaraguan immigrants newly arrived in the area, with tens of thousands more planning on joining them as soon as they are able. This has contributed to a highly complex and unfortunate series of social pressures on the community at large, resulting in less than four violent and widespread civil disorders in the last eight years.

Federal, state, county, and local public safety, investigative, enforcement, and emergency agencies in Dade and Broward Counties are faced with one of the highest crime rates in the nation. FBI Uniform Crime Reports for 1987 show Florida with an astonishing number of violent and property crimes. Patrolling and controlling South Florida is a monumental job!

This is why a scanner never stops chatter-





ing in South Florida. Sometimes a scanner will hit on a channel that's so busy and active that it won't move on to another channel for five or ten minutes or *more*! The accompanying list contains most of the interesting action scanner frequencies in Dade and Broward Counties, just the basics to tune you in on what's *really* going on behind the scenes in this most unique of areas.

Florida Highway Patrol:
F-1 (S. Dade) 154.665
F-2 (Broward Co.) 154.68
F-3 (N. Dade) 154.695
F-4 (Car/car) 154.92
Intersystem 45.06
Intercity 155.37

Florida Turnpike:
Dispatch F-1 453.575; F-2 453.625
Road Service F-3 453.675; F-4 453.725

Florida Marine Patrol:
44.96, 45.00, 156.85

Florida Alcoholic Beverage and Tobacco Control: 45.10, 45.26
Florida Parks and Recreation: 44.76
Florida Game and Fresh Water Fish Commission:
151.31, 151.385, 151.43
Florida Dept. of Law Enforcement:
45.18, 45.30, 45.38, 45.46, 460.15, 460.25, 460.35
Florida Inland Waterway Commission:
158.865

Metro Dade County Police:
District 1 (Northwest) 155.73
District 2 (Central) 155.19
District 3 (Midwest) 155.70
District 4 (South) 156.21
District 5 (Southwest) 155.955
District 6 (Northeast) 155.91
District 7 (MIA Airport) 155.70, 470.4675
District 8 (Northeast) 156.15
District 9 (Hospitals/Schools/Marine) 155.19, 155.985
Tactical 155.85, 155.115, 155.925
Emergencies 154.875, 154.965, 155.54
Jail/Courts 155.625, 155.655, 155.685

Metro Dade Fire Department:
F-1 (North) 453.70
F-2 (South) 453.80
F-3 (Fireground) 453.60
F-4 (Central) 453.525

City of Miami Police:
F-1 (North) 453.35
F-2 (Central) 453.45
F-3 (South) 453.35
F-4 (Information) 453.50
F-5 (Tactical 1) 453.75
F-6 (Detectives) 453.55
F-7 (Tactical2) 453.05
F-8 (Phone Patches) 453.90
F-9 (Emergency) 155.37

City of Miami Fire Department:
A (Dispatch) 453.10
B (Fireground) 453.15
C (Tactical) 453.20
D (Rescue) 453.425
E (Rescue) 453.325
F (Phone Patches) 453.90

City of Miami Beach Police:
F-1 (Dispatch) 460.40
F-2 (Information) 460.425
F-3 (Tactical) 460.475
F-4 (Dispatch 2) 460.45
F-5 (Auxiliary) 460.50
F-6 (Emergency) 155.37

City of Miami Beach Fire Dept.:
F-1 (Dispatch) 460.55
F-2 (Rescue) 453.225
F-3 (Rescue) 453.275

Coral Cables:
Police 155.09, 155.37, 155.79, 470.8625
Fire Dept. 153.905, 154.25, 154.31

Hialeah:
Police 154.77, 154.955, 155.37, 155.79, 155.88
Fire Dept. 470,5625, 470.8875

Dade County:
Randall Eastern Ambulance 155.22
Emergency Operations 37.18
MDTA 470.5875, 471.7125, 471.7375, 471.7625, 471.8125
Orange Bowl 154.57
Gray Line 43.70
American Sightseeing 43.76
Fontainbleu Hilton Hotel 151.865, 154.54,
461.075, 464.375
Weather Forecasts 162.55
DEA 418.60 to 419.00 band
Customs Service 165.20 to 166.50 band
Immigration/Border Patrol 162.90 to 163.70 band
Miami Herald 173.225
WCIX 450.3125
WGBS 170.15
WINZ 452.975
WIOD 161.76
WNWS 161.64
WPLG 450.6125
WTVJ 450.1125
WPBT 450.2875

Broward County Sheriff:
F-1 (Districts 2/4/6) 154.71
F-2 (Car/Car) 155.07
F-3 (Tactical) 154.95
F-4 (Information) 154.74
F-5 (North) 154.89
F-6 (Central) 154.86
F-7 (South) 154.80
F-8 (Districts 1/3) 155.13
F-9 (Tactical 2) 155.64

Broward County Fire Dept.:
A (Dispatch) 154.25
B (Tactical) 154.295
C (Tactical) 153.89

Fort Lauderdale Police:
F-1 (North) 460.05
F-2 (Central) 460.10
F-3 (East) 460.125
F-4 (Information) 460.30
F-5 (Tactical 1) 460.20
F-6 (Tactical 2) 460.325

Fort Lauderdale Fire Dept.:
154.295, 470.6125, 470.6375, 470.6375

City of Hollywood:
Police 460.075, 460.175, 460.225, 460.275, 460.375
Fire Dept. 460.525, 460.625

City of Boca Raton:
Police 470.4125, 470.4375
Fire 154.265, 154.325, 154.40

City of Pompano Beach:
Police 470.7375, 470.7625, 470.7875, 470.8125, 470.8375
Fire 154.16

Broward County:
Police Emergency 155.37
County Medical 155.16, 471.1125, 471.1375
Randall Eastern Ambulance 154.22
Atlantic Intercity Ambulance 155.205
Ft. Lauderdale News & Sun Sentinel 173.375, 852.0125 PC

Combat Weaponcraft

Contra Commo Log

BY W.L. SRAWED

Inside the depths of the Nicaraguan jungle, a small printer silently rolls out a series of coded letters and symbols. Seconds later, a radio telephone operator (RTO) removes a pocket-sized code book from its protective plastic bag and translates the incoming message. Within minutes, 300 contra freedom fighters are moving base camp Lema, located on the muddy banks of the Rio Coco, up into the safety of the multiple-canopied mountains nearby.

The urgent message warned of a Soviet-made AN-26 bomber being dispatched from its runway near Managua. Destination: the contra base camp. Armed with 500 pound bombs, its mission is obvious to the freedom fighters who, thanks to the radio warning, have ample time to bug out.

The sudden relocation of Camp Lema reminds me of a well-rehearsed grade school fire drill. No one panics as food and munitions are quickly packed by a designated team. Hand-held ICOM radio cackle with instructions as other teams are made responsible for moving the sick and wounded. Another team coordinates movement of civilian refugees who have come to Camp Lema searching for food and protection from local Sandinista patrols.

2310 Hours

Already the camp has taken on the appearance of a Western ghost town. A few chickens scurrying among the empty banana leaf hooches are all that remain. Security teams are positioned in place on the outer perimeter, armed with shoulder-fired anti-aircraft missiles. Each team has one of the ICOM units that keeps everyone left behind in touch - and help, in a small way to dispel the loneliness of the jungle night.

2348 Hours

During several weeks with the contras, I have been impressed with the ICOM 144 MHz radios that now link the Redeye missile teams together in their vigilant watch for Sandinista aircraft. The ICOM units offer hundreds of operating frequencies with the touch of a button on the built-in keyboard. Communication integrity is maintained with the daily changing of operating channels and the plus or minus 600 kHz cross-talk capability built into each unit.

The radios all come to life as one team hears the faint drone of the AN-26 engines. Almost two minutes go by before I am able to pick out the low-pitched sounds above the many night noises of the jungle. My city living has dulled the senses that can mean life or death to those around me. For the next twenty minutes, the engine's sounds fade in and out as the Sandinista/Cuban pilot attempts to locate our position. The former camp will be nearly impossible to spot visually due to the pilot's high altitude.

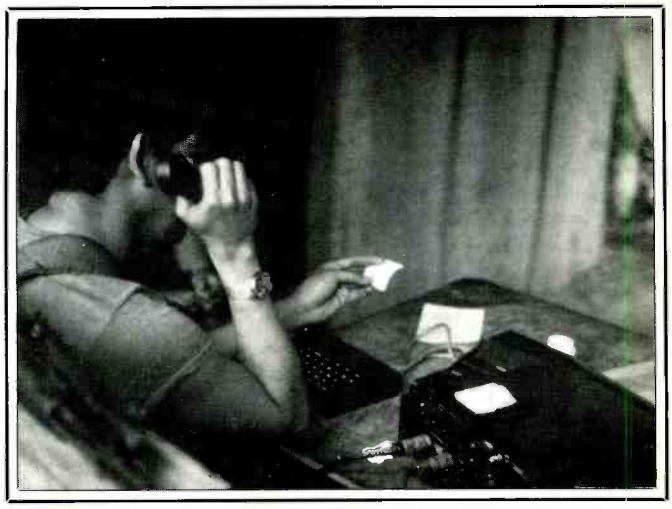
0130 Hours

As the *piri* AN-26 returns its bomb load to Managua, ICOM's crackle with orders to stand down. Radios in hand, the contras climb silently up into the dark protection of the mountainside jungle.

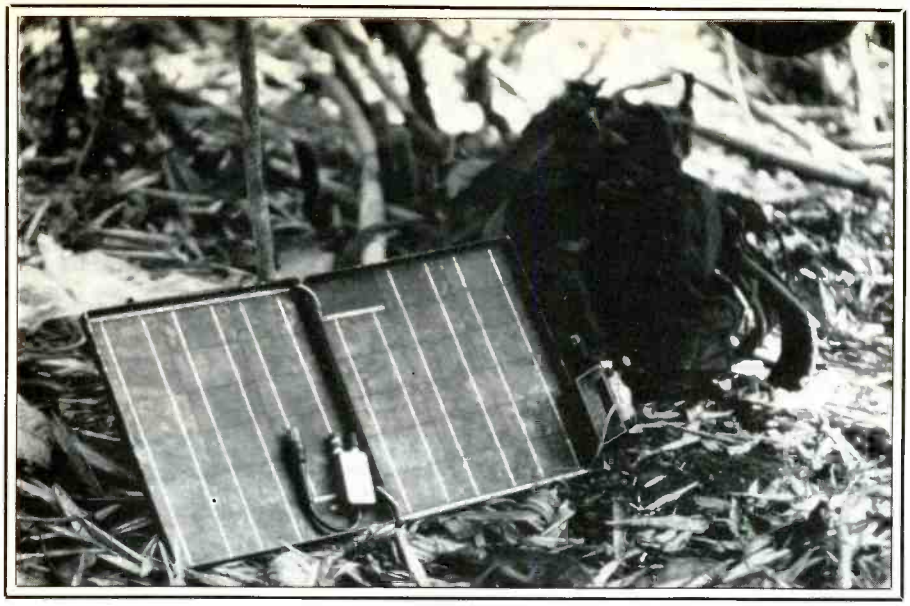
Much of the freedom fighters' success can be attributed to having adequate supplies and excellent communications equipment in the field. All major AO's (Area of Operations) are now equipped at the base camp level with modern radios to direct the dozens of smaller 20-to 30-man teams assigned to each camp. The communications challenge for the contras has been a major headache due to the extremes in both terrain and climatic conditions. Jungle places tremendous demands on any type of equipment, but it is an especially harsh proving ground for anything with dials, meters, chips, and diodes.

The Loral Terracom SC130 has proven to be a reliable unit for use in most contra base camps. These portable radios appear to be ruggedly built and provide a general frequency range of from 2-12 MHz. This particular range of bands allows the use of both ground and skywave transmissions, and thus is more flexible than the U.S. military PRC 77 which is limited to line-of-sight communications. The SC130 has enjoyed world-wide use since the 1970's and has proven itself a workhorse. Power is normally supplied by built-in nickel cadmium 12-volt batteries. Most base camps and AO's have Honda 300 kilowatt generators, which can be used to recharge the Nicad batteries. I observed a few lead-acid batteries being used at amps deemed more "secure," which means not likely to be

Ham radio equipment fills the bill for Contra communication.



Contra HQ's – field command post.



Solar powered repeater in a Nicaraguan jungle.

moved or relocated in a hurry. The usual antenna is a simple dipole type strung among jungle canopies. Power output of the SC130 is a variable between 5 and 20 watts.

Often seen at base camps was a modern crypto keyboard and printer that interfaced with the SC130 to provide secure lines of communications with the other base camps scattered throughout Nicaragua. This basic, no-frills system is what keeps the contras in touch with their HQ for planning clandestine missions, ordering supplies, passing on intel, and requesting evacuation of wounded.

The SC130 weighs about 16 pounds and frequently sees action with long-range recon patrols and special commando forces under field conditions, a center-load whip antenna is mounted on the SC130. If the patrol expects to stay in the field for more than a few days, the RTO carries a compact, folding solar panel that is used to recharge the radio's batteries. Attached to the panel is an amp meter that aids the RTO in aligning the panel for maximum solar intake. Most RTO's reported that it normally takes an average of five or six hours to recharge the battery, depending on how drained the battery is and the amount of available sunshine.

Security teams positioned around the outskirts of base camps stay in close touch using the programmable ICOM units. Of primary concern to the contras are surprise attacks by Soviet-made Hind D helicopters, known as "flying tanks" because of the large amount of ordnance they carry. To counter the Hind, Redeye missile teams are deployed in a circular fashion some 5-6 miles outside the camp. If one of the team identifies a group of Hinds approaching, they immediately use their ICOM's to radio alerts to other teams. With the instant communication now available, chances are the Hind will either take a Redeye up its exhaust on the way into camp, or the second and third teams will send it a heat-seeking greeting card on the way out. Any evasive tactics on the Hind's part are immediately radioed to other teams not directly observing the maneuver - making escape for the Soviet helo very difficult at best. These little radios have been a great equalizer, as evidenced during a recent firefight when Sandinista troops were calling for air support from nearby Hind D's. The pilots refused to come to the aid of their comrades due to the chance of being spotted by a contra with an ICOM and/or a Redeye missile. One Hind D is worth more to the Sandinistas than a *lot* of piri troops.

ICOM units seem to hold up well against the constant use and abuse they receive. For added protection from the moist jungle environment, the contras use expanded 1,000ml IV solution bags to cover the units. Control dials and antenna are first removed, than the heavy plastic bag is slipped over the top of the radio. Knobs are replaced and now the radio has a weatherproof covering. This is a good example of the "use what you bring" adaptability of a modern freedom fighter.

ICOM units are also used for contacting friendly aircraft in their approach to a landing or drop zone. From several miles out, the inbound aircraft contact the camp's RTO on a prearranged frequency. If the ground control gives the "green light," supplies are then dropped or further landing instructions are transmitted.

Artillery commanders are using Radio Shack scanners to make adjustments while laying down barrages. A forward observer (FO) is sent out to physically view the rounds impacting the target area. Using his ICOM unit, he then relays back to the fire commander any adjustments that are required. The fire commander hears these instructions on a Realistic PRO-32 programmable scanner. Since there is no need to have two-way traffic during these types of operations, the PRO-32 provides an economical solution. Again, these consumer-type units are holding up well in the field under conditions probably never thought of by the research and and development department at Radio Shack.

The contras have proven that it is possible to to sustain a dependable and secure communications network with basic over-the-counter type equipment under adverse conditions. Overall investment is minimal compared to standard military radios, and these consumer units often out-perform their expensive milspec counterparts. Field maintenance is limited to daily cleaning, and battery replacement when necessary. The equipment has proven so expendable that a lack of repair technicians and equipment has not hampered the contra communication in any significant way. When problems do occur, the radios are sent back to HQ, from where they are sent out-of-country for repairs. An adventurous entrepreneur interested in setting up a sales and service office in one of the democratic countries in Central America, such as Honduras or Costa Rica, would probably be very successful. Numerous clients and governments needing both advice and equipment could well keep him busy.

Radio: The Golden Era

Return To Those Thrilling Broadcasting and Wireless Days Of Yesteryear

BY ALICE BRANNIGAN

One of the first public services performed by early wireless was the passing of information to farmers, dairymen, and ranchers. This would consist of estimates on conditions covering the markets for livestock, vegetables, meats, dairy and poultry products, hay, feed, seed, etc. This information was long given to the public through many different media, but on December 15th, 1920, the Post Office Department opened up six radio stations to transmit the information into the airwaves so that it might be received quickly and directly by the public.

One can only wonder how many folks in rural areas, who later became ham operators, were introduced to the world of wireless after setting up to receive the government broadcasts. As regular broadcasting stations came on the air, they picked up the information from the government stations and passed it along to their own audiences. Station KDKA, in Pittsburgh, PA was doing this as early as May 19, 1921.

Still, it was the almost forgotten Post Office stations that were the source of most of this information. The stations in this network originally operated as follows: WWX in Washington, DC with voice on 259 kHz and CW on 151 kHz; and the following stations with undamped arc transmitters: KDEF, Omaha, NE on 120 kHz; KDHM, Rock Springs, WY on 75 kHz; KDHN, Rock Springs, WY on 100 kHz; KDEJ, Elko, NV on 100 kHz; and KDEK, Reno, NV on 93.7 kHz.

These stations seemed to have a strange career. By 1928, they had been transferred from the control of the Post Office to the Bureau of Lighthouses, which also modified some of the frequencies and callsigns. For instance, WWX was then on 82 and 88 kHz; KDEF became KJF on 88, 116, and 4255 kHz; KDHM was dropped; KDHN became KDN on 88 and 95 kHz; KDEJ became KOJ on 74 and 88 kHz; while KDEK turned into KLK on 79, 88, and 4255 kHz. By 1930, the status of the stations had changed again. Many more frequencies had been added, the locations had shifted somewhat, and they were all under the control of the Dept. of Commerce, Bureau of Lighthouses (Airway Division). Which is to say that at some point they had been relieved of their agricultural price duties and switched into service for the benefit of airway safety.

J.C. Edgerton, Superintendent of the Post Office, broadcasts a crop report from station WWX in 1921.

We suspect that their agricultural careers had become history long before 1928. Looks like a good topic for more intensive research, for surely these most interesting stations have slipped into almost total obscurity.

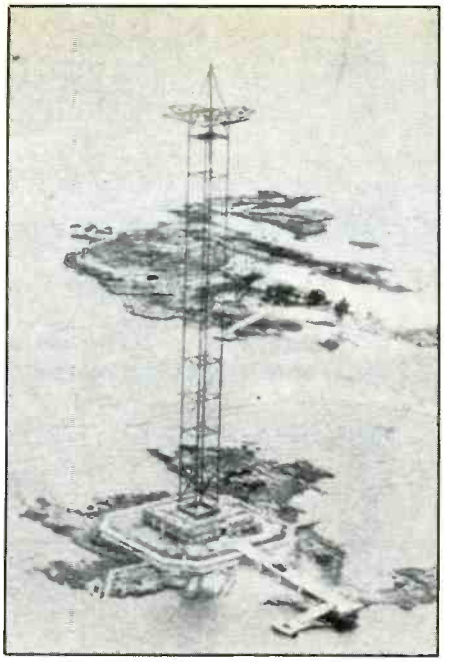
Tall Tale

In late 1940 a most ambitious plan was announced. Station WABC (880 kHz, 50 kW, now called WCBS-AM), the CBS network key station in New York City was to install a dazzling new transmitting tower, pending FCC approval. The original plans called for the use of Little Pea Island, in Long Island Sound, a mile offshore from New Rochelle, NY. The island, which consisted of only a few rocks, was to be enlarged to about 200 feet square to accommodate the tower. Plans for the tower called for a self-supporting structure 350-feet in height by 25-feet wide. At the base there was to be a transmitter building 75-feet square. Atop the steel tower was to be an aircraft beacon.

Thanks to Bill Farley, WA5FLG, of Alamogordo, NM we have a photo of the finished tower. The completed project was somewhat different than the originally announced plans and, from our vantage point of almost fifty years later, we can compare the plans with the reality.

Little Pea Island was enlarged to only 150 feet square, however, the actual tower was 410 feet in height, sixty feet taller than had been planned. The tower rested on four concrete pillars, each a yard in diameter, which sat on bedrock and rose up through the transmitter building without making actual contact. A fleet of scows, lighters, tugs, launches, and even row boats carried more than 32-million pounds of material to construct the station. Three hundred tons of steel for the tower was transported in sections on barges. Four miles of cable (weigh-

Station KDKA began broadcasting farm reports in May of 1921. Not long after, broadcasters had replaced the need for the Post Office broadcasts and the need for many farmers and ranchers to learn CW.



As completed, the WABC tower rose 410 feet and weighed 300-tons. (Courtesy Bill Farley, WA5FLG.)

Medallion issued in 1896 by the Old Time Telegraphers Association.

ing 75-tons) linked the station to the shore.

Current at 4,000 volts could be switched instantly from one cable to another in the event of cable failure. In the event that all power from land was cut off, a gasoline driven generator would automatically start up and put the station back on the air within 15-seconds.

This engineering marvel was in service until about 1965 when it was razed. The station then set up its (shared with WNBC, now WFAN) transmitting tower on High Island, which is near City Island in Long Island Sound.

Medallion

Fred Wilson, of Kansas, passed along a uniface copper medallion slightly less than an inch in size and having a small hanging loop at the top. It is dated September 9-11, 1896, Pittsburg (possibly a misspelling of Pittsburgh, PA). It was issued by the *Old Time Telegraphers Association*, most likely as a souvenir of a convention they held on the dates shown.

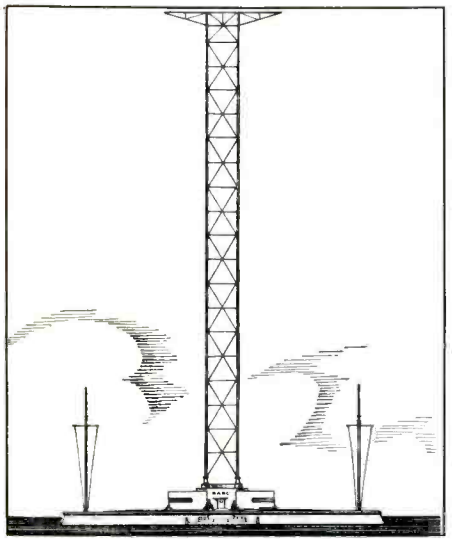
In the center of the medallion, surrounded by a wreath, are the faces of two men, one with a full beard. Neither is named thereon. Above the heads is a hand holding lightning bolts.

Fred sent the medallion and asked if we knew anything about the group that had issued the piece. Only in a very general sense can we accommodate this inquiry.

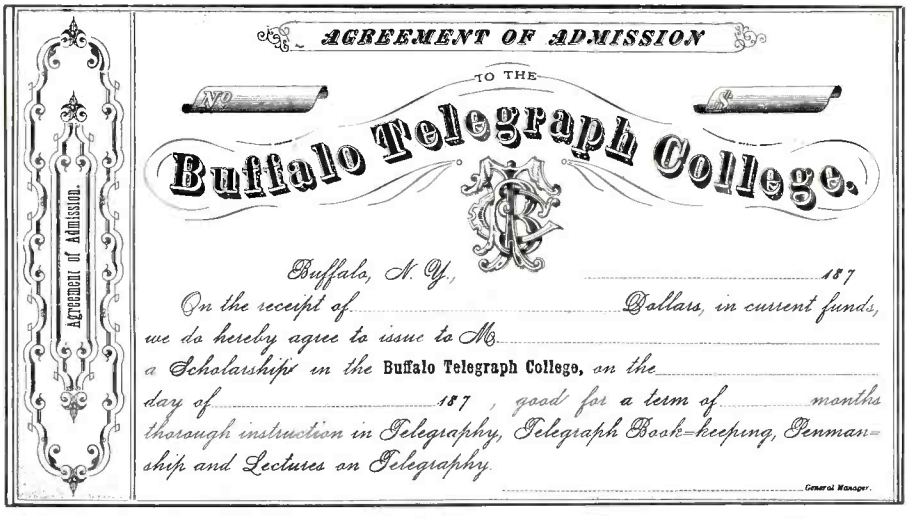
By 1846, New York City and Washington, DC were linked by telegraph. In 1851, there were many other cities on line and more than 50 telegraph companies in business, as well as numerous schools teaching telegraphy to those who wanted jobs in this new technology. In 1856, 12 of the companies joined together to form into the Western Union Telegraph Company. By 1861, Western Union had its transcontinental telegraph line in operation. One could then speculate that by the 1890's there were a sufficient number of the original brasspounders around to form a group calling itself the *Old Time Telegraphers Association* that could meet once a year to recall the good old days.

We took a photo of the medallion, but the detail doesn't stand out on this very beautiful piece of memorabilia. We have, however, framed the medallion and have it displayed in a conspicuous spot in the reference room here.

Which brings me to the point where I do



The original plans (dated 1940) for the WABC tower showed it with a somewhat shorter tower than the one actually built.



AGREEMENT OF ADMISSION

TO THE

Buffalo Telegraph College.

Buffalo, N. Y., ... 187

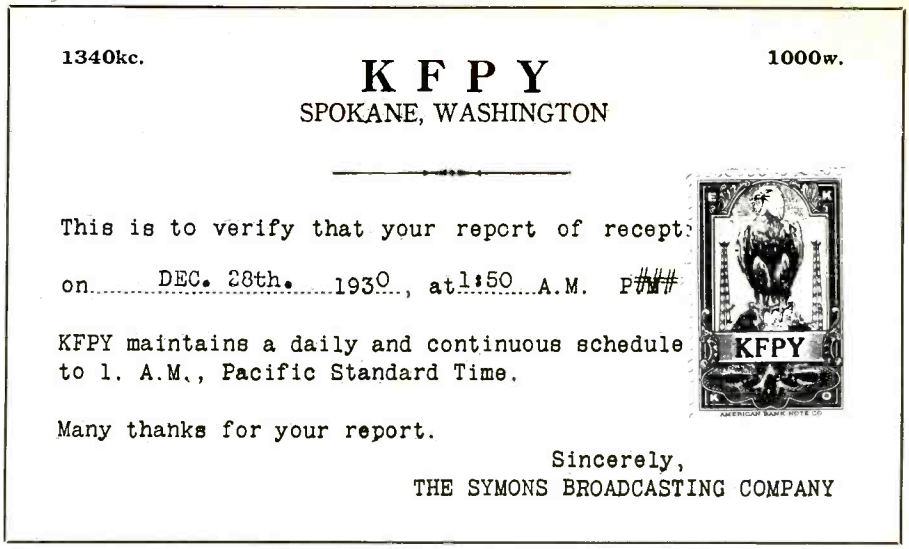
On the receipt of ..... Dollars, in current funds, we do hereby agree to issue to Mr. ..... a Scholarship in the Buffalo Telegraph College, on the ..... day of ..... 187 , good for a term of ..... months thorough instruction in Telegraphy, Telegraph Book-keeping, Penmanship and Lectures on Telegraphy.

..... General Manager.

Agreement of Admission.

After 1850, there were many schools churning out qualified telegraphers. This ornate 1870's "Agreement of Admission" to the Buffalo Telegraph College (in Buffalo, NY) promised "thorough instruction in Telegraphy, Telegraph, Bookkeeping, Penmanship and Lectures on Telegraphy."

Your author, smiling and offering thanks to those who have been submitting reference items to use in these pages.



1340kc. 1000w.

K F P Y

SPOKANE, WASHINGTON

This is to verify that your report of recept

on DEC. 28th. 1930, at 1:50 A.M. P###

KFPY maintains a daily and continuous schedule to 1. A.M., Pacific Standard Time.

Many thanks for your report.

Sincerely,
THE SYMONS BROADCASTING COMPANY

A 1930 QSL card from KFPY in Spokane was adorned with an EKKO stamp. (Courtesy Joe Hueter.)

want to thank the many POP'COMM readers who have been kind enough to send along various historic QSL's, reference books, wireless artifacts, postcards, photos, etc. Within the past week, just as an example, Vernon Boerman, of South Holland, IL sent an impressive assortment of 1920's radio books, station directories, and other publications. Bill Robertson, W4NZP, of Memphis, TN furnished us with two rare reference sources, 1939 and 1940 "Berne Lists" of fixed stations and frequencies. And Milton Litchard, Mobridge, SD sent along more than fifty assorted radio publications issued between 1936 and 1944! N.S. Watkins, of Los Angeles sent in several dozen QSL cards from SWBC and BCB stations that had been monitored in the 1930's.

All such material is invaluable in the preparation of this column. It is placed in the POP'COMM reference archives where the information is shared with (at no charge or fee) serious historians and researchers who look to our archives for reference data. Not long ago, for instance, we were able to furnish a considerable amount of information to John Ghrist of Elgin, IL who is writing a book on some early broadcasters in Illinois.

We always welcome old QSL's, station directories, station photos, and other related items. It is important that such items never be lost to the free access of those who are documenting early radio and wireless for the benefit of future generations. Thanks to all those who are helping!

Postscript To KJBS

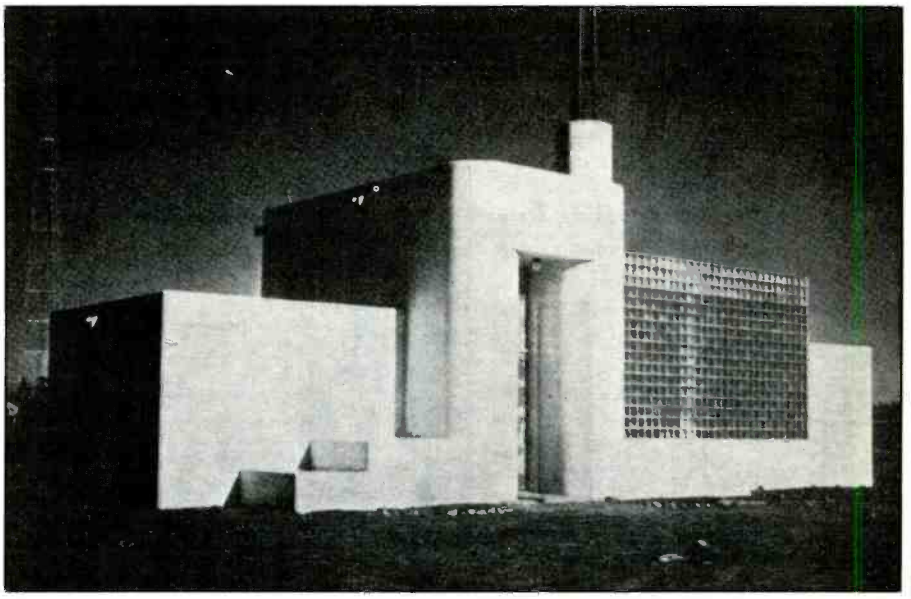
In the January issue we discussed San Francisco broadcaster KJBS which began in 1925 with 5 watts and (as KFAX) is still in operation, but with 50 kW. That item brought in a letter from Jim Welch, KK6N, of Santa Clara, CA. he recalls that, in 1928, he was a youngster who had built a 1-tube shortwave regen receiver using a UV-199 tube. A powerful signal on 6 MHz was picked up from an experimental station relaying KJBS. Since young Jim lived only a mile from KJBS, he decided to walk over and take a look at the station, which was owned by Julius Brunton and Sons, a storage battery distributor.

He recalls the KJBS of 1928 as being powered by a double row of 6-volt batteries extending back about 50 ft. and connected in series for the plate supply. The broadcast band transmitter was a homebrew self-excited oscillator using a UV-203A tube, with plans to increase power to 100 watts by wiring another tube in parallel with the existing oscillator. He thinks the SW relay transmitter was a self-excited oscillator with a UV-202 tube.

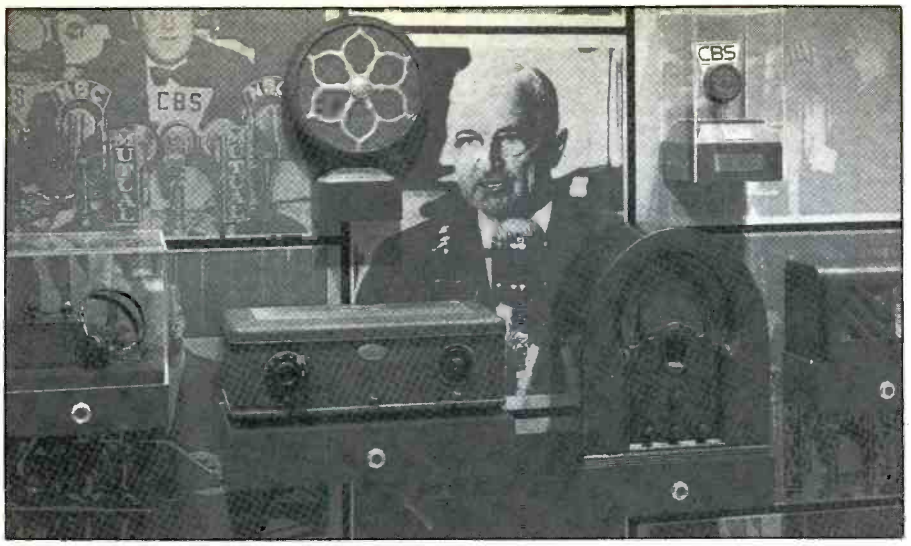
We checked on the shortwave relay station and noted that in 1924, even before KJBS went into operation, the Willard Storage Battery Co., had an experimental license at the same address as Julius Brunton and Sons. The callsign was 6ZCL, so we imagine that this, or its successor, was the station Jim heard.

Pacific Northwest Pioneer

In October of 1922, Station KFZ (1060 kHz) was put on the air by the Doerr-Mitchell Electric Co., of Spokane, WA. Within only two years, KFZ was bought out by the Symons Investment Co., located at How-



This futuristic transmitter building was put up by KFPY in the 1940's. The design was really quite an artistic creation in all respects. (Courtesy Bill Farley, WA5FLG.)



Some of the antique radio equipment on display at the LBJ Presidential Library and Museum in Austin, TX. (Courtesy Bob Logan.)

ard and Sprague Avenues in Spokane. Even though the new owners changed the callsign to KFPY, they called it *Spokane's Pioneer Station*.

In 1925, KFPY was on 1128 kHz, but had moved to 1220 with 250 watts by 1928. By 1930, when it was running 1 kW on 1340 kHz and was known as, *The Pioneer Broadcasting Station Of The Inland Empire*, the license name had been changed to the Symons Broadcasting Co.

KFPY was a successful station, and in the mid-1930's had moved to 890 kHz and was using a 468 foot tower. The war years saw more changes. Not only did the station shift frequency to 920 kHz, but it changed its transmitter site to a location on Route 3. No mere utility building, the transmitter building put up by KFPY in 1944 was a fantastic creation of the art deco style of architecture, with its front wall built partially of hollow glass blocks. Surely, there cannot have been too many more beautiful examples of futuristic design used in broadcast station structures of the 1940's than was KFPY's.

In 1948, KFPY's callsign changed to KXLY. The station remains on the air with 5 kW on 920 kHz under the ownership of Spokane Radio, Inc. (which has owned the station for the last 27 years). Despite the many changes, KXLY still lists its starting date as 1922, and well it should!

Signal Inhaler Department

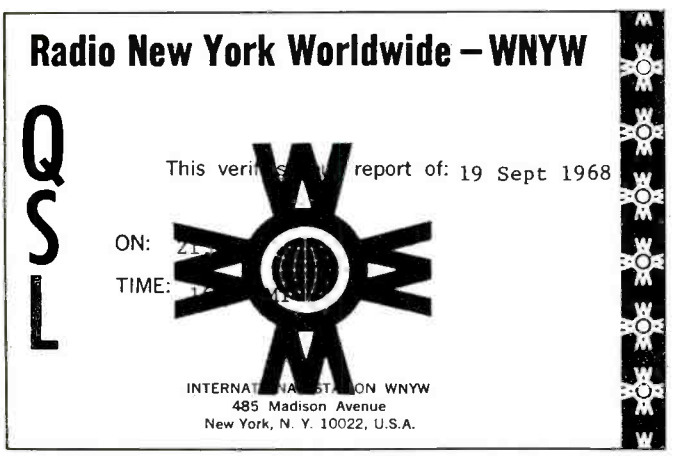
Bob Logan, Austin, TX advises that the Lyndon B. Johnson presidential Library in Austin has several displays featuring antique radios, including ones made between 1916 and 1949. Those who are interested in antique radios might wish to keep this in mind. Bob collects and restores radios of all types and ages and would like to hear from readers who have old radios kicking around the attic that they don't know what to do with. His address is 13242 Kerrville Folkway, Austin, TX 78729.

A large antique wireless museum, says William D. Clynes of Edina, MN opened last November. That's the Pavek Wireless Museum, 3515 Raleigh Ave., St. Louis Park, MN 55416. It's open Tuesday through Friday from noon to 4 p.m., also Saturday from 9 a.m. to 1 a.m. The curator is Joseph Pavek, W0OEP, who has thousands of receivers, transmitters, microphones, vacuum tubes, spark gaps, and other gear on display. This equipment covers commercial telegraphy, broadcasting, military communications, maritime and aero, ham radio and many other areas. This is an extremely large and well-presented exhibit, especially well suited (by prior arrangement) to club and school group tours. The phone number is (612) 926-8198.

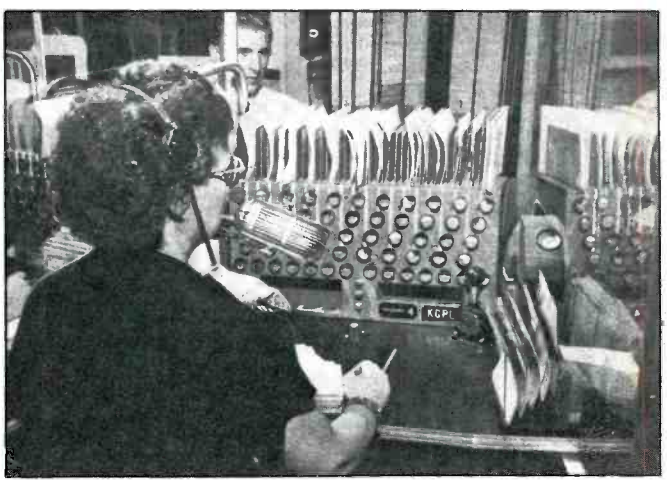
Shortwaver

Station W1XAL, Boston, MA was a shortwave broadcaster that began in the early 1930's. The station was operated by the World Wide Broadcasting Corp., with 5 kW on 6040, 11790, 15250, and 21460 kHz. Eventually, the station dropped its experimental callsign and became WRUL, and was a longtime resident of the international shortwave bands. Around 1960, it was sold and became known as WNYW, *Radio New York Worldwide*. This station was well known, too, although there were those who questioned some of the apparent ties it seemed to have with certain government agencies and the operations of *Radio Swan* in the Caribbean.

That's all gone now, even the old transmitting site burned down years ago. However, present-day shortwave station WYFR (with transmitters in Florida) is the direct descendent of the W1XAL/WRUL/WNYW lineage. Moreover, the callsign WNYW now belongs to Fox Broadcasting's TV Channel 5 (ex-WNEW-TV) in New York City, NY which is probably unaware of its colorful and intrigue-filled past!



A QSL from shortwave broadcaster WNYW (ex-W1XAL, ex-WRUL) which had some unusual ties to the clandestine Radio Swan in its day. (Courtesy Bruce L. Werner, WB8TVD.)



The LAPD's main dispatching station in 1949 was KGPL. Each button on the panel represented a radio car and its availability status.

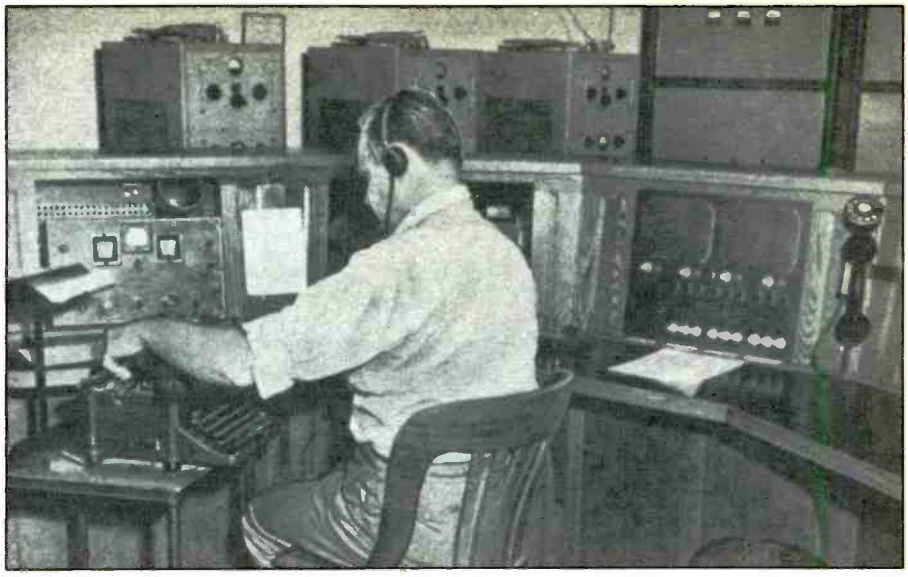
L.A.P.D.

The Los Angeles police had a dispatching transmitter in operation as far back as 1931. This was KGPL on 1712 kHz. As the need for communications increased, KGPL moved up to 1730 kHz and was supplemented by a portable command center (KNGX, 1730 kHz) that could also be used for dispatching during emergencies.

By the late 1940's, the LAPD system had become one of the most sophisticated in the nation. KGPL/KNGX were still licensed on 1730 kHz, with KGPL used as the main transmitter for the metropolitan area. Added to the system were three other stations operating on 1730 and 2366 kHz: KQJN which dispatched West Los Angeles and Venice; KQJO, which dispatched the San Fernando Valley; and KQJP, used for the San Pedro area.

Working with this system were 500 cars operating on 45.66, 45.74, 45.82, 45.90, and 45.98 MHz with 60 watt transmitters. In addition, there were 466 motorcycles running 20 watts each on 154.65, 154.77, 154.89, 155.01, 155.13, and 155.37 MHz. Ten special units and a base station operated as KMA853 on 159.75 MHz.

The 1730 and 2366 kHz transmitters were located at remote points that were connected to the dispatching point by landlines. If any dispatching position should have a technical problem, its duties could be assumed by KGPL or any other dispatcher. Should the power at any remote transmitter fail, emergency generators took over. Should the landlines between dispatcher and remote transmitters fail, a radio link (KMC55, 74.58 MHz) would go into operation that would be sufficient to handle at least the most important traffic.



In the days of HF CW police networks, the LAPD operated under the callsigns KMA89 and KMA90 on nine frequencies between 2800 and 8000 kHz.

The receiving antennas were located on top of the dome of Griffith Observatory, although stand-by receivers were placed at each transmitter site.

Even as early as the 1940's, the LAPD was active in the statewide Teletype network that connected about ninety law enforcement agencies. The agency also participated in the nationwide "Zone" police network which used to exist with CW operations on nine shortwave frequencies.

Perhaps, by comparison to today's LAPD communication system, what they were using forty years ago looks very primitive. Nevertheless, by 1949 standards, it was as state-of-the-art as could be imagined, designed, and put into operation. Forty years from now, in 2029, the present system will look just as old-timey!

We'll be back at this spot on your dial next issue with more dusty memories. Hope you'll join us! And, again, our sincere appreciation for the very fine support and cooperation for our section of POP'COMM. PC

In 1949, LAPD dispatchers for the various areas were arranged in a semicircle so that incoming complaints could be quickly given to the proper operator.

Police and Firemen Aid In Dangerous Acid Disposal

SCAN PUBLIC SERVICE AWARD

Workers at Pathology Services Inc. were cleaning a storage area when they discovered two bottles of crystallized picric acid. Picric acid is reportedly safe when liquid, but it becomes highly explosive in dry form.

The area around Pathology Services in Brentwood, Missouri, was evacuated. Brentwood, a St. Louis suburb, has no special capability to handle bomb disposal or hazardous materials. The St. Louis County Bomb and Arson unit was contacted, but according to an account of the incident in the *St. Louis Post-Dispatch*, they refused to respond. Private hazardous materials response companies were also contacted, but they would not respond until the dangerous material had been stabilized.

With no help in sight, the Brentwood Police and Fire departments acted. Police Chief William Karabas, Fire Chief Robert Niemeyer, Fire Captain Dave Berkle and Assistant Fire Chief Joe Bratcher searched boxes until they found the four pint bottles of the chemical. None of the four men had any special protective gear to handle dangerous substances.

Left to right: Fire Chief Robert H. Niemeyer, Police Chief William G. Karabas, Fire Captain, David Berkel, and Assistant Fire Chief Joseph A. Bratcher.

According to the *Post-Dispatch*, Berkel and Bratcher, protected only by normal firefighter's gear, transferred the bottles to water-filled containers. Karabas and Niemeyer then helped move the containers to a corner of the building.

After the four men moved the chemical, it was thought that a private company would carry through with the disposal, but no company would do this.

The Brentwood police chief finally contacted the Missouri Highway Patrol, which dispatched its bomb trailer from Jefferson City. Members of the disposal squad removed the picric acid, took it to the St. Louis County firing range and detonated it.

The head of the county arson and explosives squad said that they did not aid Brentwood because of a policy that prohibits the squad from disposing of a hazardous chemicals or toxic substances. This policy was reported to be due to the fact that squad members were trained to deal with bombs and explosives, not hazardous chemicals.

The four Brentwood police and fire officers did not think about whose job it was when they carried the volatile chemical to containers of water in an attempt to stabilize it—without the benefit of special protective clothing or equipment.

For their unselfish actions, William Karabas, Robert Niemeyer, Dave Berkle and Joe Bratcher will receive the SCAN Public Service Award. For making the nomination, Robert C. Patton will receive a special commendation plaque. Congratulations to all of you.

SCAN PHOTO CONTEST WINNERS

Best Equipped

Charles L. Bloss, Jr. of Lecompton, Kansas, is a longtime law enforcement professional who enjoys scanning and radio equipment.

His array of equipment consists of a Uniden Bearcat 950 XLT scanner, Regency M-400 and MX-4200 scanners, and Cobra SR-925 scanner. He also has a Uniden Madison SSB CB, Motorola Mostar VHF transceiver, Kenwood R-2000 shortwave receiver, two Bearcat weather receivers, and an IBM personal computer. Not shown here are a Motorola BPR-2000 digital pager and a Motorola P-100 VHF portable.

Charles has an "stack" of antennas that is also impressive. He uses a DB-224 VHF antenna on a rotor, Heath discone receiving antenna, Larsen BSA-150 VHF and BSA-450 UHF antennas, Shakespeare cordless telephone antenna, Antenna Specialists M-344 CB antenna, Grove Skywire shortwave aerial and a three television antennas. That's a lot of antennas!

The Heath discone is used with the Bearcat 950 XLT. The Larsen antennas and the DB-224 are used for the other scaners and for the VHF radio system.

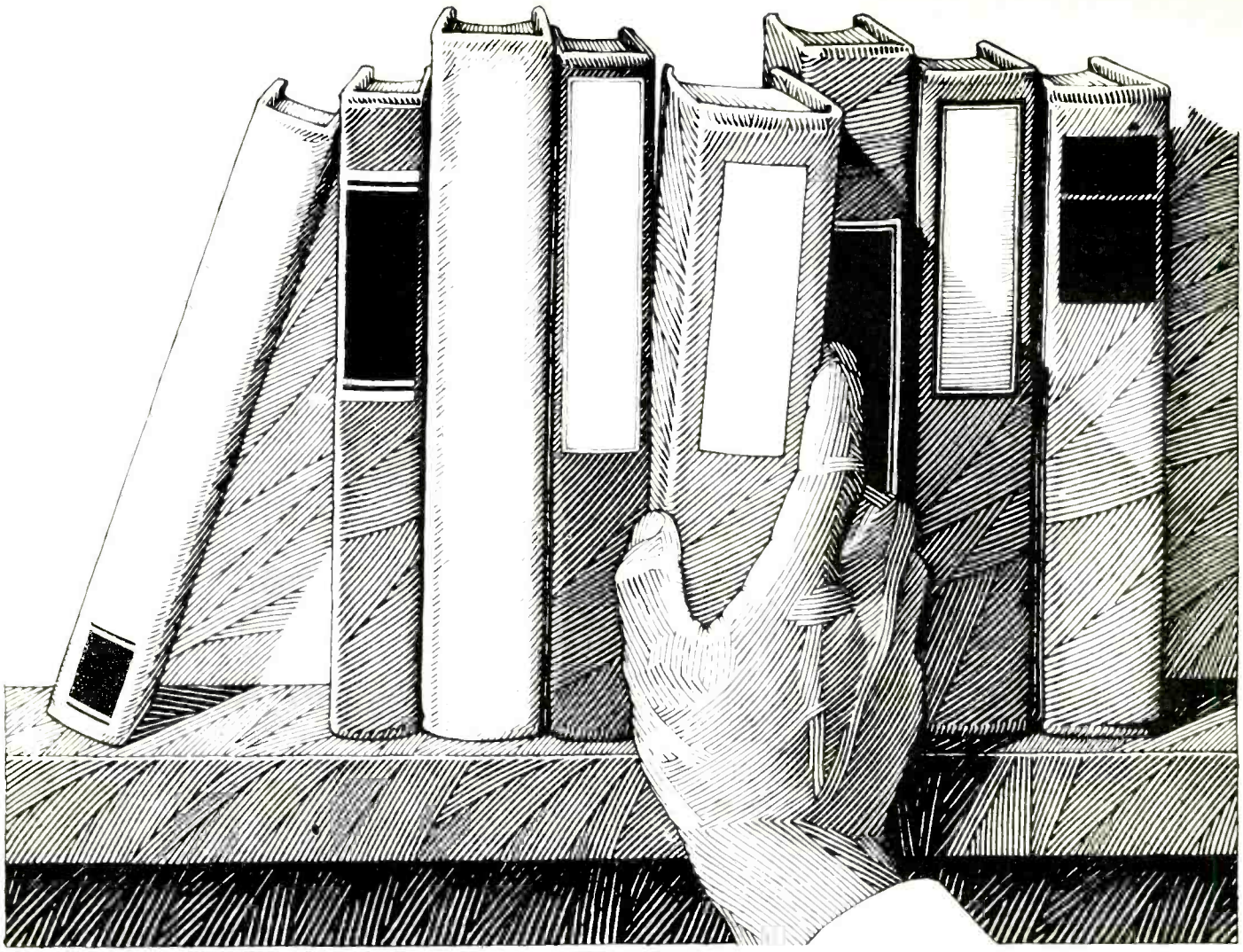
Best Appearing

Kevin Busse of Prior Lake, Minnesota, writes that he is "very much involved" with scanning, shortwave and amateur monitoring, and CBing.

Kevin uses a JIL SX-100 programmable scanner, Bearcat 50-XL handheld, Bearcat ThinScan aircraft scanner and Realistic four-channel crystal scanner. A Bearcat Alert receiver monitors the local NOAA weather frequency.

For shortwave listening, Kevin has a Realistic DX-160 and longwire antenna. His CB equipment includes a Hy-Gain-Eight 23-channel AM/SSB base station, Cobra 19-XS 40-channel AM, and a TRC-449 40-channel AM/SSB. These three transceivers are fed into a 48-inch marine whip antenna for short range use, or a center-fed vertical omnidirectional "StarDuster."

An assortment of microphones and meters round out the shack, along with an AMR amateur television tuner. Kevin's future plans call for an RTTY receiver and a provision to connect some of his radio equipment into his computer.



BOOKS YOU'LL LIKE!

BY R. L. SLATTERY

The Big Ear

A new book entitled *Now Hear This*, by Winston Arrington, is a 110-page large-format book that's a compendium of fifty eight schematics of electronic eavesdropping and surveillance devices. More than just the schematics, there's a considerable amount of very well thought-out (and well written) descriptive text relating to these devices.

Arrington's book spans a wide range of devices in its nine chapters. The chapter on transmitters includes such things as a carrier current unit, a wireless mike, infrared transmitter, laser transmitter and others. Then there's a chapter on telephone bugs and transmitters, a chapter on subcarrier devices, a receiver chapter, information on listening through walls, converting tape recorders to run a slow speed and use VOX, data on debugging, and more.

The devices range from relatively simple (1 transistor) to more complex (about 11 transistors and chips), so there's something here for all levels of technical expertise, and

you can select from the eighteen or so telephone transmitters. The schematics are accompanied by parts lists, and there are also photos.

In all, *Now Hear This* is a handy source of construction information for the do-it-yourself eavesdropper who has a bit of technical savvy. Arrington's selection of devices appears to cover just about all of the things you'd probably ever want o have in your little black bag, and his explanations of how they work are pretty straightforward.

Now Hear This sells for $30 (plus $4 for handling and First Class Mail) from Winston Arrington, 7223 S. Stony Island Ave., Chicago, IL 60649.

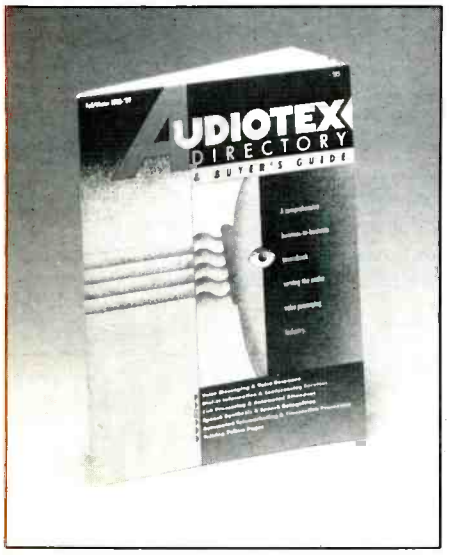
Voice Processing Sourcebook

The term *audiotex* and *voice processing* describe various landline electronic communication products and services that enable users to send or receive information by interacting with a voice processing computer. This includes voice mail, voice response, pay-per-call (900, 540 and 976) services, conferencing services, speech synthesis and recognition, party (550) line services, WATS (800) services, automated telemar-

keting and talking yellow pages. Don't look now, but this is a rapidly growing industry.

The Audiotex Directory is a 104-page sourcebook listing 649 voice processing hardware and software vendors, telephone companies, service bureaus, program producers, professional firms, and trade associations. The listings are cross-referenced by 72 categories organized alphabetically, and by product, service, and geographic territory served. There's also a glossary of 116 terms and 115 acronyms.

This is a new book that the publishers anticipate issuing twice each year in order to keep it current with the expanding industry. The issue we saw was put out last December, and contained names, addresses, telephone and FAX numbers, as well as the names of individuals to contact at the various companies listed. There are also a number of ads from firms offering hardware, software, and services in these allied fields.



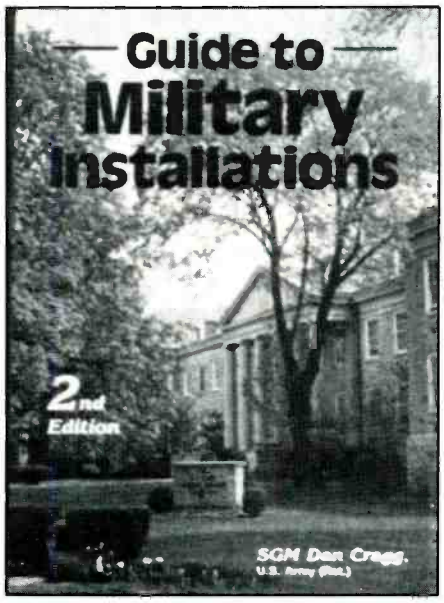
Actually, I found it pretty interesting since I've long been curious about all of those 540, 550, 900 and 976 type telephone numbers so many people and companies are making a buck from. Anybody who can figure out how to tag $2-per-minute on to your phone bill when little Billy calls up the Easter Bunny has got to have something going for them that may be worth your trouble to consider doing yourself. Last Christmas, there were no less than four different $2-per-minute Santa Claus numbers in my town battling it out on TV for patronage, and there are no shortage of ads from party lines for teens, swingers, rap fans, rock fans, and those who think Elvis is still alive.

It's a whole industry that's growing up right from scratch and there are apparently already at least 649 firms providing support services, hardware, and software. This is the directory that brings it all into focus. The directory, of course, assumes that its users have the basic background information on what this industry is all about; how and where to get started. For myself, I would have been greatly aided by a couple of pages of explanatory text geared to the total dummy who sees the birth of this fascinating telecommunications industry, but would like just a shade more information before being thrust headlong into a list of suppliers.

The Audiotex Directory is priced at $25 per copy from ADBG Publishing, P.O. Box 25961, Los Angeles, CA 90025.

Play It Again — Uncle Sam!

The new, revised, and expanded Second Edition of the *Guide To Military Installations*, by Sgt. Major Dan Cragg (USA Ret.) is an unusual, totally fascinating, and useful book for those who pursue military communications in the HF, VHF, or UHF bands, or those who are on active duty in the military services, or who are students of the military forces.



This is a fat 456-page volume that offers a wealth of information. While *not* a frequency directory, the *Guide To Military Installations, Second Edition*, is a complete one-volume, concise and comprehensive reference guide to about 400 military posts and bases of the U.S. Army, Navy, Air Force, and Marines in the continental U.S., Europe, the Far East, and throughout the world.

It's the only detailed and up-to-date reference guide to American military installations, and offers information you'll want to have on locations, names, addresses, base histories and missions, major units deployed at the installations, post facilities, climate, and lots more.

As with the earlier edition that came out several years ago, this is a very handy reference guide to service personnel, and an overwhelming wealth of background data for communications monitors, arranged in a convenient manner by state and nation. If you're one of the many monitors who has tried to access as much information as possible on American military facilities, this hefty (about 1¼ lbs.) reference volume will give you a massive jolt of information that's not available anywhere else.

The book has some photos, and it's helpfully cross-indexed by the military service, by the name of the specific installation, and by the names of many individual military units and commands.

Guide To Military Installations, Second Edition, is available from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725. This book is $17.95, plus $2 postage/handling to addresses in USA/Canada/APO/FPO. New York residents please include sales tax.

In Addition

A scanner directory covering Ontario has recently been issued by a company with the rather odd name of Haruteq, P.O. Box 9268, Stoney Creek, Ontario, Canada L8G 3X9. This is a book with listings arranged according to both frequency and location. The book costs $14.95 plus $3 postage (Ontario residents add $1.44 tax). Prices are stated in Canadian funds, and payments should be made only in Canadian funds.

Those in Northwestern Ohio and Southeastern Michigan will be interested in the Sixth Edition of Daryll Symington's *Scanner Frequency Directory* for that specific area. This is a 104-page publication that has enlarged geographic coverage from earlier editions, also showing additional radio signals and codes, many new frequencies and maps. Covering police, fire, business, maritime, medical and many other services, this directory is a fine monitoring aid, put together by a fellow who knows his stuff. It's available from Radio Infosystems, P.O. Box 399, Holland, OH 43528. Price is $8.95 plus $1.50 for Book Rate shipping ($2.50 for First Class or UPS).

Rhode Island may be compact in geographic size, but still it accommodates a sufficient number of scanner-band stations to tightly fill the new 138-page *Official Rhode Island Scanner Guide*, by Bob Coburn, W1JJO and several compatriots. Covering state, county, and local public safety agencies in great detail, the book also deals with transportation units, ski patrols, medical, weather, security agencies, business/industrial, and other types of stations, including those in the 800 MHz band. This book is $14.95, plus $2.05 postage/handling, from Official Scanner Guides, P.O. Box 712, Londonderry, NH 03053.

Like it or not, the rules for getting a ham license include demonstrating a knowledge of CW to one extent or another. Many people have tried unsuccessfully to learn the code, or else they memorize the letters but can't get up enough speed to obtain the class of license they want. Research has shown that *anybody* can learn the code once they overcome a rather common, but self-defeating mental block that has them fully convinced that they'll never accomplish this chore.

Enter *The PASS Publishing CW Mental-Block Buster*, a very clever and worthwhile way of crashing through those self-imposed

Specialized audiotex landline services have developed their own hardware to handle and deliver messages, deal with party line calls, etc. This directory is a guide to the manufacturers and their customers.

hoodoos. This is a professionally prepared audio tape that utilizes advanced self-hypnosis techniques to induce an alpha brainwave level in order to guide your consciousness towards conquering CW. It accomplishes this with a lot less time and effort on your part than you might imagine, maybe 30 minutes a day for a month. A booklet that accompanies the tape explains it all in detail and turns the whole process into something relaxing and even enjoyable. It's guaranteed to work for you, no matter how many other false starts you may have had in the past.

The PASS Publishing CW Mental-Block Buster is $19.95 (postpaid) for the tape and booklet (N.Y. State residents add $1.50 sales tax). Order it from PASS Publishing, P.O. Box 570, Stony Brook, NY 11790.

Los Numeros, The Numbers Station Log is a 10-page frequency list of shortwave "numbers" stations and assorted bits of relevant information from the files of the notorious *Havana Moon*. Transmissions in English, Spanish, Russian, French, German, and others are covered in these listings intended for the serious numbers hunter. This is $4, plus $1 postage, from Tiare Publications, P.O. Box 493, Lake Geneva, WI 53147.

Several readers have asked if we are planning on reviewing a new guide to railroad frequencies recently announced by someone in Indiana. The only information we have on it is that someone we know wrote twice to the publisher asking about the price and availability of the publication. No reply was ever received. This is as much as we felt like knowing about this publication and its source. **PC**

Man, What A Manpack!

Carry It On Your Back – Yak Via Satellite

Tobyhanna Army Depot is the prime maintenance depot for a new portable satellite communications system that allows soldiers to communicate between points anywhere in the world.

The AN/PSC-3 Manpack Radio Set and the AN/VSC-7 Vehicular Net Control Station (VNCS) are designed for light, quick-response units and special operations forces, says Joseph G. Valentukonis, Luzerne, depot production engineer for the program. The systems make up the family of Tactical Satellite (TACSAT) ultra-high frequency (UHF) terminals which will provide a satellite communications network for units down to company, detachment and squad level. They were developed by the U.S. Army Satellite Communications Agency (SATCOMA), Fort Monmouth, N.J.

"The manpack system is designed for soldiers with a long-range reconaissance or penetration (LRRP) mission," he says. "The soldier can carry the system (it weighs 14 pounds), enjoy increased range, and use certain high-speed transmission features that will protect him from enemy radio direction-finding efforts."

The battery-operated radio has an attachable keyboard to send data via "burst" transmission or voice communication. The system is protected against eavesdropping or jamming and is capable of ground-to-air communications. The vehicular net control station can serve several manpacks simultaneously and will be used as a command post, Valentukonis says.

"The system will be going into tri-service use. Army, Navy and Marine units, as well as special users, including the White House Communications Agency, will employ it," he says. "Sometimes rapid-deployment operations require that the people on the ground have the capability to send and receive information from halfway around the world," he says.

The depot began an early logistics support effort in conjunction with the U.S. Army Communications-Electronics Command, Fort Monmouth, N.J., SATCOMA and contractor personnel in September 1984, Valentukonis says. Tobyhanna personnel were involved with the validation/verification (Val/Ver) of the system's design drawings and identifying the depot maintenance work requirement shortly thereafter. "Our personnel attended training covering depot-level maintenance for the system at the contractor's plant in June 1985. In 1987, the Joint Logistic Support Plan (JSLP) identified Tobyhanna as the prime support depot.

Edward Balent, Swoyersville, Multipurpose Communications Equipment Section, is supervising the depot team. "It's pretty rugged and is considered a low failure-rate item," he says. "A lot of people are using them right now."

The radios are also being used in conjunction with other systems including the AN/TSC-99 Tactical Command Center and the AN/TSC-189A Net Radio Interface which is housed in a depot designed and fabricated shelter. PC

Secret Code Machines: The Inside Story

The Eerie World of Espionage Has Created Some Truly Strange Hardware!

BY A.E. FELDMAN

About the author: Mr. Feldman is an avid collector of cryptographic equipment. Persons who share this unusual hobby with him, or who have ciphering devices they wish to swap or sell, can contact Mr. Feldman in care of: Felco Trading Co., Inc., 4002 W. Kennedy Blvd., Tampa, FL 33609.

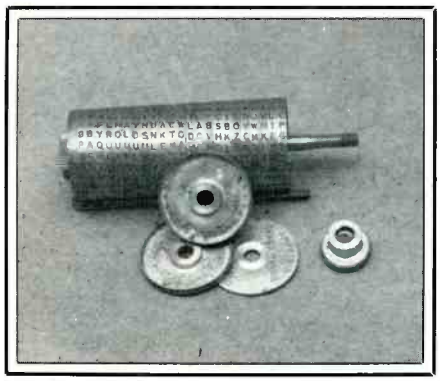
To the general public, the secret world of codes and ciphers is either unknown or is thought to be primarily a creation of authors of cloak and dagger fiction. Shortwave monitors know it's more than imagination; for decades the shortwave frequencies have been alive with mysterious groups of numbers and letters that had proven highly resistant to decryption by the casual listener. Yes, it is a secret world, yet nonetheless real.

If one seeks to make sense out of the many coded messages that are exchanged by the military, by diplomats, government agencies, industry, and even the underworld, one needs to wrestle with jargon and special terms such as *encipherment, superencipherment, polyalphabetic substitutions, transposition programs*, etc., for cryptography has advanced far beyond *Captain Midnight's Ovaltine Decoder Ring*.

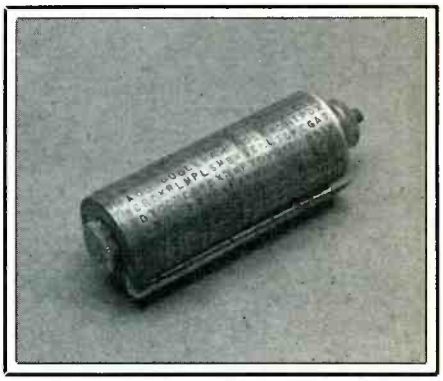
More than just know the jargon of codebreaking, in order to really get into the subject, a person would be well advised to consider postgraduate study in mathematics and physics. Advanced knowledge of computers, as well as a good working knowledge of several languages is also an asset.

The Easy Way

Academics aren't for me, and mathematical skills beyond the ability to successfully balance my checkbook are considered rather dry and uninteresting. But I am still a part of this fascinating world, for I admire and collect the dated and now mostly obsolete mechanical devices commonly known as *code machines* or *ciphering devices*. Most date from (or are evolved from) pre-1950 designs.

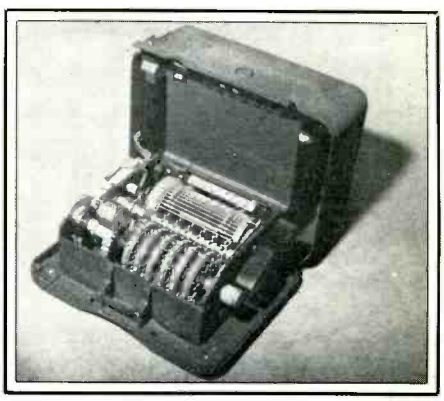


A partially disassembled M-94.



Hard to believe that this simple ciphering device was used by the U.S. Army as late as 1939. It had been invented by Thomas Jefferson.

The complete M-209, as issued with all manuals, tape, and accessories.



An interior look at the M-209 with its cover lifted.

These unusual and intriguing gadgets are sought by a small group of collectors, not only as historical relics, but also as devices that represent the culmination of processes that are basically intangible and theoretical. For some, they are a pleasant mix of ideas and concepts, a clever manipulation of theory into mechanical reality, like an intellectual toy that is also a unique art form.

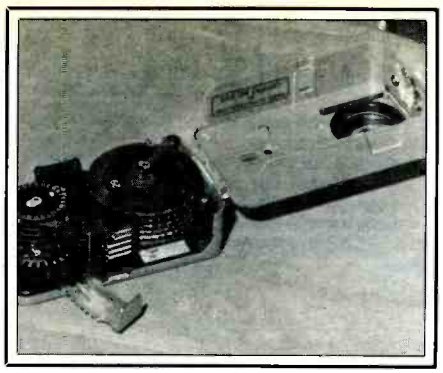
While much has been written about the theory behind various codes and ciphers, relatively little has been presented about the assortment of machines required to put those systems to practical use for sending and receiving messages. They are clever and uncanny devices, and I'd like to introduce you to some that have been encountered.

The M-94 Jefferson Wheel

The simplest device in my collection, though not frequently encountered, is the American *Cipher Device M-94*. The model number is typically military and is similar to modern nomenclature. In actuality, the M-94 dates back to 1922 and is mentioned as such in David Kahn's book *The Code Breakers* (Macmillan, 1967).

The M-94 is described in the War Department's FM 24-5 (*The Basic Field Manual of Signal Communication*) of 1939, and notes that it is "a cryptographic instrument that is an item of equipment issued by the Signal Corps to all message centers as one of the authorized means for secret communication."

Exterior view of the CX-52-D, a variant of the C-52 machine.



Crypto AG's Model CD-57 is as finely crafted as a handmade Swiss watch.

The military manual goes on to exquisitely describe the M-94, saying that it "consists of the following parts: (1) A central shaft, the left end of which terminates with a projecting shoulder, the right end of which is threaded. (2) A set of 25 alphabet disks, on the rim of each of which there is stamped a different, completely disarranged alphabet. (3) A guide-rule disk, consisting of a blank or unlettered disk from which projects a guide-rule. (4) A retaining plate, consisting of a thin disk upon one surface of which is stamped the name and type number of the device. (5) A knurled nut."

Get the idea? This description gives new meaning to the aphorism of a picture being worth 1,000 words. Still, the M-94 is remarkably easy to use, although the simplicity is a trade-off at the expense of signal security. Given the state of the art of cryptanalysis even before 1922, this device offered little (if any) security. Not at all surprising that the reason the M-94 was nicknamed the *Jefferson Wheel* was because it had been invented in the Seventeenth Centruy by Thomas Jefferson!

It's remarkable that our pre-WWII military was using for "secret communication" a device whose basic principle was undoubtedly even older than the 150 year period that had passed since Thomas Jefferson first proposed the device and its actual adoption by our armed forces! Nevertheless, it is a noteworthy historical item.

The M-209, A Sturdy Contender

The most frequently encountered device is the American M-209, and what a wonderful and complex machine it is! It's less than 7-inches square, and the actual mechanism is reminiscent of old time mechanical adding machines.

A cursory look inside the M-209 reveals very complex workings. There are six internal keywheels, each with attched moveable tabs, providing a cryptographic *period* (the number of letters the device must consecutively produce from plaintext before enciphering routines are repeated) or more than one hundred million!

As impressive as all of this sounds, supposedly by the middle of WWII the German intercept stations were routinely deciphering M-209 messages in as little as three hours. So much for any really serious secrets sent out via an M-209 network. But the M-209 was a tactical device, and for some tactical operations, three hours clearance may be an acceptable time frame.

The basic mechanism dates from the late 1930's, being credited to Boris Hegelin, a Russian-born Swiss citizen. While Hegelin's brilliance can't be denied, it does appear that the M-209 was actually a refinement of earlier devices. Legend has it that in 1940, Hegelin secured passage on one of the last European ocean liners and visited American authorities with samples and prototypes of the M-209. David Kahn's *Code Breakers* book reports that more than 140,000 M-209's were made by L.C. Smith and Corona Typewriters, Inc. Reportedly a Cyrillic (Russian) alphabet version was also made. One source states that the Italian Navy used a device identical to the M-209.

The military manual for the M-209 was entitled, "Technical Manual TM 11-380, Converter M-209, M-209-A, M-209B (cipher)" and is dated 1944. It describes the M-209 as being used in military units of division level and below. The enciphered text appeared as five-letter groups.

It was a sturdy little unit with a top lid that folded down to protect the mechanism. Perhaps its basic ruggedness is why so many seem to have survived and still turn up at gun shows, antique shows, and flea markets. A few I've seen appear to look unused, or even brand new in factory condition with all manuals and accessories.

M-209 legends abound. One is that Turkey adopted 500 or 1,000 of them after WWII. Another story is that our government dumped thousands of M-209's into the ocean rather than sell them as surplus. An alternate legend claims they were first "steam rolled" or torched into junk and *then* dumped into the ocean.

Mr. Hegelin went on to start a Swedish company called Crypto-Aktien Gesellschaft A.G., devoted entirely to manufacturing cipher devices and systems. Presently the company is located in Zug, Switzerland and is known as Crypto AG Zug.

The Heyday

During the heyday of mechanical cipher devices (from WWII to the late 1960's when electronics took over), Crypto AG was active in marketing their crypto equipment. Since the large world powers develop their own crypto systems, chances are that the company primarily sold them to the smaller nations. The products were reasonably effective if the instructions were carefully followed, and it was still less expensive for a Third World nation than doing its own research, development, and production.

Crypto AG's C-52

Probably Crypto AG's most popular mechanical device of this era was their Model C-52, of which several variations of the versatile design are known to exist. The basic C-52 was an updated version of the C-48, which was Crypto AG's designation for the military M-209. Updating modifications in the C-52 included extra setting tabs (divisions on the six internal keywheels) to increase the cipher period to over 2-billion (a huge increase over the M-209's one hundred million). Despite the increase in performance, this was a reasonably simple modification to the C-52 (M-209) and the machines were cryptographically compatible with one another. This was a shrewd marketing strategy since owners of the older C-48 systems could acquire the newer units without replacing the entire system.

The photos show the CX-52-D, a variant of the C-52 without keywheels. Though the manufacturer is unable to provide any information on this version, the module installed in place of the keywheels leaves little to speculate about. Instead of the keywheels, they installed an electro-mechanical 5-pin paper tape (standard TTY tape). The obvious intention was to eliminate the tedious and sometimes error-prone manual settings of the keywheels and tabs by using preprinted "key" tapes to program the machine during each operational cycle. The inability of the manufacturer to provide details about this variation suggests that it was an experimental or prototype model, or a marketing failure.

Crypto AG's CD-57

Crypto AG's CD-57 is a neat and compact, mini-handheld ciphering device. The factory manual claims it "has been designed for need of extreme portability where direct printing of the texts can be dispensed with." In other words, like the other units thusfar discussed here, it is a non-printing machine.

The CD-57 mechanically produces a double substitution type cipher and, depending upon the key wheels used, key series from about seven hundred million to six

The CX-52-D shown mounted on the B-621 electric keyboard base comprised the BC-621 unit.

billion signs will be obtained. This is an elegant and finely made precision device with six keywheels. It reminds you of a handmade Swiss watch. The surprising thing is that this was being made at least as recently as 1974, well into the era of electronics and computer-driven devices.

Accessories

Crypto AG also sold various optional accessories to go with many of their cipher machines, for instance the B-621 electric drive or base. Placing a CB-52 cipher machine in combination with the B-621 was said (by Crypto AG) to comprise the BC-621 electrically driven cipher device not too dissimilar from an electric typewriter.

There was also the PEB-61, an electrically operated paper tape machine for mating with the B-621. The PEB-61 produces both plaintext and ciphertext tapes, as desired. The manual says it is for producing "5-unit code perforated tape for use in standard teleprinter systems."

These several devices I have described are but a small sampling of the mechanical cipher devices that have been made and are being sought by collectors. Although numerous devices have been patented and many machines are known, doubtless many others are as yet unknown. Almost every nation, military service, and diplomatic establishment used mechanical ciphering devices from before the onset of WWII and the proliferation of microprocessors and computer based devices.

Despite the arcane nature of codes and ciphers, their use is one that has had a profound effect on the world. Yet, regardless of the complexity and secrecy that has always surrounded encrypted material, there is a surprisingly wide distribution of some of the strange devices and accessories used in conjunction with coding and decoding messages. Many devices are no doubt still awaiting liberation from garage sales, flea markets, gun shows, hamfests, and who knows where else. Although the pickings get slimmer with each passing year, collectors continue their search. PC

Do You Have A Shack FAX?

The Latest In High Tech "Must Haves"

BY ANSEL KING

The FAX—short for facsimile machine—has created the largest technological explosion since the advent of the personal computers, cellular telephones and near pocket size scanners.

Attorneys speed legal briefs from home to office or from attorney to attorney. Radio disc jockeys have even discovered the advantages of accepting requests via FAX. Can't you just see that FAX machine churning out request after request for George Michael?

SWL's might send a copy of a recently acquired rare QSL to another FAX equipped SWL far across the U.S.A. or even around the world. It might even be possible to "FAX" reception reports to FAX equipped broadcast stations. The uses of the FAX are only limited by our imagination. There's even a "FAX" version of telephone marketing in some cities.

Obtain one of the many FAX telephone-number directories (some of the listings will amaze you) and see if any international broadcasters are listed. If so, send a reception report by FAX. Who knows—you may be the first to receive a QSL by FAX.

The FAX technology goes back many, many years. All the way back to 1922 in fact. That's when a newspaper wire service transmitted a photograph of Pope Pius XI all the way from Rome to the *New York World News*.

There's a downside to all this FAX madness, though. Transmissions are easily intercepted. The same techniques used to tap a telephone are used to intercept FAX transmissions. The only difference is that another FAX machine is used rather than a tape recorder. I am told, however, that a tape recorder will suffice in a pinch.

FAX machines have all the earmarks of becoming an excellent asset to the communications hobbyist.

Corporate users have long been vulnerable to those that would engage in acts of industrial espionage. These persons (industrial spies) must have learned their craft from the CIA and NSA. These two agencies have long invaded the private domain of the FAX world. Don't expect them to admit it, though.

FAX encryption devices are now becoming available to businesses as well as other users. Will the CIA, NSA and those who profit from "industrial" or "corporate espionage" be thwarted?

And be aware that you can now "FAX" a full page of information in just about twenty seconds. And be sure you have a dedicated phone line for your system.

The FAX. The greatest(?) high-tech gadget since the beeper and cellular phone. Can your "shack" or "listening post" afford to be without a FAX? I find new ways to use mine every day. PC

A Sampler of FAX Numbers Within Broadcasting and Communications

Radio Free Europe/Radio Liberty, NY	212-397-5374	Turner Broadcasting, GA	404-898-8593
BBC, NY	212-245-0565	Federal Communications Commission, DC	202-472-7450
VOA, DC	202-376-1066	Popular Communications Magazine, NY	516-681-2926
Radio Canada International, Ontario	613-225-5361	Station WAVE-FM, FL	813-355-7133
ITT Worldcomm, NY	212-940-1778	Station KABC, CA	213-557-5710
RCA Global Communications, CA	213-327-9610	Station KCST-TV, CA	714-279-1076
Communications Satellite Corp., DC	202-488-3814	Station KTBC-TV, TX	512-476-5901
CBS, NY	212-975-0329	Nat'l. Radio Astronomy Observatory, AZ	602-762-6972
ABC, NY	212-887-3794	U.S. Army Vint Hill Farms Station, VA	703-349-9085
NBC, NY	212-765-1478		

Here are a handful of examples of the dedicated FAX numbers of some of the companies and groups whose operations are of interest to POP'COMM readers. There are hundreds and hundreds more, too. Even Vint Hill Farms, one of the places from which mysterious shortwave numbers transmissions emanate, has a FAX number!

THE HAM COLUMN

BY KIRK KLEINSCHMIDT, NT0Z
AMERICAN RADIO RELAY LEAGUE HQ

GETTING STARTED AS A RADIO AMATEUR

As you've probably noticed, *The Ham Column* has a new byline. So, before we get underway with this month's out-of-this-world subject, I'd like to introduce myself. That way, when you send in your photos, questions, comments, or letters, you'll have an idea about who's on the receiving end.

It's a pleasure for me to write for *POP'COMM* because—not all that many years ago, at the age of 12 or 13—I started my amateur radio career as an SWL, listening to a crusty, old, cobweb-ridden Zenith Transoceanic receiver. My father bought the thing at a farm auction and, by the looks of it, it had been sitting in the farmer's barn for quite some time.

"Make sure you don't touch that radio," my father warned me, "it's got a short, and you'll get electrocuted." (I later discovered that, to those unfamiliar with electricity and electrical gadgets, every malfunctioning electronic device has a short circuit. . .).

As soon as I could, I plugged the old Zenith's power cord into the wall socket, flipped open the hinged outer cover and hit the power switch. "Well, I'm not dead yet," I thought, eagerly gazing at the world map and time-zone charts printed on the inside of the radio's cover. Lucky for me, Old Betsy still had some life in her. When I heard the sounds of the BBC, VOA and other stations (and heterodynes, pops, whistles, squeals and other assorted noises) blaring from the speaker, I was hooked! Again, lucky for me, my father didn't get too excited when I told him about my adventures with the barn relic.

After discovering ham radio, I knew I wanted to "talk back," instead of just listening as an SWL. My long-awaited Novice ticket arrived in the summer of my 14th year. Although I didn't have a rig of my own, Dale Ritchie, WD0BAC, lived just down the street. (We both lived in Little Falls, MN—Dale still does.) His Drake 2-NT rig would do just fine. Initially, I was so nervous I could hardly remember the code, but I managed to work a few stateside (US) hams and gradually found my nerve. My tenth contact, however, was most memorable. It was with DA1KV on 15 meters. Because of his call, I knew he was in Germany—but to me, that seemed like a million radio-miles away. The moment I heard him send my call (at that time it was WD0BDA) I knew DX'ing was for me—it's still one of my favorite aspects of amateur radio. Although the Zenith is long gone, I still find time to tune across the shortwave bands. Today I use a Realistic DX-440 and the general-coverage receiver in my ham transceiver. I'm also building a couple of home-made receivers that should soon be in service.

Fig 1 - Dave Blaschke, W5UN, sitting at the controls of his Mighty Big Antenna. Dave was first licensed in 1952 after being introduced to amateur radio through shortwave listening. Dave's other interests include DX'ing and contesting, as evidenced by the plaques on the wall of his shack.

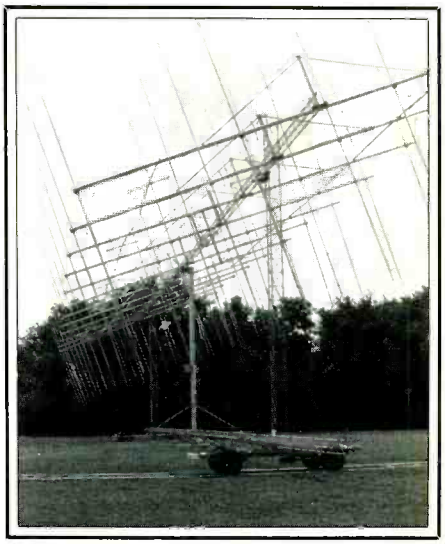


Fig. 2 - End view of W5UN's Mighty Big Antenna. Note the truck chassis in the bottom of the photo and their concrete "track." The array's turning radius is 76 feet. Full rotation takes about 6 minutes. The antenna takes up nearly an acre of Dave Blaschke's back yard. See text for details.

Now that you know a little about me, I hope you'll introduce yourself by way of a QSL card, letter or a photo—you may even wind up in the pages of *POP'COMM*.

Moonbounce: It's Out Of This World

When most people think of amateur radio, they probably think of SSB or CW work on the HF ham bands, or 2-meter FM repeaters. While these activities are the bread and butter of the amateur service, there's a whole range of exciting ways to get your signal from point A to point B. Moonbounce, or EME (earth-moon-earth) was, until recently, a far-out hobby practiced by the relatively few hams who could build the necessary high-tech equipment required to transmit a signal to the moon and receive the incredibly weak echoes. Today, hams are bouncing their signals off the moon at an ever-increasing rate, as commercially available antennas, preamplifiers, power ampli-

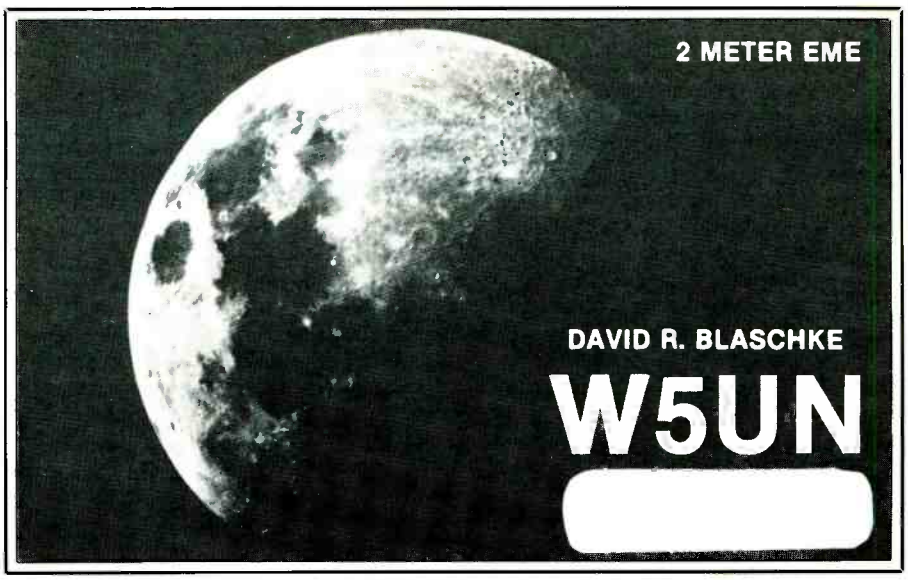


Fig. 3 - W5UN's QSL card says it all!

fiers and new technology bring this once-exotic mode within reach of nearly every amateur.

Until July 1960, only the military had the "right stuff" to facilitate 2-way radio contacts via the moon—until members of the Eimac Radio Club, W6HB, and the Rhododendron Swamp VHF Society, W1BU, made the first amateur EME contact on 1296 MHz. Even though the ice was broken, hams didn't get on the EME bandwagon until the 1970's. EME activity kept pace with the technological advances of the late 70's and early 80's, and today, thousands of hams have used the moon as a passive reflector.

Bouncing a signal off the moon may sound like an impossibility for the average ham. After all, the moon's a moving target with an average distance from the earth of about 240,000 miles, making a round-trip of nearly a half-million miles. Talk about DX!

Actually, all you need to get started on EME is a 2-meter transceiver, a 150-W amplifier and a single Yagi (beam) antenna. Admittedly, you won't work every station "on the moon," but you'll certainly be able to work a few, including Dave Blaschke, W5UN—a Houston-based ham who just may be the world's most well-known EME'er (see Fig 1). Why is Dave so well-known and why can he hear the pip-squeak signals most others cannot? One look at his EME array (the world's largest amateur EME antenna), dubbed the Mighty Big Antenna, will make it perfectly clear!

In the early 1980's, Blaschke, an electrical engineer for a large oil company, started experimenting with EME in his backyard. At that time, he had to scale his antennas so they would fit onto an average-sized city lot. His first EME antenna, and the predecessor of the MBA, was an array of 16 home-made antennas. Although his first antenna worked quite well, Blaschke longed for the space required to set up a truly awesome "Texas-style" array. When he and his family moved to a Houston suburb in 1985, Blaschke got his chance.

In his several-acre backyard, Blaschke in three months of concentrated effort—built the first version of the Mighty Big Antenna. It had 32 long-boom Yagis and was built onto a rotatable structure, allowing the antennas to track the moon in both azimuth and elevation as the lunar reflector moved across the sky. Many stations were worked using the 32-antenna array, including many "low-power" EME'ers running 150-W into a single Yagi antenna.

In an effort to squeeze every last drop of signal-gathering ability from the MBA, its antenna count was increased from 32 to 48 in 1987, easily making it the world's largest amateur EME array. In the world of weak signal work, every little bit of gain helps. Using the new and improved MBA, Blaschke has been able to work hams in 77 countries via 2-meter moonbounce. In the thousands of EME contacts since 1985, he's worked more than 1,055 *different* stations. Blaschke is shooting for the first 2-meter DXCC award. (DXCC, the DX Century Club, is issued to hams who confirm contact with other amateurs in at least 100 "countries.")

If this brief introduction to EME has piqued your curiosity, try tuning in to the EME information net that meets at 1600 and 1700 UTC every weekend on 14.345 MHz. If you have a 2-meter receiver and a beam antenna, Blaschke invites you to listen to 144.008 MHz on weekends when the moon is visible. If you can copy CW and conditions are just right, the signals you hear will probably belong to Dave and his Mighty Big Antenna!

Stay tuned to *The Ham Column*, because I'll be featuring other unusual amateur modes in future issues. If you've got a topic you'd like to see featured, drop me a line and say hello. Send along a photo of you and your shack and I'll send you a free copy of the *Novice Survival Guide*. It contains a lot of useful information, maps, log sheets, and other interesting stuff for hams and SWL's alike. Write me at: ARRL, Dept. PCN, 225 Main St., Newington, CT 06111.

A Brief Look At The Mighty Big Antenna

W5UN's Mighty Big Antenna (shown in Fig 2) consists of a whopping 48, 17-element 2-meter Yagis, each 31 feet long, with a gain of 14.8 dBd. Total system gain is approximately 32.5 dBi. The antennas are attached to a main horizontal boom made from a 152-foot-long tower section in 12 rows of four antennas. That makes for an "antenna volume" of about 179,000 cubic feet! The two outer towers are mounted on pickup truck chassis and pivot around a central rotatable shaft. The truck chassis ride on 16-inch-wide concrete strips, 110 feet in diameter. Even in Texas, the MBA is a neighborhood eye-opener! PC

BETTER SIGNALS

ANTENNAS AND SIGNAL IMPROVING ACCESSORIES

BY ED NOLL W3FQJ

More About Indoor Antennas

Receivers perform well using hook-up wire for single-wire antennas. Unlike transmitters, power and high current capability are not a factor. Consequently receiving antennas can be assembled using thin wire. Gauges #18 through #22 are popular. Insulated wire of this type is essential because bare wire can scrape against metallic surfaces. Noise is generated and/or there may be a reduction in the effective length of the antenna. Thin hook-up wire is flexible and can be routed in a non-obtrusive manner along base boards and under carpets by weaving the wire around the apartment or the area of the house to which you wish to confine the antenna. You will be surprised how well you can hide away a 45-foot to 75-foot antenna wire with a resultant improvement of pick-up on the lower-frequency SWB bands. Somewhat better results on some of the higher-frequency ones can happen too as compared to the pick-up of some of the shorter wire antennas described previously in this column.

In an example, we increased the length of a 24-foot wire (31M) to 48 feet to make it a quarter-wavelength on 60 meters. A decided improvement was noted on the 49, 60, 75, 90 meter bands and a limited improvement on 120 meters. There was little or no change on 31 meters, to which the 42-foot wire is $\lambda/4$ resonant. This is inconsistent with accepted theory. However, the variables within an apartment building, condominium, down to a small house make a cut, move and try procedure the only way to go about finding a reasonable antenna arrangement when you are hampered by surrounding metal and its shielding effects. For an indoor antenna installation, the results deviate from classic theory much more than they do for outdoor in-the-clear installations.

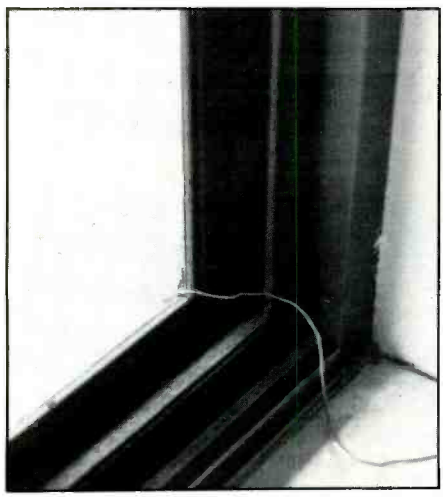


Fig. 1. Taking an indoor antenna outdoors on the patio for a length depending on patio size.

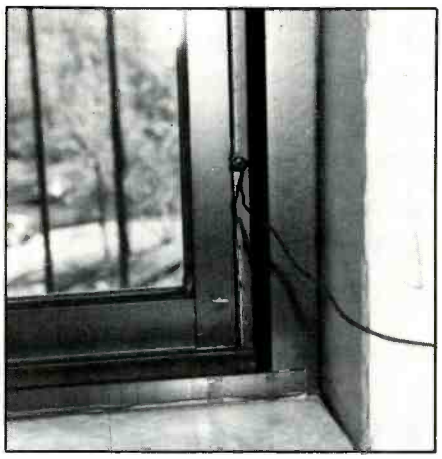


Fig. 2. Connection to metal window.

If there is a patio outside a metal window, there is no problem in passing the thin hook-up wire you are using for an antenna between window and frame. A patio, depending upon its size, may be a good spot for a short-wire antenna or, a means of extending a much longer indoor antenna into the outdoors a limited distance. If a screen happens to be fixed to the outside of the window, choose a wire size that will pass through the screen aperature. Usually gauge #22 will do the job as in Fig. 1.

Fig. 4. Test set-up showing MW/LW and SW tuners, three-position coax switch and receiver.

Metal Framed Windows And Doors As Antennas

Modern apartments, condos and other dwellings often use metal windows and doors with a fixed segment and a sliding segment. Many of these have no connection to ground or any other metallic structure of the building. Therefore, they can serve as convenient antennas that give you reasonable performance and, on occasion, some of the higher-frequency bands are received better, or nearly as well, than with a longer antenna indoor wire.

A 6′ by 3′9″ metal window is about three feet from my R-2000 receiver and can be linked with a short length of wire. It served well as a non-interfering reference HF antenna used to compare the 24′ and 48′ long wires discussed previously. First

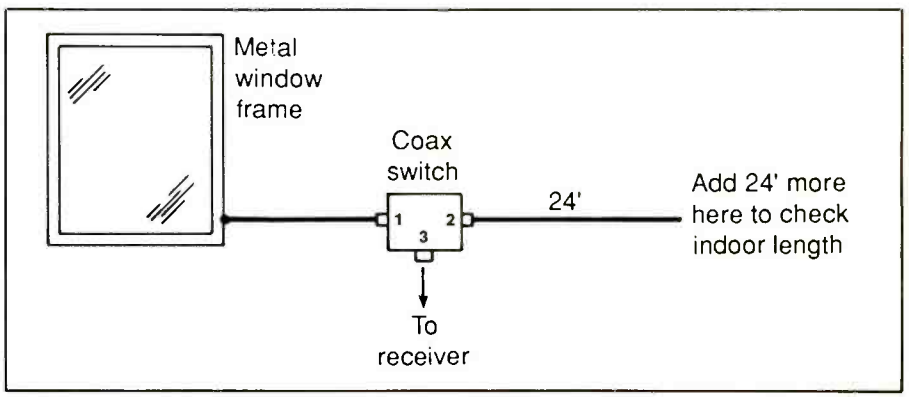


Fig. 3. Basic comparison set-up.

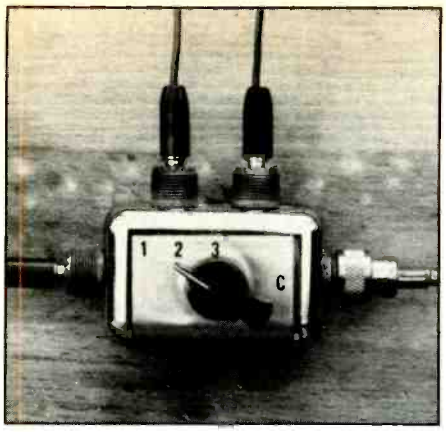


Fig. 5. Use of three-position switch to compare performance among three indoor wire antennas.

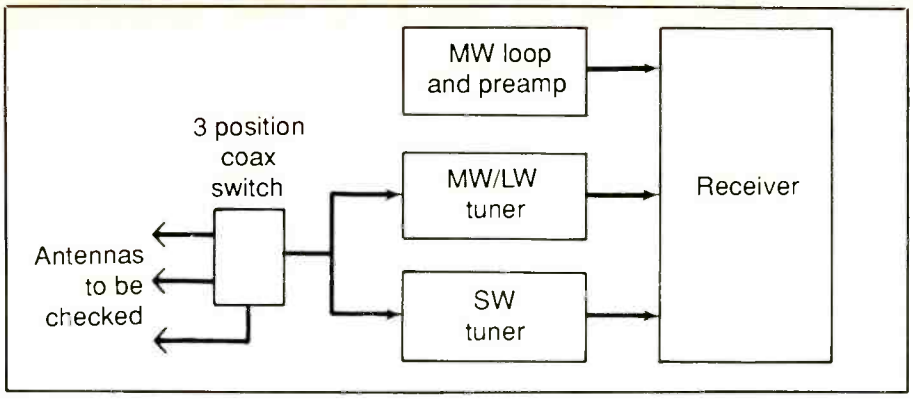


Fig. 6. Versatile test set-up. Coaxial switch can be wired in various ways among units depending upon needs.

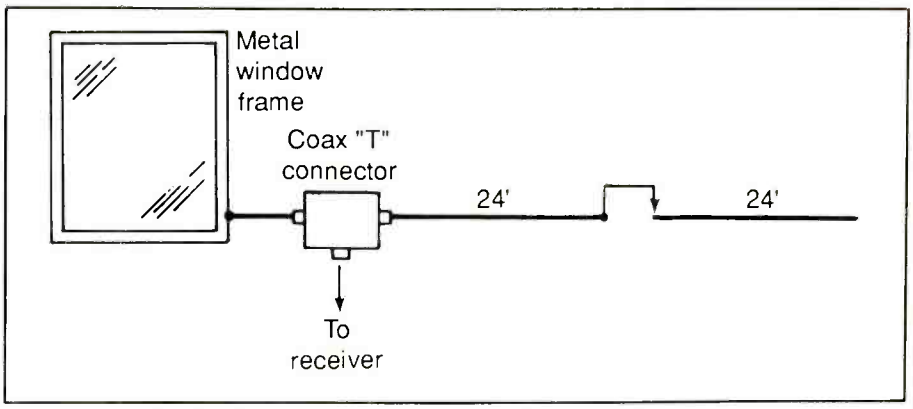


Fig. 7. Metal window and long-wire dipole combination.

the 24 ′ wire was checked against the reference. Than an additional 24 ′ length of wire was added on to its end to obtain a 48 ′ long wire. By comparing the figures obtained for the 24 ′ and 48 ′ long wires, you obtain an excellent idea of their relative performance. The short length of wire was bared at the far end and held down by a convenient screw that was a part of the window assembly, Fig. 2. Also an alligator clip can be attached to the end of the bared wire making it easy to connect and disconnect quickly this very simple window frame antenna. If you wish more sensitivity for your frame, you can use a very low noise level pre-amplifier just ahead of the receiver antenna input. More is to come on this subject later.

Test Set-Up

The arrangement of Fig. 3 shows how the test was made using a two-position coaxial switch. Window reference connects to the inner conductor of one input and the 24 foot wire to the other. This was check 1. In the second check it was only necessary to join the additional 24-foot length of wire to the far end of the 24-foot antenna.

A Utility Test Set-Up

A utility arrangement for checking indoor antennas is shown in Fig. 4. The four major components are the R2000 receiver, the MFJ941D antenna tuner for 2 to 30 MHz and the Grove TUN-3 tuner for MW and LW bands, and a 3-position coaxial switch that accommodates coaxial lines as well as single-wire lines to which a banana plug is attached. In Fig. 5, notice that single wires are applied to the three inputs and a 2-foot length of coaxial line links the output to the receiver. However, all sorts of arrangements of coaxial and single-wire input and output lines are possible, Fig. 6. Either of the tuners can be connected into the test arrangement in coaxial or single-wire fashion. Also the MW loop antenna can be used as a part of the utility set-up.

One of the last tests made was to form a dipole from the 24-foot length of wire and the window, Fig. 7, using a T-connector to act as a dipole to coaxial line connector. The output side of the T-connector was then connected to one of the coaxial switch inputs. When operated as a dipole-connected pair, there was a great improvement in signal levels on the 49, 60, 75 and 90 meter bands. This idea we want to look into in detail. There is more to come on indoor antennas. Don't forget to send in your own ideas for possible insertion in the column.

EMERGENCY
COMMUNICATIONS FOR SURVIVAL

BY GORDON WEST, WB6NOA

12 Volt H.F. KW Amplifier

No question about it, a kilowatt on high frequency SSB is going to get through louder than 100 watts "barefoot." High power output is also helpful in breaking into an ongoing QSO to interrupt for emergency traffic.

Since most emergency command posts, and emergency communications vehicles, are set up for 12 volts DC as the primary operating power, it would make sense to equip your station with 12 volt DC kW power capability. The Magnus MA-1000B amplifier is the only one of its kind for amateur radio and emergency kW communications (Magnus Electronics, Inc., 262 Carlton Drive, Carol Stream, IL 60188.)

Their amplifier is an all-in-one unit. It weighs under 20 pounds, and measures 4 inches high, 10 inches wide, and 19 inches deep. It's a compact black, anodized aluminum box with a massive heat sink on the top. The front panel is ultra-simple; an on/off rocker switch that also doubles as a 12 volt DC circuit breaker, a band selector switch (which may be remote controlled), and a big relative power output meter (unfortunately unlighted.)

On the back of the unit, connection points for battery-cable-sized red and black wires for 12 volts DC, power input, power output SO-239 jacks, a jack to attach the keying line, and an accessory socket to remote control band switching.

The amplifier is completely solid state, with no tubes. Eight power output transistors operate in 4 stages of push-pull operation, amplifying 50-100 watts input to well over 600 watts PEP output. The frequency range is from 1.8 MHz to 30 MHz, but getting above 21.5 MHz requires the addition of a simple add-on kit available as an option.

The coverage is uninterrupted! In an emergency, the amplifier could also work at 4, 8, 12, and 16 MHz Coast Guard distress channels. In an emergency, it could include CAP frequencies, and Red Cross H.F. frequencies.

During the actual testing of the amplifier, I found it worked quite well with inexpensive, 10-meter, single-band transceivers. These sets are available from President, Uniden, and Radio Shack. Although the 10-meter-sets only put out 25 watts, a slight adjustment of the 10-meter transceiver's ALC network will squeeze out a little bit more power, and the amplifier drives quite nicely at these relatively low-power settings. It's actually rated for 70 watts PEP input, so a 100 watt PEP output ham transceiver will run this amp at its limit. With a good supply DC voltage input (such as storage batteries), a 100-watt ham set could easily develop more than 700 watts output.

The amplifier needs a keying circuit to close its internal relays for transmit. Almost all H.F. transceivers offer jacks on the back that may be tapped for PTT to ground to trip the amplifier on. It's important to note that the DIN plug is necessary to be inserted in the back of most ham sets to energize the ham set's tiny relays for energizing the amp. Just poking two wires into the ham set's accessory plug PTT circuit won't do the trick—you need the physical DIN plug insertion that pulls in additional ham set PTT relays.

Emergency command centers may place the amplifier right next to their H.F. equipment. RG-213 takes the high power output and runs it up to a rooftop antenna rated for kW operation.

For mobile installation, the amplifier needs extremely heavy power leads in order to operate efficiently. If you mount it in the trunk, fused red and black power cables will be required to supply the 75 amps peak current necessary for proper amp operation. A diagram in the instruction book indicates how to switch bands from the remote-control accessory plug. Simply ground one of the colored wires, and you are on that band automatically. Some mobile H.F. sets give you this capability already, so it could be easier than you think.

Make sure to use only mobile whips rated at a kilowatt when using this amplifier. You will smoke any mobile antenna not rated for kW operation. And it's also important to remember that 500-700 watts on an antenna is a very dangerous power level for anyone near it. Make absolutely sure no one may come in contact with the transmitting antenna at this power level.

If your emergency command post uses a random length dipole on the roof, you will need a kW tuner to safely resonate the system. Any tuner smaller than this will likely burn out.

The amp could run approximately 3 or 4 hours on a regular automobile-sized battery before the battery requires a recharge. If you do a lot of listening, and only a little talking, you could get away for at least a day or so on a standard automobile battery. Solar cells would be a good way of charging the automobile battery from your emergency command center.

This one-of-a-kind amplifier is an outstanding high frequency SSB performer. Use it only when you need to punch through a pile up, or get someone's attention. Never run more power output than necessary—but if it is necessary, this amplifier will certainly assure your high frequency signal gets attention! PC

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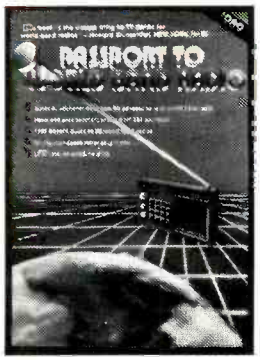
Note: Many more antennas available. See catalog.

COMMUNICATIONS BOOKS



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TELEPHONES ENROUTE

BY TOM KNEITEL, K2AES

WHAT'S HAPPENING WITH CELLULAR, MARINE & MOBILE PHONES

As soon as the first installment of *Telephones Enroute* appeared in the April edition of POP'COMM. we began receiving questions from readers. We'll try to get to some every month, and look forward to getting any additional you might have.

For instance, Val Laurence of Las Vegas, NV notes that some cellular phones (such as the Mitsubishi 800 mentioned here last month) are described as having a capability of operating under a primary and also a secondary telephone number (NAM). He asks the reason why a dual NAM feature would be desirable.

A cellular phone operated outside of the service area of the company that normally handles its calls is considered to be a "roamer." That is, its calls during the time the unit is away from its normal operating area are being handled by another company, perhaps under a reciprocal "roaming" agreement with the caller's "home" company (although not necessarily so). Service to "roamers" is not without its extra service charges or fees, and a week spent as a roamer can roll up lots of extra charges. If you're on a vacation or otherwise making several short stops in various areas where you're calls go through as a "roamer," then there isn't much else you can do except the additional tariff for having the convenience of using your CMT in that manner.

On the other hand, you may be a person who, for instance, lives in Las Vegas and makes regular trips to Los Angeles or San Francisco. Based upon the amount of time you spend in that distant city, and the amount of CMT use you have there, you may well find that it is far more economical to have a CMT offering a dual NAM feature. Simply open up a local account with the cellular service there so that your calls will no longer have to be dealt with as if you were a "roamer." Your CMT will then have the ability to make "local" calls in Las Vegas and also in Los Angeles, or your other "second city," although you'll have to have a CMT with a dual NAM feature to do this since the Los Angeles (or whatever) cellular company will want to issue you its own local number. Your CMT will then have two different NAM's assigned to it, and you'll receive two bills each month, but it could still be a lot less expensive than running up "roamer" charges under such circumstances.

Remember, too, that when the second account is opened up, the CMT will have to be physically presented to one of the company's representatives so that it can be programmed with the second number.

The rather revolutionary Audiovox CTX- 5000 three-way CMT unit is about as versatile as they come at this point.

Great Ideas

A new highway safety program was announced by the Arizona Department of Public Safety (DPS) to enable the state's 30,000 car phone users to report drunk drivers over a special hotline established for cellular users. Calls will be able to be placed at no cost through the cooperative efforts of *U.S. West* and *Metro Mobile*, Arizona's two cellular service providers.

Mobile phone users driving on Arizona's state or federal highways can reach this cellular hotline by simply dialing "3-3" to report erratic drivers. The number rings directly through to the DPS Duty Office where a patrol car can be quickly dispatched to investigate. Drivers on city or county streets can also dial "3-3" to report apparent drunk drivers (although 9-1-1 should be used to report other emergencies).

Persons with non-cellular IMTS telephones, or those calling from landline telephones within Arizona can also report drunk drivers (or other emergencies) on state or federal highways by calling 1-800-525-5555, which also gives instant access to the DPS Duty Room. The availability of these cost-free numbers should be of significant benefit to all drivers in Arizona.

In Pennsylvania, Cellular One of Reading has unwrapped a new $5-million package of system improvements and upgraded subscriber services. Signal coverage has been strengthened and expanded in all directions of Berks County from Reading, especially in the areas of Geigertown, New Jerusalem,

and the stretch of I-78 between Harrisburg and Allentown, also into Lebanon County.

In addition to the increased signal coverage, added system improvements include Voice Mail Plus, a full feature, centralized electronic message system which records and stores messages for easy retrieval. This will soon be expanded to include automatic calendar and FAX storage options. By the time you read this, similar system improvements should also be operational at the company's facilities in York and Lancaster.

Cellular One subscribers should be able to drive from Reading to Allentown, Harrisburg, Lancaster or Wilkes-Barre with no signal dropouts. In addition to these areas, Cellular One also offers service in the Lehigh Valley, Williamsport, Northeast Pennsylvania, and Center regions of the state.

King (of Hong) Kong

Nokia-Mobira has just started shipping $4-million worth of CMT's for use in Hong Kong by Communication Service Ltd. Hong Kong, despite its relatively small physical size, is a thriving cellular market with close to 40,000 subscribers serviced by no less than three systems (and two other systems getting started).

Hong Kong, being one of the major hubs of business and finance in the Far East, has more than its share of major corporations, financial institutions, stretch limos, and flamboyant multi-millionaires. If any place in the world is a natural for CMT's to be a roaring success, Hong Kong is definitely that place.

Nokia Corp. has its world HQ's in Finland, although it runs 100 subsidiary companies in 29 nations. Its North American HQ's is in Basking Ridge, NJ with its base of operations in Largo, FL.

New Audiovox CMT

Audiovox Corporation recently brought out its CTX-5000 three-way cellular phone which has the ability to be a mobile, a portable, or a transportable unit.

As a mobile phone, the CTX-5000 runs 3-watts and can be installed with its own cradle and any standard cellular antenna in the vehicle of your choice. Then, it has a built-in pull-out antenna in the handset, so if you disconnect the cradle's coil-cord, you've got yourself a nifty little .6 watt portable or handheld phone. Lastly, with its transportable power pack, it's a take-along unit offering more power output than the handset used by itself.

The CTX-5000 can also be mounted in boats or RV's using optional cradles designed for those installations.

When the CTX-5000 is installed in your car, its internal portable batteries are maintained in fully charged state. Then, any time you remove the handset for full portable use with its pull-out antenna, you've got about three hours of standby and an hour of talk time. You can also obtain plug-in battery cartridges to extend the unit's operational time as a portable. Also, you can purchase (separately) additional mounting cradles so that your handset can be transferred for full 3-watt operation between various vehicles, and each vehicle will present the appearance of a fully-installed permanent unit.

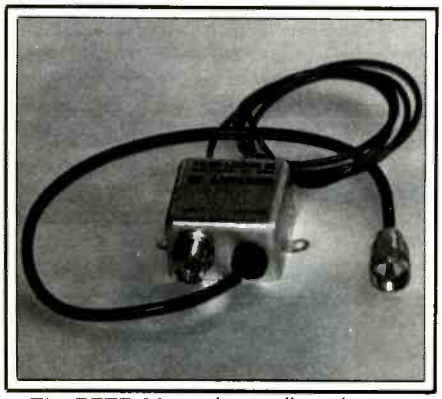
The Audiovox CTX-5000 looks to be a rather innovative concept that should find many applications even though it carries a $1,995 price tag. Audiovox has rolled up a good reputation for quality, and the revolutionary CTX-5000 nicely rounds out the line of three new CMT designs they recently announced. More information on the Audiovox CTX-5000 can be obtained from Audiovox Corporation, 150 Marcus Blvd., Hauppauge, NY 11788, or by circling 105 on our Reader's Service. PC

PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS

Receive Preamplifier Improves Marine Range

Electron Processing, Inc. announced an addition to their line of receive preamplifiers. The RFTR-M Signal Intensifier is specifically configured to improve the coverage of VHF Marine radio transceivers by amplifying the received signals to improve reception. This is a fully legal accessory.

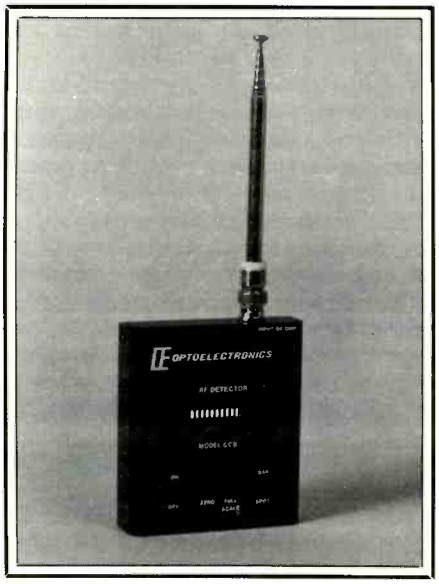


The RFTR-M simply installs in the antenna lead of any VHF Marine transceiver and connects to the unit's 12 volt power supply. Received signals (only) are increased a minimum of 13 dB. By means of an internal relay, the preamp is automatically bypassed when transmitting and transmitter power is *not* increased. Insertion loss and VSWR are negligible and the unit draws only 80 ma at 10-15 volts DC. Housed in a weather resistant 2" × 2" × 1.5" plated metal box, the RFTR-M is designed for rugged service and exposure to the harsh environments normally encountered in marine service.

RFTR-M Signal Intensifiers are available from stock for $99.95. Quantity discounts are available. For additional information, contact the Sales Department, Electron Processing, Inc. at P.O. Box 708, Medford, NY 11763, or circle 104 on our readers service.

New "Bug" Detector

The model CCB RF Detector is intended for use in detecting and locating low power radio transmitters or "bugs" that have been placed in rooms for the purpose of listening to private conversations. The CCB will indicate the presence of a 1 milli watt transmitter within a twenty foot distance. The bargraph display will successively illuminate segments as the distance to the transmitter decreases. This feature simplifies the location and deactivation of the unauthorized transmitters. Other applications include checking the output from small or large transmitters used in radio telemetry, two way radio, ham radio, garage door openers, RC transmitters, cordless phones, cellular phones, marine radio, aircraft radio, CB, police, fire or other radio services.



The CCB is a handheld RF detector with a ten segment LED bar graph readout. It has a two stage wide band RF amplifier and a forward biased hot carrier diode for a detector. The output of the detector is filtered and fed to the log output bar graph driver circuit. Each segment responds to a 3 dB step increase in signal strength. Screw driver adjustable pots are provided for zero and full scale adjustment.

Accessories include the model TA-100S telescoping BNC antenna for $12 and the CC-12 vinyl zippered carry case for $10. The CCB is available for $99.95 from Optoelectronics Inc., 5821 N.E. 14th Avenue, Fort Lauderdale, FL 33334 (800)327-5912 or in FL (305) 771-2051, or circle 103 on our readers' service.

New Ultra-Compact ICOM IC-725 HF Transceiver

The all mode IC-725 features:

- Compact. Measures only 9.0"W by 3.7"H by 9.4"D.
- USB/LSB/CW transmitting and receiving. AM receiving. Optional module #UI-7 for FM transmit/receive and AM receive.
- 26 tunable memories with Band Stacking Registers. Two memory channels (channel 23 and 24) memorize both receive and transmit frequencies for split operation. Store the frequency, offset and subaudible tone for each memory.
- DDS (Direct Digital Synthesizer) system.
- Built in AH-3 controller. Optional AH-3 automatic antenna tuner available.
- Three Scanning Systems. Programmable scan: scan all frequencies between memory

channel 25 and 26. Memory scan: scan all memory channels or lock-out channels in the memory sequence. Selected Mode scan: scan a selected mode.

- Priority watch. Monitor the call channel every five seconds while operating on another frequency.
- 105db dynamic range receiver.
- Low noise DDS switching.
- 160 through 10 meter operation. Shortwave reception from 30kHz to 33MHz.

Other fine features include: Panel-selectable RF preamp and attenuator, dual VFO's, highly effective noise blanker, RIT, Semi-break in CW, selectable AGC, a rugged full duty cycle and optional narrow CW filter.

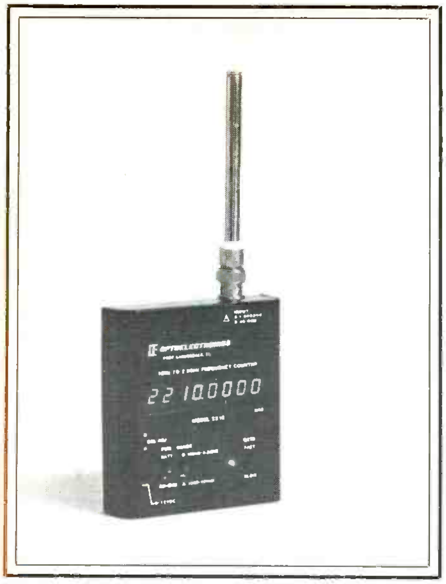
Suggested retail price is $949.00. For more information, contact ICOM America, Inc., P.O. Box C-90029, Bellevue, WA 98009-9029, or circle on our readers' service.

Handheld Frequency Counter

All new handheld frequency counter with low frequency coverage down to 10 Hz and microwave coverage up over 2.2 GHz. This is the hand counter with the widest range of applications because of it's wide frequency coverage. Important frequency counter features such as a metal cabinet and precision quartz time base oscillators are included as well as high quality internal Ni-Cad batteries. A full line of accessories include antennas, probes, and carry case.

The 2210 features dual crystal oscillator and dual input amplifier design. The low frequency range has a FET input high impedance amplifier circuit. The high frequency range uses microwave miniature integrated circuit amplifiers for excellent sensitivity. Picking up more transmitter frequencies from greater ranges than ever before is now possible.

Input sensitivity is less than 10 mV from 10Hz to 2GHz with 3 mV typical. Accuracy is 1PPM with temperature compensated crystal oscillators. Size is 3.9"H × 3.5"W × 1"D and weight is 9 oz. Resolution is 1 Hz below and 100Hz above 12MHz. Two hour battery operation is typical after 16 hour re-

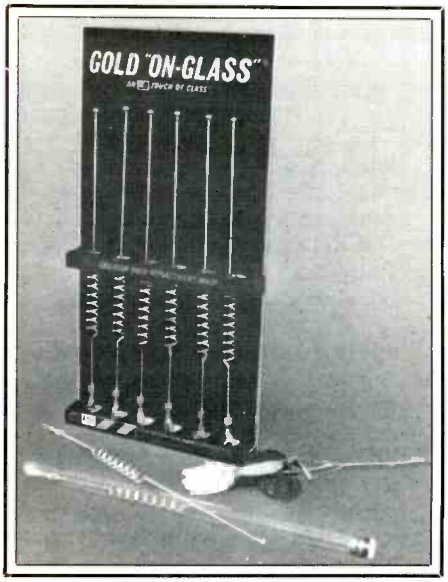


charge. Operjation from AC adapter/charger is possible during recharging.

The model 2210 sells for $189 complete with nicad batteries and charger. Model TA-100S telescoping whip antenna is $12. The vinyl carry case is $10. Manufactured in the United States by Optoelectronics Inc., 5821 N.E. 14th Avenue, Fort Lauderdale, FL 33334, (800) 327-5912 or in FL (305) 771-2051, or circle number 102 on our readers service.

Gold Replacement Whips For "On-Glass"® Cellular Antennas

The Antenna Specialists Co. now offers gold replacement whips for its popular "On-Glass"® cellular antennas, models APD851.3 and APD852.3. The high quality genuine gold finish gives the whips a distinctive appearance. Each whip is packaged in a re-useable transparent storage tube. Model KD852/6 gold whips fit "On-Glass"® II series antennas and are offered to the trade on compact full color display cards of six tubes each. Model KD851/6 whips fit the "On-Glass"® I series and are



packaged six tubes to a carton only. For further information contact: The Antenna Specialists Co., 30500 Bruce Industrial Pkwy., Cleveland, OH 44139-3996, Tel. No: 216/349-8400, or circle 101 on our readers service.

CB Radio Microphone Tester

The idea has been around for years. Some techs. have even built their own. Now DALCOM has brought it out on production level. Introducing the MTC-101; a .4 watt audio amp to check audio output and tonal quality of microphones. The compact test center (4½" × 7½" × 1¼") has 5 prewired mic sockets which cover a large percentage of the radio in use today. Operates on either a 9 volt battery or an external 9VDC source. Two LED's, green for receive and red for transmit, provide a quick check of TX and RX continuity. A mini jack enables you to plug an audio probe into the audio amp for testing audio circuits and mic cartridges.

The MTC-101 makes a great soldering station for wiring up microphones. Just plug the mic connector into the appropriate socket, solder the wires on, turn the MTC-101 on, key the mic for a test and your done!

The MTC-101 has a suggested list price of $45.00 with wholesale prices available to licensed dealers from: D N A Distributing, Inc., 2885 Mellonville Rd., Sanford, FL 32773.

PIRATES DEN

BY EDWARD TEACH

FOCUS ON FREE RADIO BROADCASTING

The world of radio pirates continues to be a busy one and we have a lot of activity to report this month.

Steve Rogovich in Virginia forwards some info he received from **Radio Garbanzo** which says the station was shut down for a few months so the operators could correct some technical problems they were having. The station plans to run some tests during Saturday afternoons on 26.0 MHz, noting that 41 meters is "just too crowded."

Laszlo Toth from **Radio Free Willy** sent me their new QSL card and notes the station has changed its location, antenna and has a "refined and improved audio chain" that "has greatly extended our range." He suggests checking for them in "the usual bands." They check the ACE Bulletin Board regularly, as well as this column, for listener reports. OK, let's see how many logs we can fit in.

Radio Free Texas was heard by Don Spooner in MA on 7415 at 0542 with music of the 60's, 70's and 80's and claiming to be "Texas' Number one shortwave pirate station." Robert Ross in Ontario had them on that frequency from 0200 to 0401 sign off and got a QSL in 3 weeks. Heard on 7425.3 at 0552-0602 with requests for donations so they could get more powerful transmitters. Also at 0641-0723, 0320-0408 and 0428-0500 sign off, all on 7415 or just higher and all by R.E. Harris in Tennessee. Tim Trompe in Michigan also had them from 0200-0400 on 7415 and had a second log later at 0410. Info received direct from the station notes 20 watts and says the purpose of the broadcasts is to proclaim Texas as a free and sovereign nation. Broadcasts are live, with 95-105 minute programs Tuesdays through Sundays on 7415 between 0200 and 0700. Address is 2007 South Ervay or P.O. Box 300, Dallas, TX 75215.

The **Voice of the Celt** was heard by Harris in Tennessee at 0248-0315 on 7414.8 with Irish music, anti-Thatcher talks. Claimed to be coming from Londonderry, Ireland (though, of course, that's in Northern Ireland) but R.E. suspects a US location due to the strength. As far as I know there's no known mailing address for this one, R.E.

CBOR was heard twice by Tim Trompe —at 0218 with a "young-sounding" male announcer claiming to be in Edmonton, Alberta. Heard again at 2349 and 0000. Robert Ross noted them on 7413.7 variable at 0155-0328 sign off. The program included talking with listeners on the phone. Announced 7414. Don Spooner caught the last 30 seconds of a broadcast ending at 2346. They resumed at 0003.

Radio Free Willy's new QSL features the Munsters, Herman and Grandpa, who seem to be surprised at their latest DX catch. Students of the obscure should compare this photo with the one on the cover of the March, 1965 issue of the old S9 Magazine.

WENJ (J-Rock) found by Stu Nadd in New York on 6240 from 2250 to 0005 sign off. Operator "Jack Beane" gave a New Jersey phone number for reports. This proved to be an answering machine, later played back over the air. Station ID mentioned 1620 but only 6240 in use. Said that particular broadcast had brought about 30 calls. Using a Hallicrafters HT-40 transmitter and quarter wave dipole. Listeners told to check 6250, 7414 and 7480, as well as 6240, for future broadcasts. Also noted by Jim Hayes in New York at 1805 (is that UTC, Jim?) on 6240. QSL address given as P.O. Box 5074, Hilo, HI 96720.

Radio FTI tuned in by Trompe on 7415 (under CBOR) at 0107. Music and announcements. Address given as 443 Sheridan Road, Dept. A, Waukegan, IL 60085.

WROX was another Trompe logging, on 7415 from 0022-0050 with ID as "WROX the alternative rock and roll radio station, 95.9 FM and 7415 shortwave" and "You're listening to the 50 watt monophonic voice of WROX-FM." David Brown in Texas got this one, too, just as it was signing off. The broadcast was in lower sideband.

The Voice of Free Long Island was heard by Trompe at 0315-040 on 7415, although at very weak level. Tim was able to make out only the ID and mention of "Tagar."

Radio Free Willy was heard by Robert Ross on 7415 at 0318-0403 sign off with rock, ID's, comic ads and requests for reports, but no mailing address given.

Radio Caroline 558 heard on 6215 at 0220 by Spooner with rock and a commercial for the Canadian National Lottery. By around 0500 programming had switched to that of **World Mission Radio** which announced its address as P.O. Box 346, Corona, CA 9919.

Many reports of **Radio Clandestine:** Spooner had them on 7414.4 at 0206; Trompe on 7416 at 0226-0312 opening with the Star Trek theme, also at 0205-0216. Ross reports 7375 at 0-0426-0455 and 7415 at 0242-0311 sign off. R.E. Harris noted them on 7374.3 at 0437-0455 and 0206-0216.

Tim Trompe reports an unidentified on 7415 at 0322 to 0349. Seemed to mention Radio West Coast and the Battle Creek address, says Tim. Remember, the old Battle Creek mail drop is *kaput!*

That will do it for another month. Keep those cards 'n letters flowing in here, folks. I'd like to be able to pass along much more info on stations direct from those who operate them but whether I do or not is entirely up to the station ops. Readers like hearing about your stations, where to write, when to listen, your power and equipment, formats and all that sort of stuff. QSL's, station installation photos and such are also very useful. See you next month!

RTTY

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

BY ROBERT MARGOLIS

For a long time I suspected the RTTY telegrams in Korean often seen on HF radio were from the North Korean embassy in Havana, Cuba. But the telegrams, being sent to Pyongyang, never seemed to show a place of origin—until recently. While viewing traffic on 16129 at 1315, they were shown as being from "GGUBA-ABANA."

The first report to this column of RTTY traffic from a vessel on the Mississippi River has shown up. Fred Hetherington, of Florida advises that his friend, Joe Palkovic (also of Florida) logged a dredge with the callsign AEAD on the River near St. Francesville, Louisiana.

This un-ID barge was sending a progress report to station WUG on 5329.8 kHz, and also to a vessel with the callsign of AEEK. The logging was at 1225 UTC with settings of 170/75R, although no further info was on hand about the stations involved in the comms. According to Kneitel's *Top Secret Registry, 6th Edition*, these callsigns indicate that these were all stations of the U.S. Army Corps of Engineers which dredges and maintains the nation's inland and intracoastal waterways. WUG is the callsign of the District Office in New Orleans (P.O. Box 60267, New Orleans, LA 70160-0267), and AEEK is the callsign of the Army Corps of Engineers vessel, *Matt Platt*. The identity of AEAD isn't given. This was a good catch, Joe!

Harold Manthey, of New York intercepted what he described as police-type traffic from an unidentified Chilean station on 9314.2 kHz. This was in ARQ at 0041 and was sent from CCG to CCI, which seem to be Chilean naval callsigns. The past few years have seen similar callsigns, such as CCF and the two Harold logged, but none have been definitely identified as yet by listeners. However, note in our loggings section this month, Tom Kneitel's intercept on 6844.2 kHz which point towards tactical ID's of Venezuelan military stations.

On a recent trip to Florida, I purchased Marine Radio Manual, edited by M.H. Strichartz, at a used-book store. This book, published in 1944 during World War II, gave an interesting insight into maritime communication practices in wartime in the United States, as opposed to what they would be during peacetime. It was intended for radio operators on ships and in coastal stations.

Many callsigns seen today were in use then: NAM, NBA, NMC, NMF, NMN, NMO, and NMR for the U.S. Navy and Coast Guard radio stations; and KFS, KPH, WCC, WNU, WOE, WPD, and WSC, for commercial coast stations. Many commercial coast stations were ordered closed during the war, but these and a few others remained opened, including WSL, which ceased operating a few years ago. The callsign 45 years ago for Galveston Radio, Texas, was WGV. It now uses KLC.

Frequencies lists were in abundance and it was interesting to note the many frequencies in use by coastal stations between 100 kHz and 500 kHz. Back then, the coastal stations also were allocated frequencies on the 4, 5, 6, 8, 11, 12, 13, 16, 21 and 22 MHz bands, more bands than are used today.

```
THIS IS NBA TESTING
YRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYR
GSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGS
NOW IS THE TIME FOR THE QUICK BROWN FOX TO JUMP OVER THE LAZY DOG..
1 2 3 4 5 6 7 8 9 0.....T E S T
```

Fun time at our naval base at Balboa, Panama? Or did a sailor suffer a lapse of memory about how a "foxes" tape is worded? This test ran on 16194.4 kHz.

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TESTING TESTING TESTING DE CROZET FJY5 CROZET FJY5
TERRES AUSTRALES ET ANTARCTIQUES FRANCAISES
VOYEZ LE BRICK GEANT QUE J'EXAMINE PRES DU WHARF 1234567890
RYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRY
RYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRY
RYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRY
PSE QRK ? PSE QRK ? TKS
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This weather station's test tape ran on 11420 kHz at 0231. It's in the Indian Ocean not too far from the Antarctic.

RTTY Intercepts
(Settings- Hz/Baud/Polarity)
All Times Are UTC

48.32: Un-ID w/continuous RYRY at 0457 & 2345, 50/50R (Dallas Willioms, CO). Refer to this column in 10/88 issue for info-- Ed.

117: GYA, RN London, England w/RYRY & foxes at 1910, 75 baud (J.C.B., England).

518: NTM's & plaintext wx from the NWS in New Orleans, FEC at 0200 (John Shidler, LA). Tnx for the printouts. Station you intercepted was NMN, the USCG at Portsmouth, VA-- Ed.

2138: WLC, Rogers City, MI w/wx in FEC at 0734 (J.M., KY); Noted with Gt. Lks. hydrographic reports at 0140 in FEC mode (Tom Kneitel, NY).

2294: GCXX, the British tanker **Esso Tees** w/ARQ tfc at 1923 (J.C.B., England).

2496: GCZD, un-ID British vessel, w/urgent req for diving bell umbilical cover to replace one damaged. Was ARQ at 1915 (J.C.B., England). Callsign assigned to supply vessel **Ugland Comex I**-- Ed.

2524.3: UVAK, Soviet container ship **Pionier Estonii** wkg a vessel w/callsign EXWL at 0411, 170/50N (Kneitel, NY).

3172.4: IMB1, Rome Meteo, Italy w/coded wx at 0322, 850/50N (Ed.).

3196: OMV, Prague Meteo, Czechoslovakia w/coded wx at 0332, 425/50R; plaintext wx in Czech at 0348 (Ed.).

3253: LZF8, Sofia Meteo, Bulgaria w/coded wx wx at 0045, 1000/50R (Fred Hetherington, FL). Same at 0020, 425/50R (Harold Manthey, NY).

3297: Net tfc from USAF MARS stas in AZ, NV & NM, 170/45R at 0404 (Ed.).

3391.5: RFFISEN(?), Paris(?), France w/controle de coie at 0050, ARQ-E3 850/48 (Hetherington, FL). French mil, Paris-- Ed.

3696.2: RPITH, Horta Navrad, Azores w/RYRY & SGSG at 0304, 850/50R (Williams, CO).

4214.5: Un-ID w/continuous RYRY at 0517, 550/50R. Still on at 0603 (Ed.).

4222.5: GYU, RN Gibraltar w/foxes at 0513, 850/75R (Ed.).

4549.5: LRO9, DyN Buenos Aires, Argentina w/nx in SS at 2351, 850/75N (Kneitel, NY).

4554.5: FDY, French AF, Orleans, France at 2154 w/RYRY & le brick, 425/50R. Klingenfuss list omits this freq. Has anybody noticed the odd typo(?) on page 6 of Klinginfuss '89 utility guide where he refers to his own country as the "Federal Republic of Germoney"? (Kneitel, NY).

5075: SOF207, PTT Warsaw, Poland w/RYRY to RNK3 at 0126 (Manthey, NY).

5187: ETD3, Addis Ababa Aero, Ethiopia w/RYRY at 0220, 85/50R (Ed.).

5208: DEB, INTERPOL Wiesbaden, FRG w/police tfc in ARQ at 0300 & 0430 (Tom Sundstrom, NJ).

5240: 4OC2, Tanjug Belgrade, Yugoslavia w/nx in EE at 0021, 425/50R (Kneitel, NY).

5242.1: Un-ID in USSR at 2300-0012, 265/50R. Then to CW w/UMS call marker (Hetherington, FL). It's Moscow R.-- Ed.

5422: NODS, **USCGC Salvia** wkg NMG at 0045, 170/75R (J.M., KY); NMG sending msg to NBTC re location of fishing vessels, 0432, 170/75R (Kneitel).

5470: RKU79, Bakhtar Moskow, USSR w/nx in EE at 0444, 425/50R (Williams, CO).

5474: CSY, Santa Maria Aero, Azores w/RYRY at 0043, 850/50R (Kneitel, NY).

5839.6: FTF84B, AFP Paris, France w/nx in AA at 0438, 325/50N (Williams, CO).

5841: FTF84B/H3, AFP Paris, France w/nx in FF at 0024, 425/50N (Kneitel, NY).

6521: 71XBP, a Spanish Navrad somewhere, clg 7KMU w/wx, SS tfc, RYRY & SGSG at 0200, 850/100N (Kneitel, NY).

6824: GHH, Jamestown Meteo, St. Helena w/RYRY & coded wx 0210, 425/50N. Announced //9044 kHz (Sundstrom, NJ).

6844.2: CCK w/circulars in SS to CCI at 0102 & after, ARQ. Bulletins were signed "Brig. Gen. Fernando Efrain Perez" of the Ministry of Defense. Circulars mentioned Venezuela a number of times (Kneitel, NY).

6848: SOG284, PAP Warsaw, Poland w/nx in EE at 0017, 375/50R (Kneitel, NY).

6912: ETD3, Addis Ababa Aero, Ethiopia w/RYRY at 0140, 425/50R (Manthey, NY).

6941.6: TRK, ASECNA Libreville, Gabon w/aero wx at 2300, TDM/96A&B (Ed.).

7342: 5NK, Kano Meteo, Nigeria w/RYRY at 0410, 550/50R (Williams, CO).

7423: 5YD, Nairobi Aero, Kenya w/tfc at 2252, 425/50R (J.M., KY).

7625.5: HZN47, Jeddah Meteo, Saudi Arabia w/coded wx & tfc in EE at 2042, 850/100N (Ed.).

7658: YZD, Tanjug Belgrade, Yugoslavia, w/nx in EE at 0523, 425/50R (Williams, CO).

7714: TJK, ASECNA Douala, Cameroon w/coded wx data from "FKKD" (Douala Airport), TDM/393/96A (Hetherington, FL). Time not given--Ed.

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

7816.4: 5NK, Kano Aero, Nigeria w/RYRY at 0506, 550/50R (Ed.).

7843: NMA, USCG Miami, FL w/bulletins at 0230, 170/75R (Kneitel, NY).

7863: BJZ21, Wuhan Meteo, PRC w/RYRY at 1200, coded wx 1233, 425/50R (Williams, CO).

7909.5: Un-ID sta w/foxes, counting, testing at 0037, FDM 85/75R (Kneitel, NY).

7954.5: LRN85, DyN Buenos Aires, Argentina w/nx in SS at 0245, 850/75N (Kneitel, NY).

7960: EPD5, IRNA Teheran Iran w/nx in EE at 2200, 425/50N (Sundstrom, NJ).

7993.6: Several USN MARS stas yakking at 1345 in 300 baud packet mode (Hetherington, FL).

8047.5: IRF20, ANSA Rome, Italy w/nx in EE at 1846, 425/50N (Hetherington, FL).

8340: RFHI, French Navrad, Noumea, New Caledonia w/controle de voie at 1149, TDM 850/96A (Hethering, FL).

8626.7: GYU, RN Gibraltar w/RYRY at 0046, 850/75R (Joe Palkovic, FL via Hetherington, FL).

8355.8: UWLT, Soviet vessel **Tamoula** clg UTA at 0115, 170/50N (Kneitel, NY).

8458.2: 781JU also ID'ing as RETJ, of Spanish Navrad, w/RYRY & SGSG at 0314, 850/100R (Kneitel, NY).

9124.3: Station or stations ID'ing as Paris & RFTJD (Libreville) at 2209 & 2320 w/controle de voie, ARQ-E3/48 (Kneitel, NY).

9210: Un-ID w/RYRY & foxes at 1730, 400/50N (Sundstrom, NJ).

9438.6: LOR, Pto. Belgrano Navrad, Argentina w/5L grps at 2115, 170/75N (Patrick Sullivan, CA).

9885.4: Un-ID USN carrmsta w/very quick brown foxes at 1000, 850/75R (Hetherington, FL).

9994: CSY, Santa Maria Aero, Azores w/RYRY at 0105, 850/50N (Kneitel, NY).

10168: "SESEF NORFOLK," presumed USN unit w/foxes & count at 1306, 850/75R (Kneitel, NY).

10169: RFTJD, French mil, Libreville, Gabon w/controle de voie at 0358, ARQ-E/72 (Kneitel)

10186.4: 2 un-ID stas w/tfc in EE re frozen food, spare parts, etc, at 1154, 425/50N (Williams)

10200: JAE50, Jiji Tokyo, Japan w/nx in SS to S. America at 1157, 850/50R (Williams, CO).

10283: RFL1, French mil, Fort de France, Martinique, w/controle de voie ZNR UUUUU at 0451, ARQ-E3/48 (Kneitel, NY).

10461: 4UZ, UN Geneva, Switzerland QSY's here from 15992 kHz & sends RYRY & tfc in EE to UNIFIL in Lebanon at 1747, 425/75R (Ed.).

10551: Un-ID sta w/wx at 0220, 425/50R ("Bunky," IL). Was GFL23, Bracknell, England-- Ed.

10559.4: FTK56, AFP Paris, France w/nx in FF at 0400, 425/50N ("Bunky," IL). Same xmsn on 10560 (J.M., KY).

10635.3: SUC, Cairo Meteo, Egypt w/coded wx at 0155, 850/50R ("Bunky," IL).

10710.4: JAG30, PL Tokyo, Japan w/RYRY & nx in SS at 1136, 850/50R (Ed.).

10799.6: RFFIC, Paris, France w/FF non-protege tfc for "tous personnels marine" at 1230, ARQ-E3/48 (Kneitel, NY).

10817: AEM1UFB, US Army MARS sta sending Marsgrams to AAA6USA at 2050, 170/75R (Kneitel)

11027.5: 9PL, Kinshasa Aero, Zaire, w/NOTAM's at 1608, 425/50N (Ed.).

11109.8: LZG2, BTA Sofia, Bulgaria w/nx in FF from 1336 to 1340 off, 425/50R (Ed.).

11120: RGE32, Czech embassy, Moscow, USSR w/crypto tfc at 0709, 170/100R. After s/off at 0710, OLO7, PTT Prague showed up on 11118 kHz w/RGE32 DE OLO7 OK Z GMZ OK SINPO 44444, into 5L gps 0711. Headings were Bentel Moscow de Gentel Praha & were 425/50R (J.M., KY). Excellent report!!-- Ed.

11133.2: BZG41, Xinhua Beijing, PRC w/nx in FF at 1541, 425/50R (Ed.).

11174.9: 5HD, Dar es Salaam Aero, Tanzania w/RYRY at 0141, 170/50N (Ed.).

11302: Kilo Seis Alpha clg Victor Quatro Limo at 0020, 850/75N (J.M., KY).

11420: FJY4 Martin de Vivies Meteo, Amsterdam & St. Paul Is. w/coded wx 0018, ID 0020, 425/75R (Manthey, NY); FJY5, Terres Australes & Antarctiques Francaises (French Crozet Islands, Antarctica) w/RYRY & le brick at 0231, 425/75N. Sta loc at 46° S & 52° E in S. Indian Ocean (Ed.).

11450: RDD77, Moscow Meteo, USSR w/coded wx at 0300 & 1415, 1000/50R (Ed.).

11476: HMF52, KCNA Pyongyang, N. Korea w/RYRY at 0300, 425/50N (Sullivan, CA).

11520: RCR77, Khanarovsk Meteo, USSR w/coded wx at 0307, 1100/50R (Ed.).

11541: 7OC, Khormaksar Aero, S. Yemen w/RYRY at 1750, 400/50N (Sundstrom, NJ).

11638: DDK8, Hamburg Meteo, FRG w/coded wx 1730-1746, 400/50N (Sundstrom, NJ).

12053//12128.7: Un-ID sta w/coded wx at 1221, 850/75N. Header consisted of msg #, but w/o ZCZC (Williams, CO).

12251.6: N. Korean diplo sta w/RYRY, no/ID & tfc at 1218, 1000/45N (Williams, CO).

12295: Un-ID w/5L tfc ending at 2115, 500/50N (Hetherington, FL).

12325: RDD72, TASS Moscow, USSR w/nx in AA, 2130-2200, 380/50R (Hetherington, FL).

12478.1: 72CBG, probable Spanish Navrad unit w/RYRY, SGSG & foxes at 0548, 850/75R (Williams)

12518: ELFT8, cruise ship **M/S Celebration** in ARQ at 2140 sending telexes to 3YK3, **M/S Holiday** via WLO (Kneitel, NY).

12521.8: UHPO, Soviet cargo vessel **M/V Pavlik Larishkin** enroute Cuba from Murmansk. Noted at 1240, 170/50N w/telexes in EE to Moscow (Kneitel).

12525: UYZZ, un-ID Soviet ship at 1904, 170/50N clg UDK2 & sending RYRY (Kneitel, NY).

12656.2: 781JU, a Spanish Navrad w/RYRY, SGSG & foxes at 0112, 850/75R (Williams, CO).

12808: GYA, RN London, England w/freq chart at 1152, 850/75R (Ed.).

13118: Un-ID sta w/foxes & counting, 850/75R at 1328 (Kneitel, NY).

13383: Un-ID MFA (maybe GDR) w/5L tfc at 1335, 500/50N (Williams, CO).

13396.1: CLP1, MFA Havana, Cuba w/5F grps to Embacuba Guyana at 1320, 425/50N (Ed.).

13524: YIO72, INA Baghdad, Iraq w/nx in EE at 1450, 425/50N. Annc'd //14373 (Sundstrom, NJ).

13541.6: SPW, Warsaw R., Poland at s/off in Polish, ARQ at 1312 (Ed.).

13542: Un-ID meteo sta w/coded wx at 1348, then 1236 next day, 475/75N (Williams, CO).

13580.1: HMF36, APA Pyongyang, N. Korea w/nx in EE at 2230, 260/50R. Was //11476.1 (HMF52) which had better copy (Hetherington, FL).

13597.3: OLI2, CTK Prague, Czechoslovakia w/nx in EE at 1815, 425/50N (Ed.).

13653: SUA50, MENA Cairo, Egypt w/nx in FF at 1823, 425/50R (Ed.); Same at 1921 (Kneitel, NY).

13665: 6VU73, Dakar Meteo, Senegal clg CQ & RYRY at 2203, 850/50N. Annc'd //7585 (6VY41) (Kneitel, NY).

13737: 5YD, Nairobi Air, Kenya w/RYRY at 1836, 425/50N (Kneitel, NY).

13867.7: Un-ID w/5F tfc at 2006, 50R then into CW (Ed.).

13895: Y2V47, ADN Berlin, GDR w/nx in EE at 0633, 425/50N (J.M., KY).

13995.3: AAA6USA, U.S. Army MARS at Ft. Sam Houston, TX w/relay of Marsgrams from ABM2US, Okinawa, 170/75N at 1415 (Ed.).

14367: BZP54, Xinhua Beijing, PRC w/nx in EE at 1237, 425/75R (Ed.).

14498: CSY, Santa Maria Aero, Azores w/NOTAM's at 1330, 750/50N (Ed.).

14510: RIC75, TASS Moscow, USSR w/nx in EE at 1405, 425/50R (Ed.).

14786.5: 9PL "Zaire Centre," Kinshasa Aero, Zaire w/RYRY & line test at 2024, 425/50N (Kneitel, NY).

14932: APS Algiers, Algeria w/nx in SS at 1550 to 1553 end, 1000/50N (Kneitel, NY).

15575: REN30, TASS Moscow, USSR w/nx in EE 1250-1310, 425/50N (Sundstrom, NJ).

15752.7: CNM66X2, MAP Rabat, Morocco w/nx in FF at 1110, EE at 1210, FF 1710, 425/50R (Hetherington, FL).

15852.3: PWZ33, Rio de Janeiro, Brazil w/RYRY at 2230, 850/75R ("Bunky," IL).

15870.2: Un-ID w/coded wx & wx info in EE at 2115, 850/75R ("Bunky," IL). It's KAWN, Carswell

15910.1: RGG43, APN Kubiychev, USSR w nx in EE, 0855-0955, 425/100R (Hetherington, FL).

15930: RBI78, TASS Moscow, USSR w/RYRY at 1600, into nx in FF at 1604, 425/50R. Announced was running //REM51/RCT55/RBX57/RCB55/RNE39 (Kneitel, NY).

15992.: 4UZ, UN Geneva, Switzerland w/tfc to UNIFIL in Lebanon, 425/75R at 1734 then QSY 10461 kHz at 1748 (Ed.).

15992.8: Un-ID w/VVDT XKJ KK3X HI in ARQ at 0200. Whozit? (Hetherington, FL). Possibly 4UZ-- Ed.

16117: 6VK317, PANA Dakar, Senegal w/nx in EE, 425/50R (Ed.).

16136: TASS, Moscow, USSR w/nx in EE re tx calendars printed in the USSR. Was 425/50R at 1437 (Ed.).

16136.7: Egyptian embassy in Washington, DC w/relay of msgs from Bolivia & Guatemala to MFA, Cairo in ARQ at 1715 (Ed.).

16155: CLP1, MFA Havana, Cuba w/circulars in SS to Embacuba Panama at 1542, 425/75N (Ed.).

16129: N. Korean embassy, Havana, Cuba w/telegroms in Korean to MFA in Pyongyang at 1315, 1000/50N. Telegrams signed as being from "GGUBA-ABANA" (Ed.).

16213.5: Italian embassy, Riydah, Saudi Arabia w/tfc in AA to MFA Rome & other Italian embassies in Middle East. ARQ at 1411 (Ed.).

16245.3: VOA Tangier, Morocco w/RYRY to VOA Greenville here & also on 16246.7 kHz. Was FDM 85/75N at 1451 (Ed.).

16268: Y7A65, MFA Berlin, GDR w/5L tfc from "BL" (Berlin) to "MAN" (Managua) at 1403, 425/50R (Ed.).

16301.9: DFZG, MFA Belgrade, Yugoslavia w/nx in Serbo-Croat at 1511, 425/75N (Ed.).

16308.8: Y7A66, MFA Berlin, GDR w/RYRY at 1408, 425/50N (Ed.).

16318.6: Egyptian embassy, Tunis, Tunisia w/selcal in ARQ, 1629 (Ed.).

16325: Y2V23, ADN Berlin, GDR w/nx in EE at 1430, 375/50R (Sundstrom, NJ).

16343: YZI4, Tanjug Belgrade, Yugoslavia w/nx in FF at 1400, 425/75N (Sundstrom, NJ).

16687.3: UFZJ, an un-ID Soviet ship clg UJY at 1934, 170/50N (Kneitel, NY).

16772: Un-ID sta w/nx in EE at 1918, 425/50R (J.M., KY).

17122: Rio de Janeiro Navrad, Brazil at 2330 w/msg in PP to Operations Command, 850/50R w/callsign PWZ33 (Kneitel, NY).

17400: 5ST83, Antananarivo Meteo, Madagascar w/coded wx at 1558, 425/50N (Ed.).

17434.6: ADN Berlin, GDR w/nx in FF at 1459, 425/50N, then EE at 1645 (Ed.).

17445.4: CLP1, MFA Havana, Cuba w/crypto to Embacuba Addis Ababa at 1822, 50N (Ed.).

17502.4: RFLIA, French Navrad, Fort de France, Martinique w/non-protege tfc at 1458, ARQ-E/72 (Ed.).

17521.2: EBA, Madrid Navrad, Spain w/RYRY w/foxes & it's actual callsign at 1813, 850/75R (Williams, CO).

17544.2: Y2O07, un-ID sta (GDR allocation) w/RYRY at 1618, 425/50R (Kneitel, NY).

17557: YWM1, Maracaibo Navrad, Venezuela w/msg for CXR at 2000, 850/75N (J.M., KY).

17597.7: JAQ57, Kyodo Tokyo, Japan w/nx in EE at 0505, 850/50R (Williams, CO).

18055: DFZG, MFA Belgrade, Yugoslavia w/nx in Serbo-Croat at 1509, 425/75N (Ed.).

18070: Un-ID w/5L tfc at 1330, 550/75N (Ed.).

18127: Un-ID Egyptian diplo w/tfc in AA at 1300, ARQ (Ed.).

18160: TASS Moscow, USSR w/nx in FF at 1320, 425/50R. A new freq (Ed.).

18277.5: Italian Embassy, Safat, Kuwait w/tfc in AA to MFA Rome in ARQ at 1338-1405 (Ed.).

18461.7: PCW1, MFA The Hague, Holland w/ARQ phasing sigs & CW ID at 1523 (Ed.).

18491.5: Un-ID w/tfc in Indonesian at 1527, but weak sigs (Ed.).

18629.4: CLP1, MFA Havana w/tfc at 2042, 500/50N (Williams, CO).

18651.5: SPW, Warsaw R., Poland "w/strange looking coded msg: C6DC3, CYBC3, C6DC7, etc. ending w/'Warsaw Radio.'" Was 425/50R at 1750 (Williams, CO). CYBC3 must be ship callsign C6DC7 with Y mistyped for 6, & msg seems to be just a traffic list of Bahamian vessel callsigns. Now all we have to do is figure out why Warsaw R. would be holding traffic for Bahamian ships!-- Ed.

18690: CLP1, MFA Havana w/RYRY (no ID) at 1431, 425/40.5R (Ed.).

18713.7: Indonesian embassy, Lagos, Nigeria w/relay of telexes in Indonesian from MFA Jakarta to Paramaribo, Surinam. Was ARQ at 1620 (Ed.).

19081: GYA, RN London, England w/02D 03C 04A... xmsn at 1753, 850/75R (Williams, CO). Dallas speculates those #'s relate to a remote sensing system. Others think they are a callup of specific vessels or flotillas. My guess is that they have to do w/MHz bands & channel numbers. Any other thoughts?-- Ed.

19326.9: KAWN, Carswell AFB, TX w/coded wx at 2214, 170/75N (Kneitel, NY).

19865.5: YZJ4, Tanjug Belgrade, Yugoslavia w/nx in SS at 1417, 425/50R (Ed.).

20350: NBA, USN Balboa, Panama w/RYRY at 1335, 850/75N (Sundstrom, NJ).

20409.5: CLP7, Embacuba Brazzaville, Congo w/5L msgs & tfc in SS to CLP1 at 1805, 500/50N (Hetherington, FL).

20732: HDN, Quito Navrad, Ecuador w/RYRY & SGSG at 1619, 850/75N (Williams, CO).

20955.3: CLP1, Havana w/5F msg at 2026, 500/50N (Williams, CO).

22454.5: GYA w/some stuff as on 19081 kHz, 850/75R at 1543 (Williams, CO).

22570: OXZ, Lyngby R., Denmark w/bulletins in Danish at 1652, FEC (Kneitel, NY).

22728: JMG6, Tokyo Meteo, Japan w/coded wx at 0229, 850/50R (Williams, CO).

23116.7: MFA Cairo, Egypt s/off in AA at 1403, ARQ (Ed.).

23160: NAU, USN San Juan, PR w/foxes & counting at 1325, 850/75N (Hetherington, FL).

23460: Y7A88, MFA Berlin, GDR w/nx in GG at 1418, 425/50N (Ed.). Same w/RYRY to GDR embassy in Damascus at 1531, then 5L msg & nx in GG, 425/50N (Hetherington, FL).

23697.6: MFA Bonn, FRG starting nx in GG at 1500, ARQ/96 (Ed.).

24000: Y7A89, MFA Berlin, GDR w/RYRY & QRA at 1512, 425/50N (Ed.).

24088.5: AP/UPI nx & sports, wx for US & Canada at 2026, FDM 85/75R (Kneitel, NY).

25447: GYA, RN London, England w/freq chart at 1510, 850/75R (Hetherington, FL).

26521.2: Guessing MUA, London w/crypto 1630-1700, TDM 335/96A&B (Hetherington, FL).

27550: NAU, USN San Juan, PR w/foxes & counting at 1455, 850/75N (J.M., KY).

FAX Intercepts

4525: RPN75, Kiev Meteo, USSR w/wx charts at 0140, 120/576. Some CW QRM (Sundstrom, NJ).

5185: LRO69, Buenos Aires Meteo, Argentina w/wx maps at 2250, 120/576 (Sundstrom, NJ).

6435: Northwood, England w/wx charts at 1000, 120/576 (J.C.B., England). Could this be GYD3 of RN in London on 6436.6?-- Ed.

6880: RAN77, Moscow Meteo, USSR w/QRM'd wx charts at 1940, 90/576 (J.C.B., England).

9060: RCU73, Novosibirsk Meteo, USSR w/wx charts at 2100, 120/576. Gud sigs (Sundstrom, NJ).

9398: Un-ID w/wx chart at 1300, 120/576. Appears to be a USN sta but not shown on any list (John Gerstner, NY). It's NPM, USN Pearl Harbor-- Ed.

9982.5: KVM70, Honolulu Meteo, HI w/wx chart at 1230, 120/576. Got a PFC QSL card & bc sked for sending them my copy (Gerstner, NY).

10292: NKW, USN Diego Garcia, w/wx chart at 1810, 120/576 (Sundstrom, NJ).

10720: LRB72, Buenos Aires Meteo, Argentina w/wx charts at 2250, 120/576 (Sundstrom, NJ).

14436: GFE23, Bracknell Meteo, England w/wx chart of western Europe at 1455, 120/576 (Kneitel).

15950: RBI77, Moscow Meteo, USSR w/wx charts at 1615, 120/576 (Sundstrom, NJ).

17585: AOK, USN Rota, Spain w/wx charts at 1650, 120/576 (Sundstrom, NJ).

18093: LRO84, Buenos Aires Meteo, Argentina w/wx charts at 2250, 120/576 (Sundstrom, NJ).

20736: LSA600, AP Buenos Aires, Argentina w/press pix at 1800, 288/60 (Sundstrom, NJ); Same at 2040 (Gerstner, NY).

PC

ON THE LINE

NEW AND EXCITING TELEPHONE TECHNOLOGY

BY JULIAN MACASSEY, N6ARE

Alternative Operator Services

If you call a company and get a recording to dial various numbers to get the extension you want, the chances are that it will be a Viking Digital Automated Attendant. This box about 6 × 6 ins will handle two lines at a time and keep statistics on the number of calls handled. The recording is totally digital so it always starts at the beginning and never wears out. Made by Viking Inc., Hudson Wisconsin.

In the "bad old days," there was only "The Phone Company," a monolith known as Ma Bell. There were, and still are, other phone companies. But in the old days charges and services were either provided by, or modelled on, AT&T prices and practices. Now we have Divestiture and Deregulation in the telephone industry.

Now Deregulation and Divestiture have had some very good effects. They have given the consumer freedom of choice and competition. You can choose which phone you want to own and which phone company you want to handle your calls. That is what we have been led to believe, but it is not always so. We can choose, but it sometimes involves making a conscious effort.

Travelers in certain states are making what they think are old style AT&T long distance calls and being shocked to find that what should have been a $1.00 call via AT&T was a $3.00 call. Then when the bill comes in they find that the call was handled by a company that no one has ever heard of before. What is happening here is "Alternative Operator Services" (AOS).

The victims of these companies tend to be travelers, people who will not be around when they find out the damage. There are a couple of places where AOS are in use, Hotels and some pay phones.

There is one way to detect when you are about to be poorly handled and overcharged: You dial out to make a collect call home, or back to the office, and some one comes on the line saying "Operator." They do not say the phone company. Why should they scare you away? The operator from any reputable company will usually identify with something like: "Sprint Operator. May I help you?" The AOS company will be somewhat furtive about their identity, sometimes when pushed they will say something noncommittal like: "This is a phone company operator." If you get this kind of response and don't want to pay through the nose hang up.

Should you encounter this experience while making a call from a pay phone, look carefully at it. Is it a "Phone Company" device or does it have another name on it. Leave the phone and go use another. You as a consumer can choose whose telecommunications services you use. If you are in a hotel speak to the manager and complain. Hotels use those AOS because they kick back some of the exorbitant charges to the hotel. There is a fair chance that the pay phones in the phone lobby may be Phone Company or AT&T devices so you can choose the long distance carrier and operator you want.

You are supposed to be able to choose your phone company, even if you are staying in a motel. If you can't get the operator you want, go somewhere else to make your phone calls.

Not all states will allow these AOS. Some states that have been allowing them are seriously considering legislation to either have them inform callers that they are being handled by an AOS and could choose another carrier. Some states are also considering banning these companies entirely. But the fact remains, the best way to put these people out of business is know they exist and then refuse to do business with them. If you stop staying at a certain hotel because you object to being over charged for phone calls, watch that hotel get rid of the AOS. This works better if you let the hotel know why you no longer wish to be a customer. Furthermore, you can tell your friends and colleagues.

If you want to go further with these companies, you can call the state Public Utility Commission. They regulate who does what with public utilities and that includes telephones. If the charges were interstate, you can complain to the FCC. You can also write to our congressman and his staff will take it to the FCC. Should there be a dispute on some of these AOS charges that end up on your home or business phone bill you can refuse to pay. But be careful when you do this. In some states you are required to place the amount in dispute in an escrow account administered by the state Public Utilities Commission. The reason for this is to demonstrate your good faith. You are demonstrating that you are willing to pay the bill should arbitration decide against you. Most states have this procedure for handling any disputed utility bill. It is there to keep utilities from becoming too arrogant.

Always bear in mind, as a phone user you are now a consumer. You have a choice and can choose not to be overcharged. PC

CB SCENE

BY BILL SANDERS, SSB-295

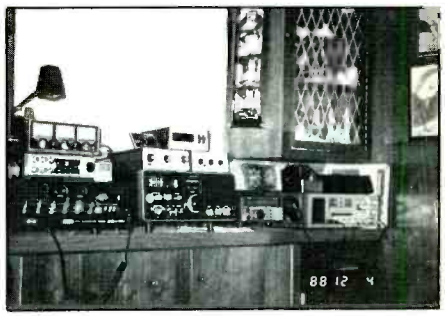
27 MHz COMMUNICATIONS ACTIVITIES

With the nice weather upon us, you'll find that a handheld CB transceiver is most useful when camping, hiking, boating, using the RV, or participating in many sports. One nifty little handheld we recently saw was the GE Search 40, a 3-watt 40-channel job that's about one-third smaller than it's predecessor version.

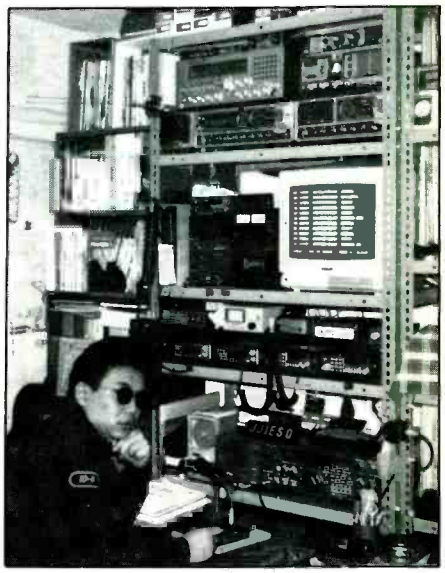
The Search 40 has a 3-position power-saver switch and LED readout for channel display and battery check. Jacks for 12 VDC external power (such as from your vehicle) and an earphone are included. The controls are made of a rugged type of plastic material.

For ease of operation, the volume and squelch controls are top-mounted, and the unit comes with a carrying strap. The side-mounted transmit-bar makes one-hand operation possible. The gray/black unit can be powered by its own internal AA-size batteries (it takes eight of them), or from an optional cigarette lighter adapter. Best of all, the list price of this rig is only $53.95, and we'd say that's a pretty cheap price for being able to have a two-way radio that permits you to stay in communication with a base camp a couple of miles away. Check with the dealers offering GE products and ask about the Search 40, which is formally known as the Model 3-5979.

You may want to consider the uses of a handheld CB during the coming months. This one comes from GE and is quite inexpensive.



When Pat, SSB-349A, keys up this good looking station, everybody listens!



Here's Charlie, one of this column's many overseas readers. Charlie hails from Japan where he's active as 25-AT-116, also JJ1ESQ on the ham bands.

Parts And Service

The column continues to receive questions and suggestions relating to parts and service for various brands of CB rigs, especially those manufactured several years ago by companies that aren't in the CB business any longer. A note from Keith W. Clark, Bellvue, CO advises that Ken's Electronic Parts, 2825 Lake Street, Kalamazoo, MI 49001 may be of help.

Ken's seems to have lots of parts available for various older CB rigs, with extra emphasis on Robyn and Demco parts. Unconfirmed info has it that Browning's parts inventory may have been obtained by Phil Nichols, HCR 69 Box 254 School Street, Tilton, NH 03276. Apparently, another parts and service source for Brownings is Hong Kong Charlie, 2704 West Dunes Highway, Michigan City, IN 46360, and interested parties might wish to follow up on this information.

For Tram parts, check out Maycom Communications, 1134 West John Beers Rd., Stevensville, MI 49127.

Reader Ira E. New, Jr., writes to say that a letter sent to Shakespeare Antennas at their old address in Columbia, SC was returned. He asks if any reader can supply the current address. Ira's address is Route 10, Box 594, Valdosta, GA 31601.

This compact shack belongs to Dave in Maryland. Why not send us a photo of your CB station?

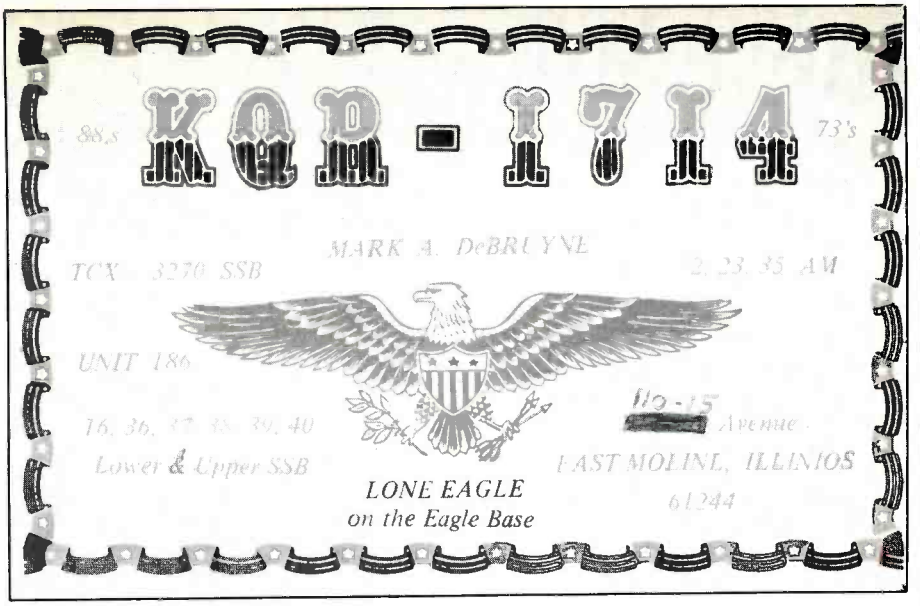
A Picture Is Worth . . .

Dave, of West Hyattsville, MD says that he gets a copy of POP'COMM every month at the Maryland Radio Center, but he's hoping his girlfriend gives him a subscription as a birthday gift. A photo of Dave's station reveals a President Madison with a D-104 mike, also a Realistic Navajo TRC-458. The Madison is hooked to a PDL-II antenna, while the Navajo is on a Big Stick.

Dave says that he belongs to the Papa Sierra and WNO groups and can usually be found lurking around the upper side of Channel 37 under the ID of Unit 5.

A really beautiful station was captured on film and sent to us by Pat Burke, SSB Network member SSB-349A of Fort Wayne, IN. Pat thanks us for publishing his QSL's in past issues and notes that they brought in a "good response" and made "many new friends" for him. As seen in Pat's station photo, there's a Cobra 139, Uniden Grant, a Lafayete SSB, Realistic DX-302, Yaesu FRG-9600, a Heath remote control weather station, a Casio world time clock, a Kemtron freq counter, an MFJ tuner, and an

Our overseas QSL of the month was submitted by Charlie, 25-AT-116 in Japan. He didn't explain the significance of the 1950's photo of Audrey Hepburn on the card.



Mark DeBruyne of East Moline, IL sends out this multi-colored QSL.

MFJ active antenna. We call this an impressive array of hardware. Wouldn't you?

A request for help arrived from Jerry McCluskey, P.O. Box 461, Sub Post Office 11, Edmonton, Alberta, Canada T6G 2E0. Jerry is desperately looking for a set of schematics for a Midland base CB model 78-999. Says that he looked all over for this schematic, but without any luck whatsoever. If anybody can run off a photocopy of this schematic, Jerry would be most thankful.

Jerry also passes along the news that in the Edmonton area there's a local sideband net check-in every Wednesday night at 9 PM (local) on the lower side of Channel 36. All within range are cordially invited to join in. This net usually gets into swaps, propagation news, repairs, and general ratchet-jawing.

A photo and a QSL card arrived this month from Japan representing Tetsuro ("Charlie") Horio, P.O. Box 34, Choufu-City, Tokyo 182, Japan. Charlie is a CB'er who operates under the ID of 25-AT-116. He's also licensed as a ham under the call-sign JJ1ESQ. Charlie and his XYL are both active on the air and are avid readers of POP'COMM and this column.

Another QSL arrived from Mark in East Moline, IL. Mark owns a Tram D-201A and a Browning Golden Eagle, two of the more exotic super-rigs from the late 1970's. Too bad we can't show you his bright red/white/blue QSL in full color!

Spring Spruce-Up

Now that the weather is nice again, it's a good time to turn your attention to rescuing your antenna from the ravages of winter weather, soot, smoke, corrosive fumes, acid rain, age, and other factors that may have reduced the efficiency of the elements of your CB sky hook.

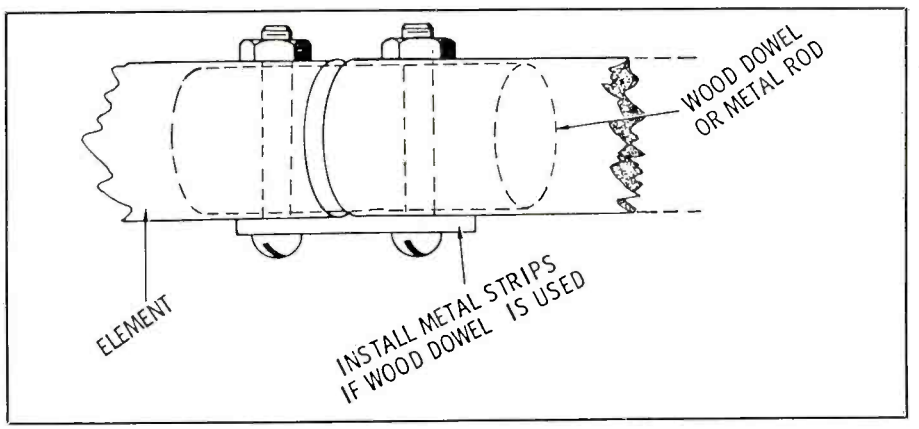
Soot and other *yukky* deposits can build up on plastic insulators and create a short-circuit path for energy between, say, a vertical element and radial rods below it. A vigorous rubbing with an old terrycloth towel is usually good enough to restore insulators to a like-new condition.

In telescoping elements of an antenna, where elements have been slid together, there's a potential loss of efficiency due to oxidation between the rods. Disconnect the elements and refurbish their mating surfaces with *Brillo* or an *SOS* pad. Then you might (optionally) wish to coat the ends of the elements with conductive grease (available from some radio supply shops) before putting them back together again. After the antenna is reassembled, cover the joint with an acrylic or other suitable protective spray or putty to keep out the moisture.

Elements that have become damaged (either bent or broken off), can be repaired by the technique shown in the diagram. It requires the insertion of a wooden dowel or aluminum tubing (or rod) between the broken elements. If metal tubing is used, the required metal electrical connection occurs when the assembly is bolted together. However, when you are are using a wooden dowel, the electrical connection will have to be made by running metal strips to provide good continuity between the elements.

Two things to remember: 1) Always disconnect the antenna lead from the CB equipment when you are working on the antenna, and 2) never work on an antenna when there is a possibility that you, your ladder, the coaxial cable, or the antenna itself could fall and come into contact with an electric power line. Every year, several CB'ers are electrocuted while working on their antennas without taking adequate precautions against electrical hazards.

Keep those photos, QSL's, letters, and comments heading our way. We are always pleased to hear from our readers here at CB Scene. **PC**



How to repair a broken antenna element.

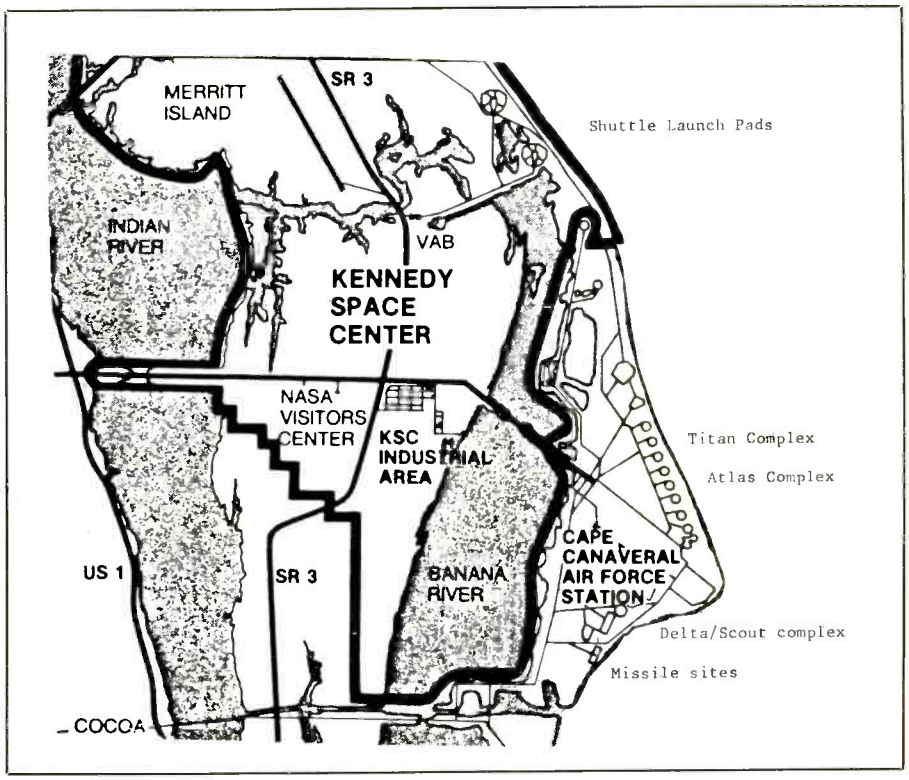
SATELLITE VIEW

DONALD DICKERSON, N9CUE

INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

Getting There

The most difficult and expensive part of spaceflight is getting there. Whether you want to place a small Amateur Radio satellite or the Space Shuttle in orbit, the launch vehicle, fuel and ground station operations are the greatest challenge for engineers and the greatest cost. A launch vehicle often costs more than the satellite it carries. The average satellite will cost between $50 to $80 million. The launch vehicle will cost an additional $80 to $120 million. The cost of operating ground stations will run upwards of $30 thousand a year per satellite for even the simplest of spacecraft.



USA Launch Vehicles

The US fleet of launch vehicles consists of nine rockets: the Scout, Delta, Atlas, Atlas Centaur, Atlas Agena and at least four variations of the Titan rocket, our most powerful. These are used to place satellites and scientific payloads into orbit. The Trident, Polaris and Poseidon rockets (launched from the Cape) are used for the delivery of warheads.

The Scout is the smallest of the fleet and is used for light military payloads. The Delta is used to launch weather satellites and telecommunications satellites. Atlas and the Titan, which have the greatest lift capability, are used for a variety of medium to heavy satellites. The Titans carry the Advanced Tiros weather satellites, KH-11 spy satellites and several other reconnaissance spacecraft into orbit. The upper stage Centaur has been used on satellites launched from the Space Shuttle after being carried into orbit.

USSR Launch Vehicles

The Soviets use several variations of four basic launch vehicles. The A-1 rocket is used for weather and scientific payloads. The A-2 carries all manned crews into orbit in the Soyuz spacecraft as well as the unmanned Progress supply ships and space tugs used to resupply and reposition Soviet space stations. It also carries certain ELINT and Photo Reconn satellites aloft. The C-1/F-1 are standard vehicles for the launch of military communications and short duration reconn satellites and is used in the Soviet ASAT (Anti-Satellite) program. These launch vehicles are capable of launching six to eight communications satellites simultaneously. Finally, the largest operational launch vehicle used by the USSR is the D-1. It is responsible for lifting the space stations and deep space probes into orbit. The Soviets are working on three new launch vehicles. A new large Apollo type launcher, which may be used for lifting large components of a space complex and spacecraft destined for other planets, is under development. Two versions of a Shuttle are also under construction. Both a mini-shuttle and a full-size duplicate of the US Shuttle are planned for a test flight soon.

ESA

The Europeans use, and quite successfully I might add, a single launch vehicle, the

"The Countdown"

T- 25 hr	30mn	1st & 2nd stages are fueled
T- 7 hr	50mn	inertial guidance systems aligned
T- 6 hr	00mn	tower moves away from rocket
T- 4 hr	55mn	calibration of telemetry equipment
T- 3 hr	20 mn	3rd stage fueled
T- 1 hr	05mn	LV's telemetry and radar telecommand systems turned on
T- 0 hr	01mn	LV's onboard power supply turned on
T- 0 hr	00mn 04s	umbilical cord detached
T- 00		ignition
T + 00 hr	00mn 03s	Lift-off
T +	02mn 25s	1st stage burn-out
T +	2mn 40s	guidance system takes over
T +	4mn 14s	nose fairing jettisoned
T +	4mn 46s	2nd stage burn-out
T +	14mn 17s	3rd stage burn-out
T +	15mn 30s	separation of payload

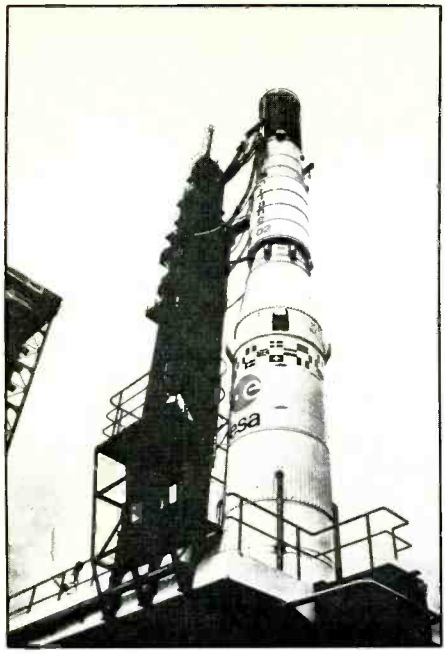


Figure 1- The European Space Agency's Ariane Launch vehicle on the pad at Kourou Guiana South America (Courtesy Jean-Marc Gigot).

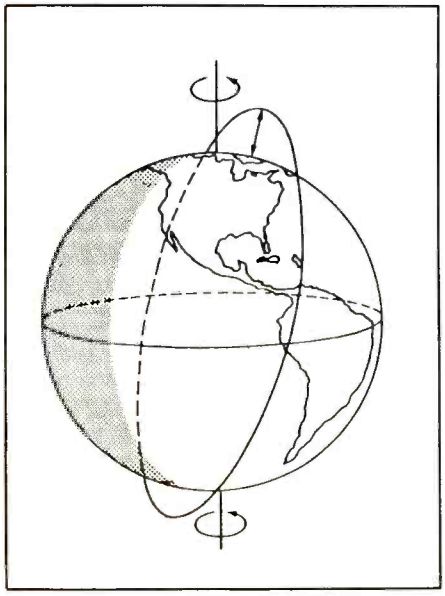


Figure 2- The Polar orbit.

Ariane. Seen in Figure 1, it is a three stage rocket built by the French Company Arianespace for the European Space Agency. The Ariane is a reliable launch vehicle which, with the present shortage of rides, has customers waiting in line for their services. A ride will cost you just under $100 million.

Orbits

There are three standard earth orbits: Polar, Geo-Stationary and Molniya.

POLAR: The Polar orbit is the most commonly used. The Shuttle, scientific and re-

Space Communication Frequency Allocations

21.000-21.450	MHz	Amateur Radio Satellites
24.890-29.4990	MHz	Amateur Radio Satellites
28.000-29.700	MHz	Amateur Radio Satellites
30.000-03.560	MHz	Satellites and Research Beacons
39.980-40.020	MHz	Space Research
137.000-138.000	MHz	Weather Satellites
144.000-146.000	MHz	Amateur Radio Satellites
149.900-150.050	MHz	Radio Navagational Satellites
267.0-273.0	MHz	Military Comm Sat downlink
328.6-335.4	MHz	Aeronautical Navagational Aids
399.9-400.0	MHz	Navigational Satellites
400.0-400.15	MHz	Standard Time Signal Satellites
400.15-402.0	MHz	Meterological & Research Satellites
402.0-403.0	MHz	Research uplink
403.0-405.0	MHz	Radiosonde (radio equipped research balloons)
406.0	MHz	International Distress (uplink to SARSAT/COSPAS)
460.0-470.0	MHz	Meterological Satellites
1215-1240	MHz	Navigational Satellites
1240-1260	MHz	Amateur Satellites
1427-1429	Mhz	Research uplink
1525-1530	MHz	General Satellite Downlink
1530-1544	MHz	Maritime Satellites
1544-1545	MHz	Mobile Satellites
1545-1559	MHz	Aeronautical Navigational Satellites
1626.5-1645.5	MHz	Uplink for Maritime Satellites
1645.5-1666.5	MHz	Uplink for Mobile Satellites
1670.0-1710.0	MHz	Meterological Satellites
2200.0-2300.0	MHz	Uplink & Satellite Crosslink (intersatellite)
2483.5-2500.0	MHz	Radio Determination Satellites
2500.0-2655.0	MHz	Mobile and Broadcast Satellite Downlink
2655.0-2690.0	MHz	Broadcast and Research Satellites
3400.0-3500.0	MHz	Amateur Radio Satellites
3700.0-4200.0	MHz	Fixed Service Downlink
4500.0-4800.0	MHz	Fixed Service Downlink
5850.0-5925.0	MHz	Amateur Satellite Uplink
7250.0-7750.0	MHz	Weather & Fixed service Downlink
7900.0-7975.0	MHz	General Uplink
8025.0-8175.0	MHz	Mobile & Research Uplink & Downlink
8175.0-8400.0	MHz	Mobile & Weather Uplink & Downlink
10.7-12.2	GHz	Broadcast Satellite Downlink
12.2-12.7	GHz	Broadcast Satellite Uplink
13.25-13.40	GHz	Aeronautical Navigational Satellites
13.4-14.0	GHz	Radiolocation & Time Standard Uplink
14.0-14.3	GHz	Radio Navigation & Research Uplink
16.6-17.1	GHz	Deep Space Probe Uplink
17.2-17.3	GHz	Earth Exploration Satellites
17.3-17.7	GHz	Fixed Service Uplink
17.7-20.2	GHz	Fixed & Mobile Downlink
20.2-21.2	GHz	Standard Time Signal Satellites
22.50-22.55	GHz	Fixed, Mobile & Broadcast
22.55-23.55	GHz	Inter-Satellite (Crosslink)
24.00-24.05	GHz	Amateur Satellites
24.05-24.25	GHz	Earth Exploration/Government
25.25-27.00	GHz	Standard Time Signal/Government
27.5-30.0	GHz	Fixed, Mobile Uplink
30.0-31.3	GHz	Government Fixed & Mobile
32.0-33.0	GHz	Inter-Satellite (Crosslink)
37.0-40.5	GHz	Mobile & Fixed Downlink
40.5-42.5	GHz	Broadcast Satellites
42.5-45.5	GHz	Fixed & Mobile Uplink
45.5-47.0	GHz	Radio Navigation Uplink
47.0-47.2	GHz	Amateur Satellites
47.2-50.2	GHz	Fixed, Mobile Uplink
50.2-400.0	GHz	Various Satellite & Space Research

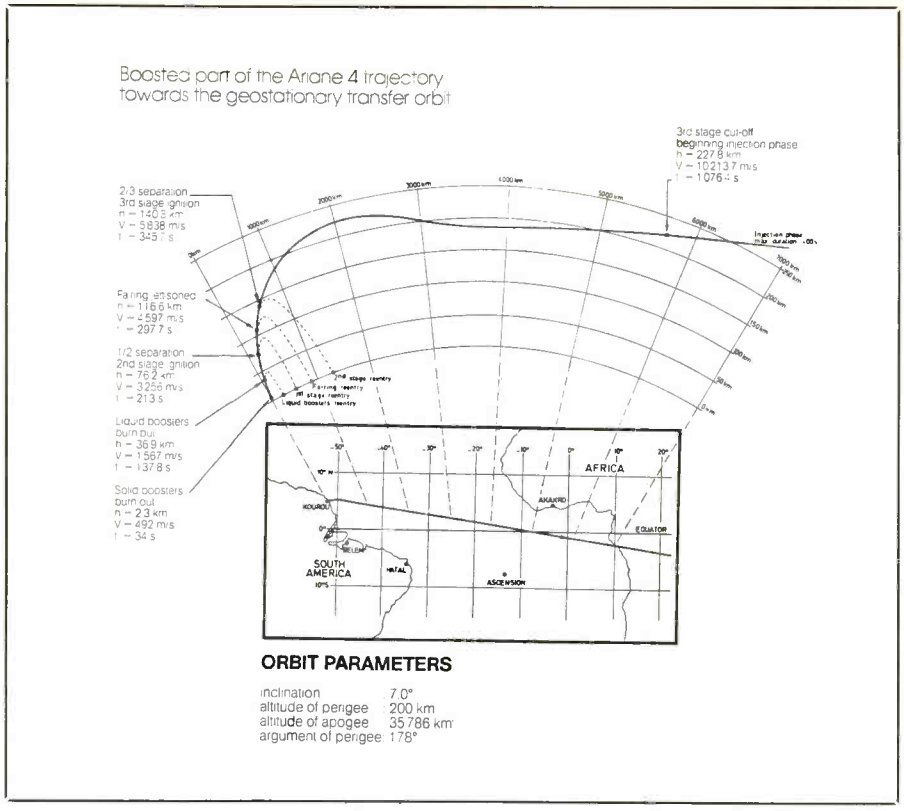


Figure 3- Trajectory of the Ariane launch.

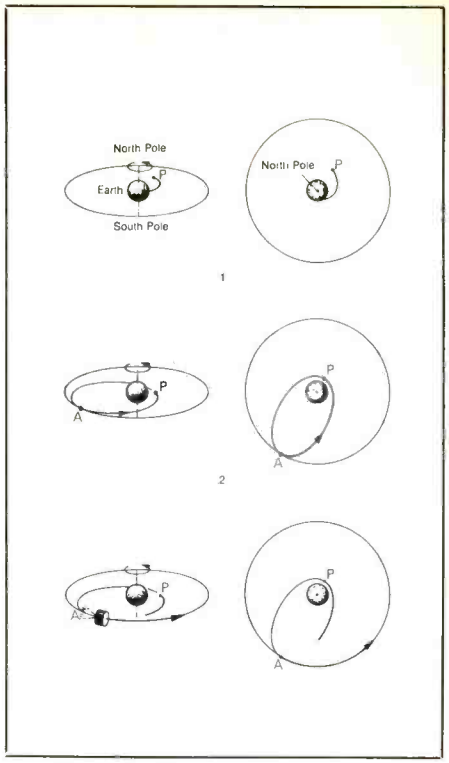


Figure 4- Geo-stationary position.

connaissance satellites, space stations and communications satellites, both military and Amateur, use it. Shown in figure 2, this orbit is one in which the spacecraft will fly near both the North and South Poles during each orbit. The point at which a spacecraft orbits the Earth between the North Pole and the Equator is called the inclination and is measured in degrees. It is the angle formed by the orbital plane of the satellite with respect to the Equator. Most scientific and communications satellites maintain an inclination of 70 to 85 degrees. The Soviet's Mir space station orbits at 51 degrees, recon satellites near 90 degrees.

MOLNIYA: One of the most unusual orbits used is the Molniya. It is named after the Soviet TV Satellite system which first used it. It is a highly elliptical orbit which takes the spacecraft in two large loops during each pass. At its closest point to earth, a satellite in such an orbit will maintain an altitude of 200 miles or so. On the high altitude loops it may reach 40,000 miles. The Soviets still have TV and military communication satellites which use this orbit.

GEO-STATIONARY: The orbit which may be most familiar to you is the Geo-stationary. It is used by TV, telecommunication and the GOES weather Satellites. These spacecraft are positioned over the equator at an altitude of 22,300 miles. This keeps the satellites orbiting the Earth at the same speed at which the Earth turns in space, giving the impression that they are stationary.

In order to give you an idea of what it takes to get a satellite into a Geo-stationary orbit, we will take a look at the launch and orbit phase of the European Space Agency's Ariane rocket.

The trajectory of the Ariane launch can be seen quite clearly in figure 3. The rocket is launched to the east, across the Atlantic. In order to put the spacecraft into a Geo-stationary orbit, it is first necessary to put it into a highly elliptical orbit with a perigee of 200 to 300 miles and an apogee of 22,300 miles. When the spacecraft is at apogee its kick motor is fired placing it into a Geo-stationary position. This process is depicted in figure 4.

A satellite is considered in orbit and maintains orbit only as long as the spacecraft's velocity equals the gravational pull of the Earth. When both forces cancel each othe out, you're in orbit.

The ground station at the launch site in Guiana South America, controls the launch vehicle until it places the payload into orbit. After the first orbit is complete and before the satellite is placed into its permanent position the ESA control center at Tolouse, France takes over control of the satellite. They are responsible for placing the spacecraft and maintaining its orbit.

Both NORAD and NASA's Goddard Spaceflight Center near Washington, D.C. keep track of all orbiting spacecraft. They track nearly as many pieces of space junk as satellites. This junk is largely spent upper stages of previous satellite launches or dead satellites. These must be accurately tracked in order to keep them from colliding with future launches.

Your questions, comments and suggestions are always welcome.

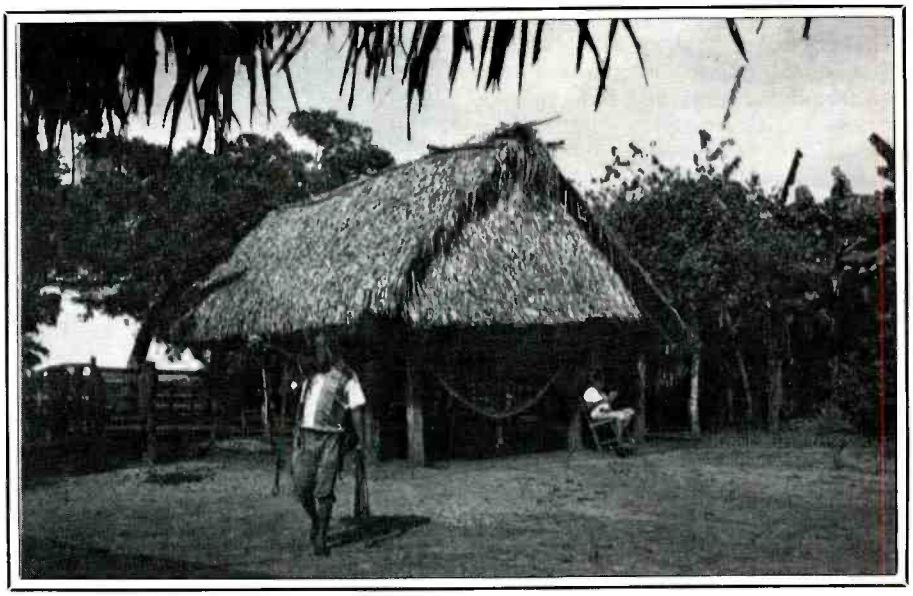
See you next month.

CLANDESTINE COMMUNIQUÉ

WHAT'S NEW WITH THE CLANDESTINES

BY GERRY L. DEXTER

More information to band about the relatively new Colombian clandestine, *Radio Patria Libre*. A report in the Bogota newspaper *La Prensa*, says the station's backers, the National Liberation Army (ELN), funded the station with money extorted from multi-national oil firms operating in Colombia. The station is said to be located between Guamalito and Pelay (Cesar and Norte de Santander Departments), the area in which the ELN is also based. That, however, doesn't jibe with direction-finding results as we mentioned in last month's column. The article says that the station's programming style is a copy of that once used by the Sandinista clandestine station, *Radio Sandino*, back when the Sandinista's were a guerrilla group. The broadcasts announce that programs are coming from the "camps of the government of the new Colombia." (World of Radio via George Zeller, Ohio.)



The Colombian clandestine Radio Patria Libre could have its installation at a ranch-type setting like this, somewhere in Cesar, Norte de Santander or Cordoba Departments.

The Kurdish people and their troubles have been in the news. Unfortunately, the several Kurdish clandestine stations use times and frequencies which make them darn near impossible to pick up in North America. However, in case you are well situated, or "luck out," here's a rundown on who is who and what's what with these stations: the *Voice of Iranian Kurdistan* supports the Iranian Kordestan Democratic Party. It transmits on variable 4100, 4665 and/or 7420 in Kurdish, Farsi and Bahdinan from 0330 to 0430 and again at 1330 to 1500. The backing for the *Voice of the People of Kurdistan* is uncertain and, indeed, not even a complete schedule has been located for this one. However, one broadcast airs at 1300 Kurdish on a frequency varying between 4040 and 4080. The *Voice of Iraqi Kurdistan* airs between 0400-0500 and 1500-1615 on widely variable 5510. *Voice of the Kurdish Fighters* uses the facilities of the Voice of the Mojahed and operates daily between 1400-1520 on variable 3543 and 4258. Wonder if there is any significance to the fact that all of these frequencies are so variable? Can they all be so poorly equipped technically?

We've seen at least two separate news reports which make mention of Addis Ababa as the location of the headquarters of the Sudan People's Liberation Movement/Army. But so far we've had two replies from various "official-type" offices in Addis stating that SPLAS does not have an office there. Here's one more appeal for some help in locating an address for this group which operates Radio SPLA.

Robert Ross in London, Ontario checks in with a report on some of his recent clandestine loggings. Bob hears *Radio Venceremos* on 6899.5 at 0240 in Spanish with short music sections and ID's. He notes the *Voice of Democratic Kampuchea in Kampuchean from 2335 to 0001 on 8345 (this one comes from Radio Beijing facilities.) And the Voice of the National Army of Democratic Kampuchea* was tentatively heard at 1205 to 1227 on 5408 in presumed Khmer. Bob notes that the programming is "much like" the other Democratic Kampuchea station on 8345.

The Voice of the Libyan People continues to be heard around 2100 on 9500 in Arabic and coming, apparently, from facilities in Egypt. At our location signals are poor around 2100 but pick up in strength by 2130.

Echo of Hope, the South Korean based (and surely government-operated) outlet beaming to the North has a new schedule. It airs in Korean at 0200-0500 on 6348 and 0900-1200, 1400-1700 and 2000-2100 on 3985. Years ago, morning transmissions were on 6348 and the station was heard very well. It's still possible to take a pretty good log on this one, though.

As the various parties to the problem dance around agreements on Namibia and Cuban withdrawal from Angola an "old time" Angolan clandestine resurfaces. *A Voz de Verdade* (Voice of Truth) was active a number of years ago but for sometime there've been no loggings or schedules on this one. Although not heard here in recent years, it's said to still be on its old 4950 frequency, running from 2000 to 2100 and 0600-0700. If memory serves, it once had an 0300 or 0330 sign on. No backing organization has ever been found for this one. The UNITA opposition of Jonas Savambi says that the Voice of the Resistance of the Black Cockerel is the only station is runs. *Verdade* seems to have a lot in common with *Radio Truth*, the anti-Zambabwe station (5015). It doesn't reveal its backers, either. Both stations are believed to come from a facility inside South Africa.

The *Voice of the Tigre Revolution*, an anti-Ethiopian operation of the Tigre People's Liberation Front was, for some years, aired over the facilities of the EPLF's *Voice of the Broad Masses* of Eritrea. Now the Tigre group seems to have established its own transmitters, scheduled at 0400, 1500 and 1900 in Amharic and 0445-0530, 1545-1630 and 1945-2030 in Tigrigna on variable 7888-7892, 9311 and 9343. TPLF headquarters are reportedly in Mogadishu, Somalia but we've not found a specific address for them.

Information on clandestine broadcasts is always appreciated. That includes your station loggings, copies of any materials you might receive from the station or backing groups, QSL data, press clippings, mailing addresses or clues to same. Copies of QSL's and related information to use as illustrations are also welcome. We can maintain an identity security for you if you wish.

Til next month, thanks, and good hunting! PC

BROADCAST DX'ING

BY KARL ZUK

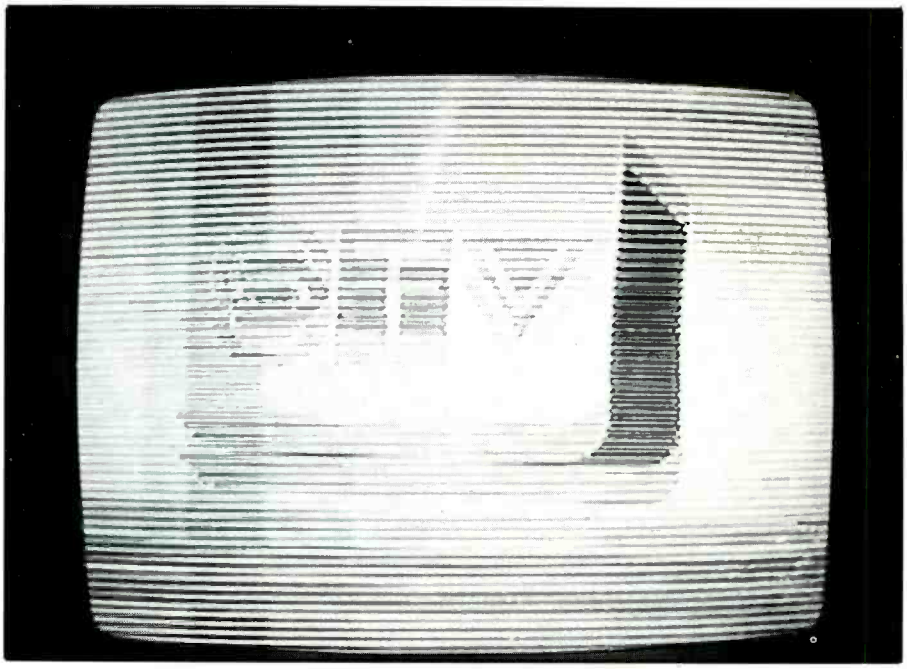
DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

The phantom of the airwaves. It lands and disappears in a flash. Its ghostly images come from hundreds and thousands of miles away. Some people know it as Sporadic E. Close friends simply call it E's. Are you familiar with this spectre?

Wouldn't it be wonderful if television could be received like shortwave broadcasts, gaining viewers hundreds or thousands of miles away? You don't need a geosynchronous satellite or cable TV. All you need is a lot of patience and some skill. It starts in May and ends in September. Here's how it works:

If you are familiar with shortwave listening, you know that in the daytime, and especially during the summer months, worldwide broadcasters use higher frequencies. During these periods, the ionospheric layers above the Earth change making the maximum usable frequency, or MUF, higher and higher.

These ionized clouds act like little pieces of broken mirror floating in the air. You never know what is going to be reflected towards you. The MUF can go as high as the two-meter amateur band, on rare occasions, and this can produce some wonderful DX openings. You'll see TV from 650 to over 1300 miles away. In May and June of last year, there were only three days that DX'ers did not see some E skip nationwide.



Catch A Wave

Here's what to look for: E-skip is usually seen on television channels 2 through 6, favoring the lower channels. In most areas, either channels 2 or 3 are clear, so look here first. Optimum reception occurs between May and early September, although E-skip also sneaks in during a mid-winter period of one or two weeks in December. The hours of 1700 to 2100 local time, at your location, are usually best. Midday and from 0700-0930 are also high points, although it has been seen throughout the day. Frequently, more than one station will come in at once. This will cause a clash between signals called "beating." You'll know it by its characteristic pattern of light and dark bars across the screen, and an audio signal that sounds like a truck filled with bumblebees passing by. This beating pattern is one of several clues to an incoming station's identity.

The FCC allocates stations on, for example, channel 3 even, channel 3 −, and channel 3 +. This 10 kHz offset is used to provide added protection from adjacent and co-channel interference on a local level. If your incoming skip is beating with KYW channel 3 from Philadelphia, and you know that KYW broadcasts on channel 3 −, and you see many fine beating bars, the other station is on channel 3 +. An intermediate amount of bars means the incoming signal is on channel 3 even.

A few wide bars indicates both signals are on the same frequency. If a station is broadcasting on channel 3 even, you'll either wide bars, for on frequency, or intermediate bars for a station on the plus or minus side. Unfortunately, you can't tell if it is plus or minus, in this case, but it will narrow down the possibilities somewhat.

Let Me See Some ID

There are many ways to identify TV skip stations. Your starting point is to make a map. Find yourself a map of North America and find your QTH. Plot two circles, one made up of points 650 miles away, and another circle of points 1300 miles away. Your E skip will probably arrive from points between these two circles. Use this only as a loose reference. Points outside the 1300 mile parameter are occasionally logged. Matt Sittel of Kingsport, TN, logged points in Canada, Mexico, Cuba, and even Colorvision TV from the Dominican Republic last season. Frank Wheeler, of Erie, PA, bagged CFAC, channel 2, from Calgary, Alberta, a cool 1700 mile catch.

Phone Home

You might receive a phone bill larger than that of a rap-line freak, but the best way of verifying a station, outside of actually seeing, or hearing, an ID, is by actually calling the station, or someone who can regularly see it. Legal ID's come only a couple of times an hour, making it very difficult to assure your catches. If you are catching FM E skip, many stations have their audio on "hold" after you reach the receptionist at the station and they look for someone for you to talk to. That might be the quickest way for you to verify your catch.

If the audio is the same, chances are you've logged them, but beware of the many network and satellite music services

Call Letter Changes

KCIB	CA	Central Valley	99.3 was KRPG	KKNB	NE	Crete	104.3 was KBVB
KCMT	CA	Chester	98.9 was KCFM	KUDA	NV	Pahrump	107.5 was KLVV
KCIV	CA	Mount Bullion	99.9 was KAJB	KCDY	NM	Carlsbad	104.1 new
KFER	CA	Santa Cruz	89.9 was KWIS	KPCL	NM	Farmington	95.7 new
WHLY	FL	Leesburg	106.7 was WCAT	WKOL	NY	Amsterdam	97.7 was WMVQ
WQPW	GA	Valdosta	95.7 was WLGA	WGY	NY	Schenectady	99.5 was WGFM
WVAZ	IL	Oak Park	102.7 was WVHD	WNYV	NY	Whitehall	94.1 new
WZLZ	IL	Quincy	103.9 new	WCNG	NC	Murphy	104.3 new
WOTS	IN	Mitchell	102.5 new	WLMA	OH	Loudonville	107.7 new
WMRS	IN	Monticello	107.7 new	WIZD	OH	North Baltimore	107.7 new
KLSN	IA	Jefferson	98.9 new	KRMK	OK	Cordell	99.3 was KBOG
KKCI	KS	Goodland	102.5 was KBOC	KTCP	OK	Taft	100.3 new
WYCD	ME	Kittery	105.3 new	KBIT	TX	Bridgeport	90.5 new
WBYF	MI	Bay City	89.1 new	KCBZ	TX	Clarksville	98.5 new
WWLZ	MI	Cadillac	96.7 was WEVZ	KBUK	TX	LaGrange	104.9 was KMUZ
WMLB	MI	Glen Arbor	98.1 new	KYQX	TX	Weatherford	89.5 was KADE
WNSD	MN	Cloquet	100.9 was WKLK	KISX	TX	Whitehouse	107.3 was KEYP
KQCL	MN	Faribault	95.9 was KOFN	KKGB	UT	Ogden	97.9 was KZAN
KMGK	MN	Thief River Falls	102.7 new	WSNQ	VT	Danville	95.7 new
KVCV	MO	Kirksville	107.9 new	WGMT	VT	Lyndon	98.3 new
KHST	MO	Lamar	99.3 new	WKSV	VA	Cape Charles	96.1 was WIAV
KCFM	MO	Lexington	107.3 was KCAC	WZQK	VA	Coeburn	99.7 new
KAYX	MO	Richmond	92.5 new	WZBB	VA	Rocky Mount	99.9 new
KLOU	MO	St. Louis	103.3 was KHTR				

that many stations now broadcast. Note what network a TV station is broadcasting, and where the stations, on other channels, are coming in from. This might give you some direction. Look for graphics of mail-in offer commercials, car dealership ads, and other local spots.

Sometimes you will see one station float in over another, and this lettering will be your only clue. See if the programming is from your time zone. Local time checks and weather maps during newscasts are excellent clues. Chances are that if you see Iowa weather on channel 2, you've got KGAN from Cedar Rapids. Also keep in mind that TV channels are 6 MHz wide. The audio carrier is much higher in frequency than the video. Often, you may see one station and hear the audio of another.

Deep ghosts, to the left or the right of the dominant picture often occur, since the TV station's transmissions are arriving from several different paths of skip. Conditions change rapidly. While watching Minnesota, the skip could change and, you might suddenly be watching Louisiana.

DX regulars, such as WESH, Daytona Beach, FL, WPBT, Miami, Florida, on channel 2, and WEDU, Tampa, Florida, and WEAR, Pensacola, Florida, on channel 3, are seen in many areas of North America regularly, during E-skip periods. Cuba is often logged on channels 2, 3, and 6. They have been seen mid-mornings with their elaborate test pattern and palm tree logo that simply says "CUBA." Although they do program late mornings and early afternoons, they are most often seen around 1800 Eastern time. Their test pattern is transmitted from around 1730 to 1755, followed by a brief news summary, with a man sitting at a table, until 1805. Pre-Castro Bugs Bunny and Porky Pig cartoons, dubbed in Spanish, and some more modern animated features, also in Spanish, continue for about an hour.

Frequently seen CMKJ TV 3 from Holguin, Cuba, often ID's as TVC Canal 6, and is a relay of CMQ, Channel 6 from Havana. The same station has recently been using "ICRT-6 Habana" as its ID during test pattern transmissions.

Don't assume that a program in Spanish is necessarily from Cuba. Mexican stations are also regularly seen, especially in the midwest. You'll also notice that skip seems to move in a continuing direction, either from south to west, or vice versa.

Your reception might begin with midday skip from Minnesota, and be replaced with Iowa, Louisiana, and later, Florida. In the height of E-skip season, during June and July, you might be lucky enough to experience double-hop skip, doubling the distance of your catches.

Other odd types of skip can occur, when meteor showers ionize the E layer. They produce very erratic, but more predictable skip, called meteor scatter. Ask your local

AM Changes

KKGO	CA	Hesperia	540 was KSHO	WXTL	FL	Jacksonville Beach	1010 was WBIX
WSTH	GA	Columbus	540 was WDAK	WUFL	MI	Sterling Heights	1030 was WDRQ
WJMW	PA	Bloomsburg	550 was WHLM	WDAK	AL	Alexander City	1050 was WSTH
KRSO	CA	San Bernadino	590 was KFXM	WEKT	KY	Elkton	1070 was WOAM
WDRQ	MI	Kingsley	640 was WJFU	KLRS	CA	Santa Cruz	1080 was KSCO
WGHT	MI	Zeeland	640 was WJFU	WXCT	CT	Hamden	1220 was WNNR
WCAT	MA	Orange	700 was WPNS	WNFO	LA	Baton Rouge	1300 was WIBR
KSEV	TX	Tomball	700 was KTBT	KMKM	TX	Lubbock	1340 was KFMX
WDFZ	TN	Tullahoma	740 was WKQD	WFLK	CT	Naugatuck	1380 was WNAQ
KNCI	KS	Overland Park	760 was KBCB	KFNI	CA	Fresno	1430 was KFIG
WKNL	TN	Knoxville	760 new	WBYU	LA	New Orleans	1450 was WWIW
KZAN	UT	Brigham City	800 was KNKK	WCFJ	IL	Chicago Heights	1470 was WMPP
WQSI	MD	Frederick	820 was WZYQ	WMTX	MS	Biloxi	1490 was WBND
KBLN	TX	Sherman	910 was KIKM	KFNN	AZ	Mesa	1510 was KJAA
KQAQ	MN	Austin	970 was KGHR	KNUS	NM	Albuquerque	1580 was KZIA

planetarium or college astronomy department when the next meteor showers may occur, then head for your TV! You'll see this phenomenon for only a few seconds to a minute or two, between midnight and dawn, generally. Luckily, this is when many stations transmit ID test patterns, giving you a fighting chance at a catch.

When the sunspot count becomes highest, the same layer that brings you international shortwave reception, the F2 layer, produces the most distant of TV DX'ing. Reception from distances over 3000 miles are possible, but quite rare. If F2 skip reaches 60 MHz, American channel 2's may receive interference from European channel E3's.

Get Your Ears On

Unlike almost every other type of DX'ing, TV E and F2 skip DX'ing demands very simple equipment. All you need is a very sensitive and selective television, that receives a minimum amount of interference on clear channels from adjacent locals, and a "rabbit ears" antenna. Signals bouncing off the ionosphere come from above and not by line of sight, as direct and local TV transmissions do. Their random scattering confuses their polarity greatly, so that horizontal beam antennas only grab a small part of the action. Antenna height is *not* critical. In fact, lower antennas that pick up less of nearby signals may be advantageous.

Your aim is to null and minimize local signals, so that the skip comes through. Be careful to avoid areas that are shielded, such as houses with aluminum siding, or apartments surrounded by lots of steelwork. Rabbit ears or other simple antennas might need to be mounted outdoors in these cases. Your rabbit ears can quickly be manipulated to null local transmissions and capture the skip.

You'll find very subtle changes, like moving the whips slightly, will create the right combination to let the skip through. My father captured KJRH in Tulsa, Oklahoma, on channel 2, by nulling local WCBS, New York, using a single monopole whip and a simple black and white TV carefully. Rabbit ears make excellent sniffers to hunt for E skip. Obviously, these distant signals are often quite strong.

Since conditions change so rapidly, you might benefit from recording the incoming reception for later analysis. Home video recorders depend on a solid video signal for good picture and sound playback. If you can, run a video machine on your reception and back it up with an audio cassette recorder that does not depend on a good picture.

Also keep in mind that this DX often reaches up to channel 6 and beyond. The frequency for channel 6 audio is 87.75 MHz, just below the standard FM band, and within the reach of most FM receivers. Why not run an audio recording on this frequency while watching others? It couldn't hurt! Check it later for added DX catches.

E skip has also helped FM DX'ers increase their logging totals. I have received midwest and deep south stations on my FM car radio many times in the northeast. When you receive consistent E skip on channel 6, take a look at the bottom part of the FM band. You may be happily surprised.

Smile, And Say "Cheese"

It's a snap to capture your phantom E skip receptions for your log book. Put a camera on a tripod and aim it at your TV. Do not use a flash, since this will reflect on the TV picture tube. Use a fast film, ASA 400 or higher, and take a reading on the natural light from the screen. Always use a shutter speed of 1/30 of a second to match the frame rate of the television transmission system. Use a cable release so your camera does not shake when you take the picture at this slow speed. Experiment. You will be able to have beautiful pictures of your receptions that make a fine document of verification. So, as you can see, it's as easy as A-B-C to capture those E's and F's!

Let us know how you do! We'd be proud to print your reception pictures and loggings. Also, send us your bumperstickers, logos, or anything else of interest about the broadcasting world. Tell us what you would like to see in future columns! Write to: Broadcast DX'ing, Popular Communications, 76 North Broadway, Hicksville, New York 11801. Until next month, best of luck, and 73's! PC

LISTENING POST

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

BY GERRY L. DEXTER

As you may have heard, the shortwave world has exorcized a few more of those devil sounds, the jammers. The tail end of last year saw the Soviet Union finally end 35 years of targeting Radio Liberty. Two weeks later, Czechoslovakia ended jamming of Radio Free Europe and Bulgaria followed suit a couple of weeks after that. Only a few cases of jamming remain now, mostly of a presumed temporary nature such as jamming of clandestine broadcasts, or cases such as Iran vs. Iraq. Hallelujah!

The Italian Radio Relay Service (IRRS) began an eight week test run early last December so, by now, they should be operating with their regular schedule, although they haven't announced what that might be. These tests were on 7160 from 0800-1000 and 9860 from 1000-1500 Saturdays and Sundays. Programming consisted of UN Radio features, Radio Earth's program, World Music Radio and several others in an assortment of languages. The station runs 10 kW and the early tests were heard by several in North America. Reception reports go to IRRS, Box 10980, I-201 10, Milano M1, Italy.

Still unlogged in the US or Canada as far as we know, the Bhutan Broadcasting Service has lengthened its schedule. It now operates from 1000 to 1500 (English from 1415-1500) daily and 0600-1000 on Sundays (English 0900-1000) on 6035. Word is that, one day, transmitter power will be boosted to 50 kW. Maybe that will do the trick.

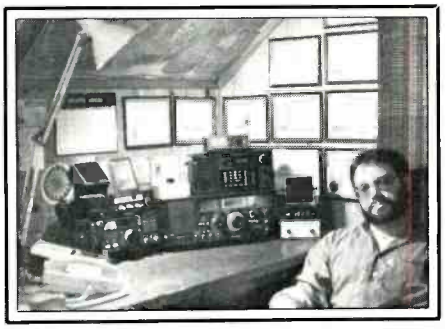
Radio Portugal, which cut back to a five day week for its English to North America, is making something of a comeback. A new 300 kW transmitter will soon be on the air, coupled to a new antenna system. Two more high power transmitters will come into use in the next two years to give improvements in service to Europe and the Far East. Improvements—exactly what is not specified—will be made in services to the Americas later this year.

"Push 'em back, push 'em back—way back," goes the old high school football yell. Seems it describes start up dates for shortwave broadcasters, too. WWCR, the new religious operation set for Nashville, TN ended up being *months* past its target date for getting on the air.

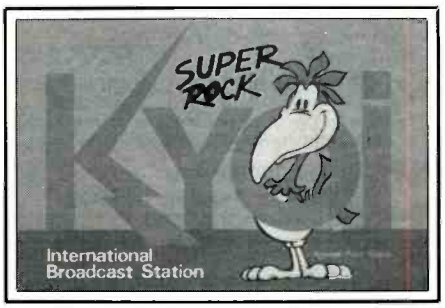
Sounds like the Swedes mean it this time. They've again announced the coming end of the single sideband Radio Sweden broadcasts from the Varberg transmitter site. A threatened closing a year or so back had the kabosh put on it thanks to a lot of listener mail. But, the authorities say the service is just too expensive and will end sometime in 1989. that still gives you time to get a logging if you haven't done so yet. The current schedule is 0200-0300 on 11950; 0630-0700 on 17770; 0700-1600 on 21555; 1600-1900 on 15435; 1900-2100 on 11925; 2230-2300 on 11925 and 2300-0000 on 11950. The transmissions are a relay of the Swedish home service. Radio Sweden's foreign service broadcasts are not involved.

A great old Hammarlund receiver graces the shack of K.J. Hobbs in Hamilton, Ontario.

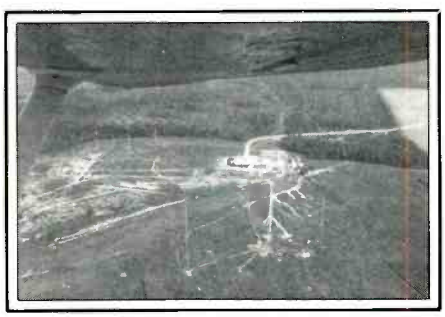
One of the QSL's sent out by Vatican Radio.



This great-looking layout belongs to Ken Cobb in Portland, Maine.



This KYOI is probably not being used now since the station no longer has a rock format and is now part of the Christian Science shortwave broadcasting complex.



This is Herald Broadcasting's (WCSN) new WSHB under construction in South Carolina. The station should be on the air now.

Our remarks about AFRTS leaving shortwave and the possibility of tuning AFRTS programs via a transmitter at Barford, England brought a letter from someone in the AFRTS California office. The writer notes there's been "surprisingly little" reaction to AFRTS leaving shortwave and says this Barford business has everyone in the office stumped since there is no such AFRTS station. Well, maybe not on the official AFRTS lists, but there is a transmitter *of some kind* relaying AFRTS programs on single sideband. It's been our understanding that this was some sort of feed (backup, perhaps?) for AFRTS Azores. Incidentally, the writer says he (or she?) shouldn't be officially corresponding and so doesn't sign the letter. Well, mystery reader, maybe you can write again and give us some clues on how to wind our way through the red tape maze to obtain a complete listing of all AFRTS outlets worldwide. We might as well be trying to QSL Saturn for all the success we've had.

The Ontario DX Association has published the *DX'ers Shortwave Radio Country List* which is, actually, the country counting standard in North America, at least. The ODXA publication also includes area and continental maps showing all of the countries. The booklet is available from the Ontario DX Association, P.O. Box 161, Station A, Willowdale, ONT M2N 5S8, Canada. Include $1 cost and while you're writing ask for info about the club. It's one of the best anywhere.

Here's the mail: Craig W. Dible of Marine

del Ray, California is trying to find out what happened to *DX Afrik* a Nigerian club based in Kano and run by someone named Friday I. Okoloise. The last communication Craig had was about three years ago. Drop us a line if you have any info about this individual or group.

Fritz Veidt in Cincinnati checks in for the first time and notes, as many do, that he's been an SWL for many years, but is now getting into monitoring, logging and QSL-ing. He uses a Grundig Satellit-400. Don't be shy about sending logs in Fritz. Your "common" logging is someone else's wanted log.

Also using a portable, in this case a Radio Shack DX-440, is Donald P. Tiderencel, Jr., of Binghamton, NY. So far he's logged 52 countries on it. He, too, has been an SWL for a number of years and is now getting into the DX'ing side of things.

Paul B. Kling of Amarillo, Texas, on the other hand, has been a serious monitor for many years—through a Hallicrafters S-38 series receiver to the wonderful Hammarlund HQ-180, a Panasonic portable and most recently an ICOM R71A. Hope you'll give that receiver a steady workout, Paul, and give us the results regularly.

Paul also noted that on the CBS "Sunday Morning" program, Charles Kuralt, in discussing the termination of jamming, held up a portable shortwave set and made some sort of negative remark about how well stations could be heard. *Isn't that nice?* We here at POP'COMM, and many firms specializing in shortwave listening equipment and accessories, have spent years trying to increase public awareness of international broadcasting and the wonderful escape it offers from the (yawn) world of TV and one guy with a "name" and a big audience can—with just a few words—make our already huge job even more difficult. Hope that some of you who saw this particular show let Kuralt know your thoughts.

Another SWL with a few shortwave years notched into his belt is Donald N. Davis of Pittsfield, Massachusetts who also uses an ICOM R71A. Donald says he's very active but usually doesn't send reports to columns. There are too many who take that route, Don!

Rich Denison in Lewiston, Maine has also been listening for quite a few years and recently invested in a Kenwood R-5000 and Datong active antenna. He already had a Sony 2003 portable.

Larry R. Zamora, stationed with the Air Force in Grand Forks, ND just returned to listening after 17 years of doing other things. He notes many familiar stations still around. Larry uses a Panasonic RF-B60 with an old Hammarlund HQ-200 as a standby. Hope you'll report often, Larry.

And we hope *you* will, too. Your loggings, comments, questions, shack photos and spare QSL's (unreturnable), news clippings, schedules and so on are always welcome. Remember to add your last name and state abbreviation after each logging and give us a little cutting room between each one. It makes things a whole lot easier.

SWBC Loggings
All Times Are UTC
English Except As Noted

Albania: R. Tirana, 9760 w/nx at 0230 (Gilsan, MD, & Rogers, OK).

Algeria: R. Algiers, 15215 at 1900 (Johns, TX).

Antigua: DW relay, 15410 in GG at 2200 giving sked (Gilson, MD).

Australia: R. Australia, 15290 at 2228 w/talk, jazz, ID (Goodlet, TN); 17795 at 2251 & 0435 (Ross, WA).

Austria: R. Austria Int'l., 9870 w/mx at 2255 (Ross, WA); 13730 at 1405-1435 w/various mx types, commentary pgm in SS (Mierzwinski, PA); 1559 w/ID (Rogers, OK).

Belgium: BRT, 21810 at 1640 w/ID, talk, contest annc't (Denison, ME).

Brazil: Super R., Tupi, 4975 in PP at 0106-0217 w/songs, ID's (Tuchscherer, WI).

R. Inconfidencia, Belo Horizonte, 6010 w/mx, ID's, Latin pops, nx at top of hour, headlines at bottom of hour (Tiderencel, NY). Times?-- Ed.

R. Nacional, Boa Vista, 4875 at 0322 w/many PP ID's, IS, freq annc't 0330 (Tiderencel, NY).

R. Nacional, Macapa, 4915 w/nx, several ID's, at 0313-0317 (Tiderencel, NY).

Radiobras, 11745 at 0007 w/nx, ID, sked info (Tiderencel, NY).

R. Relogio Federal, Tia, 4895 tentative logging in PP at 0258 (Smith, MO). ID sounds OK but freq should be 4905 kHz for this one-- Ed.

R. Club da Para, Belem, 4885 in PP w/lots of mxm ID 0300 (Smith, MO).

Bulgaria: R. Sofia, 7115 at 0434 w/nx (Ross, WA)

Cameroon: R. Cameroon, Garoua, 5010 at 0500 (Johns, TX).

Canada: RCI, 15260 at 1843 in FF (Ross, WA); 1836 w/**Listener's Corner** & ID (Gilson, MD).

Chad: R. National Tchadienne, 4905 in FF at 0510 w/OM annct, African mx, ID (Mierzwinski, PA).

Chile: R. Nacional, 15140 w/sports in SS at 2100 (Rogers, OK).

China, Peoples Rep.: R. Beijing, 9665 at 1215 w/mx & ID in CC (Northrup, CT); 11715 at 0043 (Ross, WA).

Central People's BC Sta. Pgm 1, 15550 in CC at 0130-0205. Commentaries & vocals, 4 tones & ID 0200. This may be new 15 kW domestic svc for S. China (Mierzwinski, PA).

Colombia: La V. del Cinaruco, Arauca, 4865 in SS at 0304 w/positive ID (Tiderencel, NY); 0459-0508 including **Caracol** net ID (Mierzwinski).

Caracol, Bogata, 4755 in SS at 0440 w/mx (Rogers, OK; 0520-0545 w/apparent interview, ID, mx, more ID's (Mierzwinski, PA).

Costa Rica: R. Reloj, 4832 tentative logging at 0330 w/ID, commercials (Tiderencel, NY).

Cuba: R. Havana Cuba, 6140 at 0324 (Ross, WA); 6145 at 0253 (Gilson, MD).

Czechoslovakia: R. Prague, 11990 at 0327 (Ross)

E. Germany: RBI, 11785 w/IS at 0426; also 13610 at 1857 (Ross, WA); 21540 at 1410 w/Asian svc & mailbag (Zamora, ND).

Ecuador: R. Quito, 4920 in SS at 0253, ID 0258 (Smith, MO).

HCJB, 9720 at 0225 w/rx mx, ID; also 15210 at 1902 (Gilson, MD); 11775 at 0109. Also (but not //) 11910 at 0100, into SS 0130 (Smith, MO).

R. Jesus del Gran Poder, 5050 ij SS w/latin mx, ID (Tiderencel, NY).

Egypt: R. Cairo, 12050 at 1407 w/AA mx (Kling, TX).

England: BBC, 5975 w/**Newsdesk** at 0503 (Ross, WA); 6175 at 0212, also 15390 at 2125 w/IS & PP; on 17760 at 2057 w/game show (Gilson, MD); 25750 w/country mx beamed to Africa/Asia (Mierzwinski).

AFRTS feeder, 5375.5 at 0209 w/college sportscast (LSB mode) long after AFRTS quit shortwave. Believe this feeder is in England (Kneitel, NY).

Finland: R. Finland, 15400 at 1500 w/**Good Morning N. America** pgm. Toll-free listener svc # is 1-800-221-9539 (Zamora, ND).

France: R. France Int'l., 25820 at 1405 in FF w/nx, reporters' commentaries, ID (Mierzwinski, PA).

Ghana: GBC, 4915 at 0535 in vernaculars & EE w/vocal mx, full ID + time check (Mierzwinski, PA).

Greece: V. of Greece, 7430 at 0130 w/nx (Rogers, OK; 15630 at 1839-1849 close w/Greek mx, nx, ID & off (Tuscherer, WI).

Guam: KTWR, 11805 at 1025 (Yohnicki, ONT).

KSDA, 11980 at 1300 w/ID (Johns, TX).

Guatemala: R. Buenas Nuevas, 4800 at 0102 closing w/SS rx talk many ID's & closing annc'ts (Tuscherer, WI).

R. Tezulutlan, Coban, 4835 at 1157 w/rx pgms & ID in an Indian lang (Goodlet, TN); 0149 in SS w/ID, lots of marimba mx (Smith, MO).

India: AIR, 9910 at 0010 s/off; 11620 at 1859 w/mx (Ross, WA).

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

International Waters: R. Caroline, 6215 at 2355 w/mx, nx highlights, off 2359 (Goodlet, TN).

Iran: VOIRI, 15084 in presumed Farsi at 1530 w/talk (Rogers, OK).

Iraq: R. Baghdad, 9515 at 0200 (Johns, TX; 0330 w/ID, nx, mx (Denison, TX); Tentative logging 1615-1637 w/mideast mx but mixed in with Havana (Tuscherer, WI).

Israel: Kol Israel, 7465 at 0010 w/nx & commentary (Denison, ME); 9435 at 2254 w/nx; 11605 at 2027 w/ID (Ross, WA); 11588 at 0330 in RR then Hebrew to close (Mierzwinski, PA).

Japan: R. Japan, 9505 at 1905 w/trade nx; 17825 at 0320 w/nx (Ross, WA).

Kuwait: R. Kuwait, 11665 at 2000)Johns, TX); 15505 at 2030 in AA w/local mx, the //15495 outlet is usually the better of the 2 (Mierzwinski, PA).

Lebanon: R. Voice of Lebanon, 6550 at 0330 but very weak. Tentative logging in possible AA (Goodlet, TN).

Lithuanian SSR: R. Vilnius, 7165//7400//13645//-15180//15455 at 2300, very clear on 7 MHz w/nx of political dissent (Smith, MO); 13645 at 2242 in un-ID lang. This freq better than 7400, 15180, 15455 (Goodlet, TN).

Malaysia: R. Malaysia, 4950//5005 at 1230 in possible CC (Johns, TX).

Mexico: XEFT/La Hora Exacta, 9555 at 0200 in SS (Johns, TX).

Nicaragua: V. of Nicaragua, 6100 at 0540 w/nx (Rogers, OK).

Niger: La V. du Sohel, 5020 in FF at 0610-0630 w/talk, African mx, drums/voices, lyrics not in FF (Mierzwinski, PA).

Nigeria: V. of Nigeria, 7255 at 0500 w/nx (Rogers, OK).

Netherlands: R. Netherlands, 6020//6125 (latter via Bonaire-- Ed.) at 0243 w/**Newslines**, commentary (Goodlet, TN); 15175 at 1853 w/nx (Ross, WA).

Northern Marianas: KYOI, Saipan, 11900 at 1500 w/nx, mx but QRM from Moscow (Yahnicki, ONT).

Norway: R. Norway, 9650 at 0414 (Ross, WA); 15310 at 1627 in Norwegian (Kling, TX); 1630 in Norwegian & 1700 in EE (Rogers, OK).

Pakistan: R. Pakistan, 13675 at 1613-1630 close, nx, freqs, more nx (Tuchscherer, WI); 9475//11615//-13675 in un-ID lang (Goodlet, TN).

Philippines: VOA relay, 15290 at 2228 w/**VOA Sunday Morning** in progress, only Sat afternoon here (Goodlet, TN).

Portugal: R. Portugal, 15250 at 1911 w/nx (Ross, WA).

S. Africa, Rep. of: R. RSA, 9580 at 0200 w/nx (Davis, MA); 15365 at 1910 w/freq info, mx, ID, off 2000 (Gilson, MD); 1927 (Ross, WA); 25790 at 1400 s/on, freqs, pgm info (Mierzwinski, PA).

Radio 5, 4880 at 0300 w/mx (Rogers, OK); 0301 prayer, pops, commercial (Tuchscherer, WI).

Capital R., Transkei, 3927 at 0300 (Johns, TX).

S. Korea: R. Korea, 9570 w/nx at 0600 (Rogers, OK); 15575 at 2239 w/nx (Ross, WA).

Spain: Spanish Foreign R., 11790 at 1928 w/national nx (Ross, WA); 11880 at 0144 w/SS lessons (Zamora, ND).

Swaziland: TWR, 9725 at 1245 w/OM DJ in FF (Northrup, CT).

Sweden: R. Sweden, 21615 at 1415 w/mailbag pgm & stamp collecting (Zamora, ND).

Switzerland: Red Cross BC, 15430 (vis Swiss R. facilities) at 1722 w/review of RC activities (Denison, ME).

Syria: R. Damascus, 12085 at 2058 w/nx (Ross)

Tahiti: R. Tahiti, 15170 at 0430 w/mx (Rogers).

Taiwan: VOFC, 5985 (via WYFR) at 0315 w/nx (Ross, WA); 9955 at 1436 w/mx & talks in CC (Kling, TX).

Thailand: R. Thailand, 11905 at 1300 w/talk (Rogers, OK).

Turkey: V. of Turkey, 7160//7250 at 2230 (Smith, MO); 9445 at 2302 & 0322 (Ross, WA); 0404 (Denison, ME).

United Arab Emirates: UAE R., Dubai, 9640 at 0330 w/nx & wx (Zamora, ND); 17865 at 1515 w/mx (Rogers, OK).

V. of the UAE, Abu Dhabi, 9595 w/pops, ID's (Tuchscherer, WI).

U.S.A.: R. Marti svc., 9590 in SS at 1230 w/mx, ID (Northrup, CT); 11930 in SS at 2100 (Yahnicki, ONT).

WCSN, 21640 at 1650 w/sermon (Davis, MA).

WYFR, 9680 relaying VOFC at 0220; 13695 at 1759 w/**Echos** pgm; 15375 at 2002 w/**Unshackled** (Gilson, MD).

WMLK, 9465 at 1750 w/rx discussion (Goodlet, TN); 1700 asking for receptian reparts to Box C, Bethel, PA 19507.

KUSW, 15580 at 2252 w/mx (Ross, WA).

WHRI, 13760 at 1804 w/**Joy of Living** (Gilson)

KVOH, 17775 at 2101 w/UPI nx (Gilson, MD).

U.S.S.R.: R. Moscow, 6000 at 0237 w/commentary; also 6045 at 0242 (Gilson, MD).

Uzbek SSR: R. Tashkent, 9540 at 1210 w/mx, nx, & commentary (Denison, ME).

Vatican: Vatican R., 6185 at 2355 in SS (Tiderencel, NY).

Venezuela: R. Rumbos, 4970 at 0456 in SS w/mx & ID (Ross, WA).

R. Tachira, 4830 in SS w/drama at 0318 (Smith).

R. Mundial Bolivar, 4770 in SS w/mx, ID at 0125 (Smith, MO).

R. Capital, 4850 at 0308 w/pops (Tiderencel, NY).

Vietnam: V. of Vietnam, 9840 at 1350 w/talk (Rogers, OK); 12020 at 1907; 15010 at 2341 (Ross)

W. Germany: Bayerischer Rundfunk, 6085 in GG at 0239 w/**Nacht Express** (mx, traffic reports, commentary), but covered by DW at 0300 (Veidt, OH).

DW, 6075//6100 in GG at 0203 (Gilson, MD); 6045 in GG at 0512, & 13790 in EE at 1913 (Ross).

Yugoslavia: R. Yugoslavia, 5980 at 0100 (Johns, TX); 9620 at 0130 w/ID, feature on rock in Yugoslavia (Denison, ME); 0100-0130 nx, editorial, political, comment, mx (Davis, MA).

A sweeping bow to the following: John Tuchscherer, WI; Bruce R. Gilson, Silver Spring, MD; Frank Mierzwinski, Reading, PA; Rick Denison, Lewiston, ME; Michael Yohnicki, London, Ontario, Larry R. Zamora, Grand Forks, ND; D.N. Davis, Pittsfield, MA; Lowell Rogers, Ponca City, OK; Jim M. Smith, St. Louis, MO; Andy Johns, Tyler, TX; James Ross, Vancouver, WA; Donald P. Tiderencel, Jr., Binghampton, NY; Cliff Goodlet, Chattanooga, TN; Mike Northrup, Danbury, CT; Tom Kneitel, NY.

'Til next month, good listening! **PC**

EQUIP-tips

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

By Bob Grove WA4PYQ

Low-Cost Base Scanner Antenna

Today's high-tech, wide-frequency-coverage scanners are way ahead of the old limited-frequency antennas. Monitors are looking for an inexpensive, high performance, non-directional antenna at low cost.

Tip: The Grove ANT5B OMNI features continuous frequency coverage from 30-960 MHz and a typical receiving range of 50 miles. Low profile and low cost make the OMNI the first choice of metro scanner listeners!

WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Shipboard Station Enjoined From Operation

Ruling out the right of free speech does not include the right to broadcast without a license, United States District Court Judge John J. McNaught, Boston, Massachusetts, granted summary judgment to the government in a case seeking an injunction against the operators of an unlicensed "pirate rock and roll" shipboard radio station. On December 13, 1988, Judge McNaught held that Allan H. Weiner, Joseph Paul Ferraro, Randall Ripley and others had violated both federal and international law with past and planned broadcasts and permanently enjoined them from operating the unauthorized station.

The defendants had broadcast under the name "Radio New York International" or "RNI" on the AM radio band between 1605 and 1705 kHz from on board a ship known as the *Sarah* located off Long Island, NY. The defendants first broadcast without a license in July 1987 over AM, FM and shortwave radio from on board the *Sarah* until the broadcasts were halted by the government. RNI announced plans to resume the broadcasts and in August 1988 the government filed suit to enjoin them from doing so.

The United States argued that the defendants were in violation of both international and federal law and intended to further violate those laws in the future; and that numerous AM, FM and shortwave radio stations would be subjected to interference from future RNI broadcasts. The government further contended that members of the listening public who rely on certain licensed programming for information and entertainment could have such programming disrupted by the unlicensed broadcasts.

In support of its position, the United States relied upon the International Telecommunication Convention, the basic instrument of the International Telecommunication Union of the United Nations, as well as the Communications Act. The Convention and its international administrative regulations govern radio broadcasting between nations and on the high seas. Article 30, Section 1(1) of the international Radio Regulations prohibits the establishment and use of broadcasting stations on board ships outside national territories.

Judge McNaught further concluded that the First Amendment does not grant anyone the right to broadcast by radio and that government regulation of broadcasting is constitutional.

The Judge also held that Section 2 (47 U.S.C. 152) of the Communications Act of 1934 expressly intends coverage of the Act to all transmissions by radio which originate and/or are received within the United States. Jurisdiction under the Act is therefore extended beyond places over which the United States has sovereignty. The Judge noted that there was no question that the broadcasts of the *Sarah* could be received within the borders of the United States.

The Judge also stated that the FCC must allocate the limited available broadcast frequencies by way of the licensing process, and that this type of regulation best serves the public interest. Such regulation of the radio band does not infringe upon the constitutional rights of the defendants, but instead serves to foster international relations.

FCC Shuts Down A Connecticut Religious Radio Network – Fines Operator $2,000

The FCC shut down a pirate radio network in Stamford and Bridgeport, CT and issued a $2000 fine to its operator.

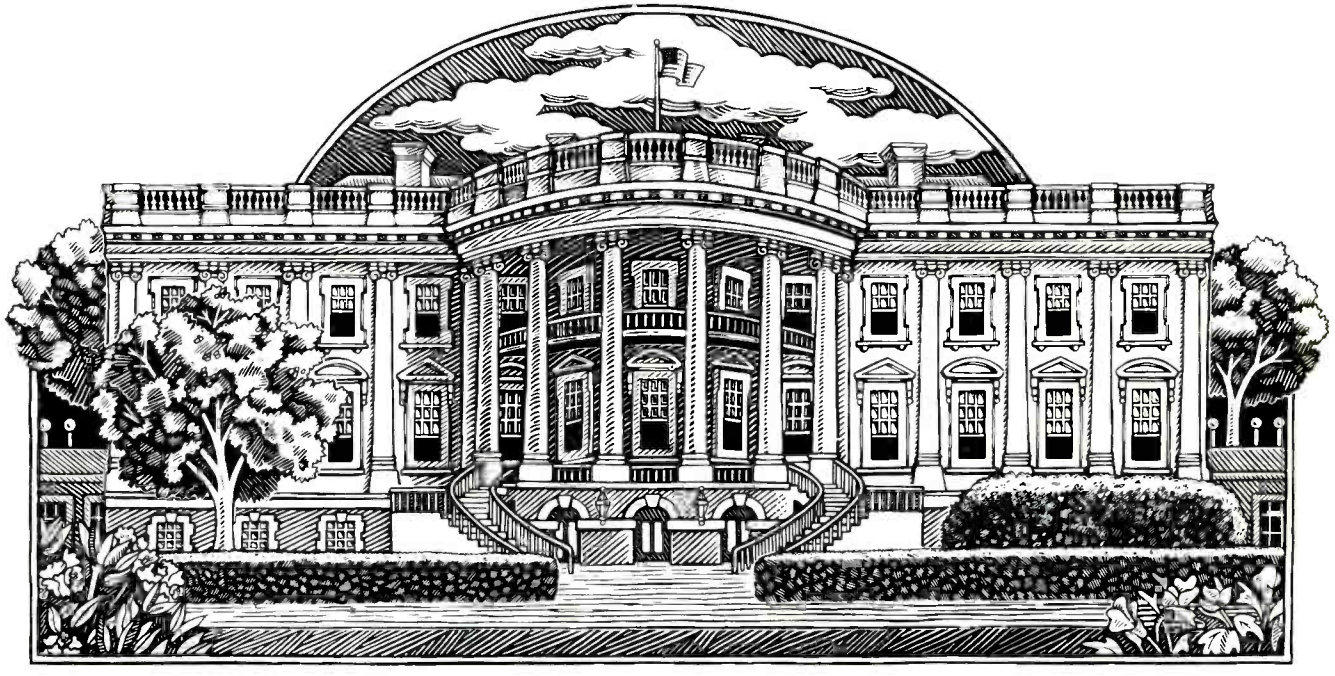
On December 12, Electronic Engineers from the New York FCC office monitored three unlicensed stations using the callsign WGEC which were operated by Bishop Willie Hardy of the Stamford greater Emmanuel Church.

The stations were operating on 1610 on the AM dial and 105.5 on the FM dial.

The unauthorized broadcast stations were transmitting religious programming.

Unlicensed radio operation is a violation of Section 301 of the Communications Act. Unlicensed radio operators may be subject to fines of up to $100,000 and/or one year in prison.

Illegal radio operations can cause interference to aviation radio navigation equipment, public safety radio services, and home electronic entertainment equipment, the FCC stated.



FCC Fines New York City Men For Illegal Radio Network

Seven New York City men have been fined $6500 for illegal radio operation the Federal Communication Commission said. The men were operating an unauthorized radio repeater station that was using frequencies reserved for the U.S. Government.

On the morning of December 8, 1988, FCC Electronic Engineers inspected the radio station at the residence of Angel Matos Sr., in lower Manhattan. Commission Engineers had monitored the operation in the 148.0-148.9 MHz band and located the station using mobile radio direction finding equipment.

These frequencies are reserved for use by the U.S. Government for fixed, mobile, and satellite communications.

The illegal radio station was installed by a licensed radio amateur (N2FRV), Michael Munoz, Astoria, NY. Munoz was personally fined $2000.

The following Manhattan residents were each fined $750 for illegal radio operation: Alex Matos; Angel Matos Jr.; Edward Matos; John Mateo; Edison Tavarez and Louis Rosario.

"Unlicensed radio operation is a serious problem because it can interfere with essential public safety radio services and aviation radio-navigation equipment," said Alexander Zimny, Engineer-In-Charge of the New York FCC office.

The New York office of the FCC is responsible for managing the radio and television spectrum for the New York Metropolitan Area. The FCC investigates and resolves interference problems with its radio direction finding network.

Prosecution For Marketing Illegal CB Equipment

The Field Operations Bureau initiated a criminal prosecution against Rubel's CB Sales of Toledo, Ohio, for the marketing of illegal Citizens Band (CB) Radio equipment.

As part of this action, engineers from the Detroit Office, along with U.S. Marshals, seized as evidence equipment from the establishment. The equipment consisted of external radio frequency power amplifiers capable of operation at CB radio frequencies, and radio transceivers capable of operation on frequencies which are not authorized for use in CB Radio Service. Such devices are not accepted as required by FCC rules. The Government will request that the equipment be forfeited to it.

The prosecution of Rubel's CB Sales is part of the continuing effort of the Federal Communications Commission of enforcing the rules prohibiting the sale of such equipment. The possible penalties for the sale of non-type accepted equipment include a fine of $100,000 and one-year imprisonment for the first offense. PC

SCANNER SCENE

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

BY CHUCK GYSI, N2DUP

The mailbag was kind of light this month, but we'll check in to see who has a few words for Scanner Scene.

Gino Mancuso, Registered Monitor KPA3KM, of New Kensington, Pennsylvania, says he enjoys POP'COMM and looks forward to seeing Scanner Scene each month. Gino lives about 20 miles northeast of Pittsburgh, PA, and can hear all the law enforcement agencies within a 40-mile radius of the city. He says he also listens to fire and emergency channels, news media, aircraft, college security and federal government law enforcement agencies.

Gino's gear (see photo) includes a Bearcat 260, Bearcat 800XLT, Bearcat 210XLT, Bearcat 200XLT handheld, Bearcat 950XLT (mobile), Realistic PRO-30 handheld, a Regency crystal scanner, a BMI Nitelogger connected to a tape recorder, a Yaesu FRG-9600, a Uniden CR-2021 SWL receiver, a Kenwood R-2000 SWL receiver, a Universal M-7000 decoder, as well as various computer equipment and radio accessories. It seems like a very well equipped shack. If it's happening in the Pittsburgh area, chances are Gino knows about it.

This impressive shack belongs to Gino Mancuso, KPA3KM, of New Kensington, PA.

Gino points out that Pittsburgh has tried using a trunked 800 MHz radio system in the past for the Bureau of Fire and the police, however, there were many dead spots around the city that did not allow radios to access the system. In the meantime, the city continues using its 453 MHz system. Gino advises that federal agencies are very active in the Pittsburgh area, especially the Drug Enforcement Administration on 418.750 and 418.900. He also listens to U.S. Postal Service inspectors on 414.750, which is a new frequency that the inspectors have pretty much switched to in many cities in the country.

Gino complains that he is unable to obtain a spare battery pack for his Bearcat 200XLT handheld, which he uses when he travels. I do not know of a similar situation, however, if you call some of the POP'COMM advertisers who sell scanners, I think you'll find out that they do stock the spare batteries for the Bearcat 200/205XLT. I know because I was able to get one for my handheld. I hope that helps you, Gino. Thanks for the super report from Pittsburgh and thanks for sharing the photo of your shack with our readers.

Bruce Williams writes in from Bellaire, Ohio, with a few questions. First of all, he asks whether it is legal to have a scanner in your car in Ohio. I'm pleased to report that you have every right to install a scanner in your car in the great Buckeye State. That's not the case in every state, so readers should be cautioned to check with their local police department or state police before bolting the receiver under their dash. Bruce also asks whether anyone knows the 10-codes for Belmont County's Sheriff's Department, the Ohio State Police or the Bellaire police or fire departments. If you have this information, pass it along to Scanner Scene and we'll print it so Bruce and others will have the information as well. Bruce also passes along a few local frequencies of interest: 39.24, Belmont County, Ohio, sheriff's (repeater); 39.52, Bellaire, Ohio, police; 44.94, Ohio State Police base; 45.26, Ohio State Police cars (note: there are several other frequencies used around Ohio, however, these are used in the Belmont County area); 151.865, Bellaire cable TV units; 39.48, Moundsville, W.Va., prison (note: this is a good one for listeners to keep in their radios, considering the problems at this prison in the past.) Thanks for writing, Bruce.

Michael D. Riggan of Little Rock, Arkansas, sends along a clipping from the *Arkansas Democrat* on how a scanner listener helped nab a suspect. Apparently two North Little Rock police officers were working off-duty as mall security guards when two men were spotted checking out cars in the parking lot outside a department store. The officers exited their car and approached the two men. One surrendered, but, the other ran away.

The one officer chased the fleeing suspect for 1½ hours, according to the article. A woman who was listening to the chase on her scanner saw a man matching the suspect's description in her backyard. Police responded quickly and arrested the suspect, who was charged with burglary and theft of property. Chalk up another one for scanner listeners who help police. Thanks for the clipping, Michael.

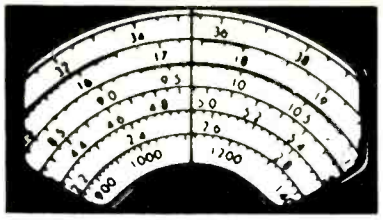
Robert W. Smith of Bay City, Michigan, writes to say he saw our recent article on out-of-band scanner tricks and was wondering if anything would work for his Regency D-310 scanner. Unfortunately, there isn't anything I know of that will work. The only scanners we know tricks for are those that were mentioned in that article. Many of you have written asking about information on other models, however, we just haven't come across any additional information. Robert mentioned that he'd like to listen to 27 MHz CB as well as 800 MHz frequencies. Even if you could trick your D-310 out of band, the CB channels could not be received because they are AM, while the receiver is FM (it would sound very distorted at the least) and the radio never would be able to track 800 MHz frequencies because it's parts just couldn't stretch that far out of band. If you want something to listen to CB or 800 MHz on, you'll have to buy a scanner that covers these bands and modes. It's im-

portant to buy a radio that will cover all your listening interests, if possible. Thanks for asking, Robert.

Roger D. Smith of Vine Grove, Kentucky, also asks about out-of-band tricks, particularly for his Uniden Bearcat 210XLT radio. He wants to be able to tune below 29 MHz. Unfortunately, even if you could punch in frequencies below 29 MHz, you'd find practically no FM transmissions. About the only FM transmissions you'll find below 30 MHz are the 29 MHz 10-meter amateur frequencies used for FM purposes (roughly 29.50 to 29.70 MHz). You also may find some news media using FM on the 25 anda 26 MHz broadcast relay frequencies. Some scanners tune as low as 25 MHz. If this area interests you, make sure your scanner will program in low enough when you buy it. Thanks for your question, Roger.

Harold L. Baker Jr. of Falmouth, Massachusetts, says his hometown's police department has appropriated $250,000 for an 800 MHz base and mobile radio system for about 20 cruisers in the town. He asks whether he'll be able to hear the system with a Bearcat 800XLT and an ICOM AH-7000 discone antenna mounted on a 35-foot telephone pole. I see no reason why you shouldn't be able to receive this system, Harold. With only 20 patrol cars on the system, I doubt it is a trunked radio system they will be using. They probably will be using just a single-channel repeater system. As long as you are in your hometown, even a handheld should hear the repeater and all the cars retransmitted on the repeater output frequency. Chances are they'll be operating on the 851-856 MHz band. Scan this area when they start installing the radios in order to find the new frequency. Glad to help, Harold.

What information do you have to report to Scanner Scene. I'm looking for any questions and listening tips you may have. I also welcome new frequencies to be reported to other readers in your area, as well as other radio lists. In addition, I need photographs. If you have a photo of your listening post, a dispatcher's console, a mobile radio installation, a tower site or an antenna farm, we welcome such photos. Black and white photos are best, however, good contrast color photos also scan be used. Don't write on your photos, however. We also welcome your QSL and monitoring stations cards. You can write to: Chuck Gysi, N2DUP, Scanner Scene, Popular Communications, 76 North Broadway, Hicksville, NY 11801-2909.



COMMUNICATIONS CONFIDENTIAL

BY DON SCHIMMEL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Followers of Cruise Ship communications should be aware of some recent name changes resulting from the acquisition of Sitmar Cruises by Princess Cruises. Sitmar's *Fairsea* and *Fairsky* have become the *Fair Princess* and *Sky Princess*. The *Fairwind* is now the *Dawn Princess*. The Sitmar vessel under construction, which was to be the *Fairmajesty*, will be named the *Star Princess* when completed. The *Sun Princess* was sold by Princess Cruises to Premier Cruise Line of Cape Canaveral, FL. There is no word as yet on a possible name change for this latter ship. Several readers provided information on these changes and our thanks to all of them.

David Barney, NY said he just recently got into monitoring and uses a Realistic DX440. He requested info regarding a numbers message he heard on 5048 kHz in AM. David, you intercepted a type identified as YL/EE, 3/2F grps. Numerous back-issues of POP'COMM contain articles describing many of the "Numbers Transmission."

Perry Crabill, Jr., VA tells us he uses an ICOM R71A with a 65 ft. inverted "L" antenna plus a Model L-201 Preamplifier for VLF monitoring.

William Jarrett, TN also uses an ICOM R71A with his fed by a 60 ft. longwire antenna.

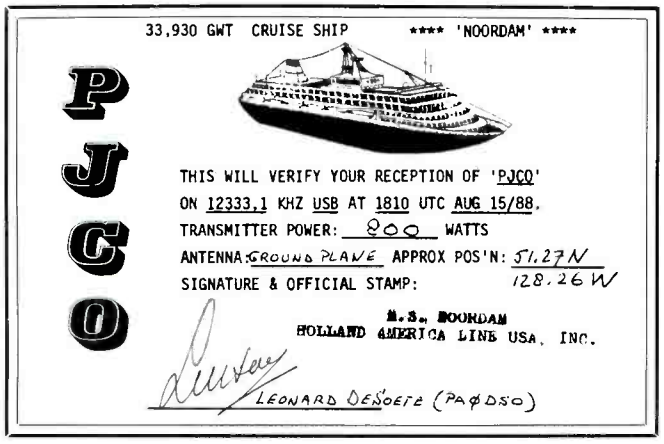
"I've been SWL'ing for going on two years now." So writes Dave Sabo, CA. "My shack consists of a Kenwood R5000, Panasonic RF-B300 portable, and a Toshiba RP-F11 11-band portable for SW listening; and a Realistic PRO-2021 and PRO-34 for VHF/UHF monitoring. Antennas are a 65-foot longwire and a Grove Omni-2."

A note from Robert Gerard, CT said in part "Through help from the column including Andy Gordon's many loggings, I logged 36 US Navy ships and 30 MARS shore stations. When I first started reading POP'COMM I was almost strictly a CB and international broadcast enthusiast. Now 95% of my loggings are UTE's."

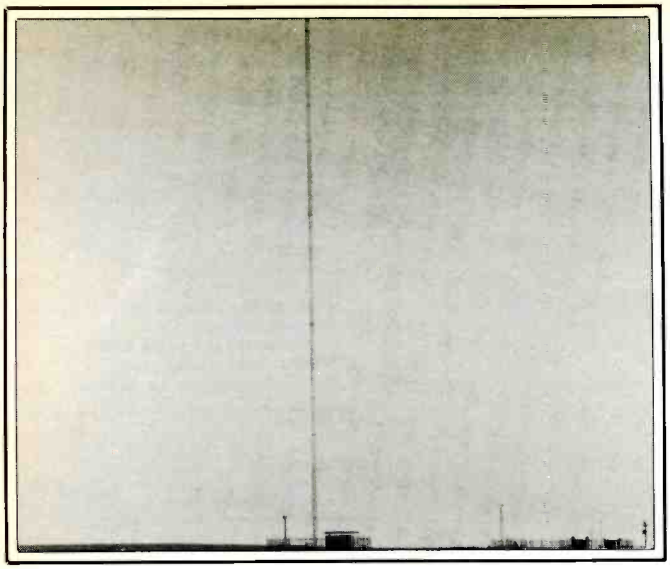
From Brazil we heard from Roberto Benevolo who supplied some identification for some Brazilian callsigns. "I noted that contributor Mr. Szalony, CA intercepted unidentified Brazilian ship PPXV on 12544.8 kHz. PPXV is the callsign for Brazilian motorship bulk carrier 'Docepraia', owned by Companhia Brasileira de Transporte de Graneis (CBTG) and presently bareboat chartered by Vale do Rio Doce Navegacao S.A. (DOCENAVE), with head office at Rua Voluntarios da Patria, 143, Botafogo, 22270 Rio de Janeiro, RJ, Brazil."

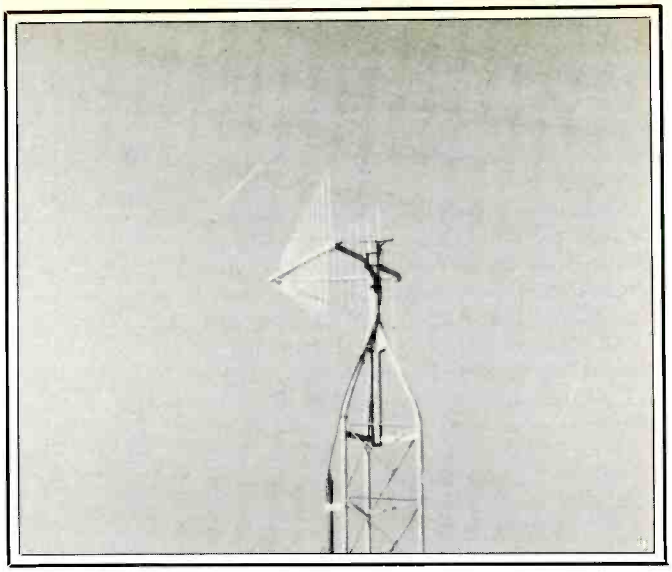
And here's an attractive QSL Robert Landis, MD received from Station TIM in Costa Rica.

How's this for a neat installation? R. Gilson, NH supplied this photo of his equipment layout. A partial list of his equipment includes the ICOM R7000 and R71A, both with remote controllers, a Marine Transceiver, MFJ-959B antenna tuner, SONY tape recorder, and Scanners Regency HX-1000, Bearcat BC-100 & Bearcat BC-220. For antennas he has a Diamond D-130 for VHF/UHF, Alfa Delta DX-SWL Sloper antenna for HF and a 150 ft. longwire for LF/VLF coverage.

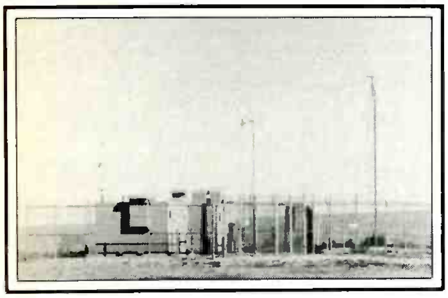


Steve McDonald, BC, Canada shares these two PFC's with us and included the Cruise Line address: Holland America Line, 300 Elliott Avenue West, Seattle, WA 98119.

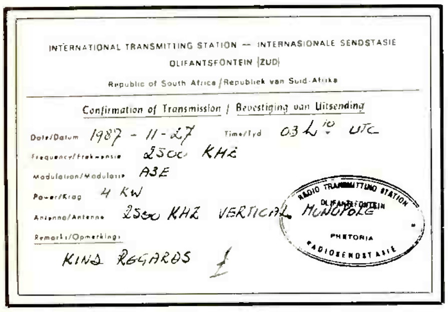




Photos of a GWEN (Ground Wave Emergency Network) site which operates on 169 kHz and is located about 25 miles from Denver, CO. (Courtesy of Pat Griffith)



GWEN Equipment VLF receive antenna on left and VHF/UHF control link antenna on right. (Courtesy Pat Griffith.)



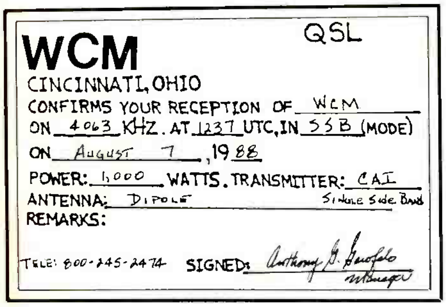
INTERNATIONAL TRANSMITTING STATION — INTERNASIONALE SENDSTASIE
OLIFANTSFONTEIN (ZUD)
Republic of South Africa / Republiek van Suid-Afrika

Confirmation of Transmission / Bevestiging van Uitsending

Date/Datum 1987 - 11 - 27 Time/Tyd 0340 UTC
Frequency/Frekwensie 2500 KHZ
Modulation/Modulasie A3E
Power/Krag 4 KW
Antenna/Antenne 2500 KHZ VERTICAL MONOPOLE
Remarks/Opmerkings
KIND REGARDS

RADIO TRANSMITTING STATION OLIFANTSFONTEIN PRETORIA RADIOSENDSTASIE

Patrick O'Connor, NH received this QSL from South Africa.



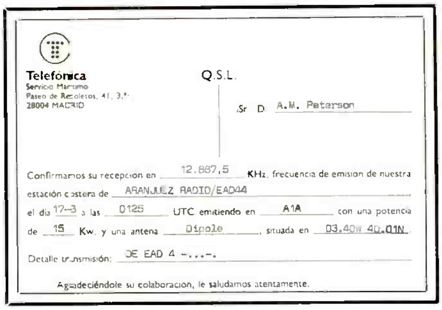
WCM QSL
CINCINNATI, OHIO
CONFIRMS YOUR RECEPTION OF WCM
ON 4063 KHZ. AT 1237 UTC, IN SSB (MODE)
ON AUGUST 7, 1988
POWER: 1,000 WATTS. TRANSMITTER: CAI
ANTENNA: DIPOLE Single Side Band
REMARKS:
TELE: 800-245-2474 SIGNED: Anthony G. Saufalo Manager

PFC sent to WCM by Mark Meece, OH.

This latter address could be used for QSL'ing.

Roberto also had an ident for beacon CCI which was logged by contributor Rosenbaum, ME. Roberto advises that CCI is the non-directional radio beacon located near the town of Cucui, in Amazonas State, Brazil, which is located on the boundary with Venezuela. The department of the Brazilian Air Force which controls such air navigational aids is 'Directoria de Eletronica e Protecao ao Voo.' The beacon frequency is 345 kHz and has a power of 1 kW. Operational responsibility is with 'Telecomunicacaoes Aeronauticas SA (TASA), Ponta do Galeao, Ilha do Governador, 21941 Rio de Janeiro, RJ, Brazil.' (TASA is a corporation controlled by the Brazilian Air Force." Although Roberto did not so state, I assume the TASA address is the one to use for QSL'ing.

Another interesting letter was received from Simon Mason, England. He forwarded his observations regarding the 2L callsigns such as Papa November. Simon noted increased use of "synthesized voice" for the broadcasts and he speculated that all of these broadcasts would soon convert to synthesizer transmissions. This now appears to be the case and broadcasts are preceded by slow electronic tones instead of the previously used flute-tones.



Telefónica
Servicio Marítimo
Paseo de Recoletos, 41, 3.ª
28004 MADRID

Q.S.L.

Sr. D. A.M. Peterson

Confirmamos su recepción en 12.887,5 KHz, frecuencia de emisión de nuestra estación costera de ARANJUEZ RADIO/EAD44 el día 17-3 a las 0125 UTC emitiendo en A1A con una potencia de 15 Kw. y una antena Dipole, situada en 03.40W 40.01N.

Detalle transmisión: DE EAD 4 -...-.

Agradeciéndole su colaboración, le saludamos atentamente.

QSL received by Dr. Peterson, IN.

One evening Simon heard both types of broadcasts (real YL and synthesized YL) at the same time on all four PN frequencies thus making it impossible to copy either one of the transmissions.

He also pointed out the fact that stations DFC37/DFD21 have also changed format. Instead of the music-scale sign-on, there are slow electronic tones followed by "Delta Foxtrot Charlie Drie Sieben", etc.

Simon told of sending Radio Moscow a tape of a YL/GG Numbers transmission which interferred with the Moscow 9450 kHz frequency and asked them if they could identify the interference. Here is the answer as given by the Radio Moscow announcer, "Simon, I've consulted experts on interference but they were unable to identify it. You know sometimes up to twenty different radio stations operate on the same frequency due to a lack of frequencies. It is permitted by international rules, however, that transmitters are directed in such a way so that interference does not occur. But you know conditions or developments in the ionosphere influence propagation. Radio waves travelling aroung the globe may thus create this type of interference. And the station you heard that was imposed on Radio Moscow World Service broadcast could either be a utility station or a meteorological station, I don't know exactly."

Simon added "Their reply reminds me of an incident about four years ago, when a woman listener to the BBC World Service wrote to the BBC asking why a YL/EE was reading out 3/2F groups over the BBC on 7325 kHz. The BBC reply suggested it could have been forecasts of snowfall for the ski-slopes near her location."

The latest information from Andy Gordon, CT is that the US Navy is developing a new radio set that will be able to scan a num-

ber of frequencies and pick the best frequencies for use. The system will take into account the position of the ship and the shore stations they are working. Although this transceiver will be used for official USN Operations, it could be most helpful for MARS as well.

Courtesy of Steve McDonald, BC, Canada here are some QSL addresses: Station NMG—New Orleans CG Commsta, 4640 Urquhart St., New Orleans, LA 70117; Station NOW—Port Angeles CG Air Station, USCG Station, Port Angeles, WA 98362; Station NMW—USCG Group Astoria, 2185 S.E. Airport Rd., Warrenton, OR 97146-9693.

UTE Intercepts
All Times Are UTC

153: Broadband QRM atop Algerian bc sta R. Bechar. A series of long dashes at 2 per sec. No. of dashes varies. sometimes only a few then other times as many as 90. Seems to wander between 150 to 180 kHz. Best described as o keyed hiss (Crabill, VA). Could be GWEN xmsns?-- Ed.

185: NWA, Washington, DC w/CW VVV test marker loop at 0216 (Crabill, VA). The USN is testing a new type of LF antenna here. Receptior reports are wanted & should be sent to: SPAWARs, NWA Test, Washington, DC 20363-5100. Include in reports: Date/time, receiver type/location, description of antenna, sig freq & q ality (RST), and letter of the alphobet transmitted after the word "TEST" in the xmsn you intercepted-- Ed.

212: Beacon CFV, Coffeeville, KS at 0255; Beacon YGX, Gillam, MAN at 0154; Beacon BAZ, New Braunfels, TX at 1112 (Pearce, TX).

244: Beacon HF, Broinard Fld., Hartford, CT at 0444, ex-HDS, ex-HF (Pat O'Connor, NH).

278: Beacon FD, Poplar Bluff, MO at 0332; Beacon NM, Matagami, PQ at 0342 (Pearce, TX).

279: Beacon XSD, Tonopah, NV at 0924 (Szalony, CA).

286: 4 out of 6 sequenced marine beacons around 0434: Beacon GD, Gt. Duck Is., ME; Beacon T, Ambrose L.S., NY; Beacon HI, Highland L.S., MA; Beacon MP, Montauk Point L.S., NY (O'Connor, NH).

335: Beacon NA, Natoshquan, PQ at 0539 (Szalony, CA).

340: Beacon BDG, Blanding, UT at 0534 (Perarce, TX).

345: Beacon XX, Abbotsford, BC at 0917 (Szalony, CA).

347: Kingsville, TX at 0542; Beacon YK, Yankton, SD at 0459; Beacon PA, Prince Albert, SASK at 0333; Beacon VER, Booneville, MO at 0226 (Pearce, TX).

350: Beacon NY, Enderby, BC at 0916 (Szalony)

356: Beacon PI, Peoria, IL at 0510; Beacon ZF, Yellowknife, NWT at 0232 (Pearce, TX).

359: Beacon BO, Boise, ID at 1025 (Szalony).

362: Beacon EZB, Oakland, CA, 0708 (Sabo, CA).

372: Beacon GT, Gt. Falls, MT at 0927 (Szalony).

387: Beacon SYF, St. Francis, KS, 0551 (Szalony, CA).

412: Beacon OEG, Yumo, AZ at 0603 (Szalony)

500: UVLI, Soviet refrig factory fishing stern trawler **Izumrudnyy** in CW at 0503 wkg UVKM, then QSY 512 kHz (McDonald, BC).

512: UVKM, Soviet refrig factory fishing stern trawler **Yubiley Oktyabrya** in CW at 0503 wkg UVLI (McDonald, BC).

530: Beacon NB, No. Bay, ONT at 0516 (Dyroff, MA).

2670: NICC, **USCG Point Turner** in USB at 0433 in contact w/CG Group Woods Hole, MA (O'Connor).

2712.1: 2 OM/SS exchanging personal type telegrams. Havana mentioned in each header (Ed.).

2716: NHTE, **USS Elrod (FFG-55)** wkg Naval Sta Charleston at 2210 re scares for "Main Event" firing exercise; NDIK, **USS Miller (FF-1091)** wkg Newport Port Control at 1300 req wx from Weymouth via Newport for helo ops; Canadian patrol sub **Ojibwa (SS-72)** wkg QHM Halifax; NZOK, **USS Mahan (DDG-42)** clg Roosevelt Roads (PR) Tug Control at 0945; CGXY, **HMCS Huron (DDH-281)** wkg Esquimalt (BC) Control at 1005 re aid to sinking civilian vessel; NMRZ, **USS Fort Fisher (LSD-40)** trying toraise Naval Sta Panoma & Navig Div Panama Canal w/o luck, then called Cristobal Harbor Control at 0300 prior to transiting canal; NBMZ, **USS Tuscaloosa (LST-1187)** clg San Diego Control 1 at 0135 (Andy Gordon, CT).

2800: 4XZ, Haifo Navrad, Israel w/5L tfc in CW at 0215 (Tom Kneitel, NY).

3095: Stas Lima, Juliet, & India w/talk re "RM's" & other short, cryptic xmsns, USB at 0610 (Sabo, CA).

3130: At 0552 during apparent radar training net, V0M called Cape Radio for radio check, but no response. Was probably calling on wrong freq (Elia, FL).

3136.8: YOU clg XPL & NRY in CW at 0149. Sounded like other 3L call activity on 3 MHz (Ed.).

3150.7: Fishing boat net, USB at various times between 2100-0200 on several diff nites (Kneitel).

3195: P7X, un-ID sta in MCW at 0322 w/auto keyed 5L grps, w/pause after each 10 grps (Ed.).

3225.5: YL/RR in AM-mode at 0620 w/5F grps, each repeated (Fernandez, MA).

3231: Delmar Hotel, Hard Luck, Calshark & others in USB at 0500 w/authentications. At 0510, Calshark advised she was going "green" & then went into scrambled voice mode (Jarrett, TN).

3253: NNGR, **USCGC Tamaroa (WMEC-166)** in USB at 0036 contacting Rescue 1503 (Kneitel, NY).

3275: 5RSC, un-ID sta, w/CW call marker at 0257 (Kneitel, NY).

3307: Un-ID sta sending V's continuously in CW. At 0322 sent 722 19 7832 9445348 2 357 1000 6 21 BT then back to V's at 0323 (Ed.); noted just sending V's at 0422 (Kneitel, NY).

3332.2: 2 OM/EE discussing payloads & river condx, USB at 2249 (Elia, FL).

3389: RMR TA marker in CW at 0331 (Kneitel).

3443: RT451 to KOX3, Boeing Co., Seattle, WA w/radio checks in USB at 0628 (Sabo, CA).

3469.8: Un-ID stas MNN, MNB, RJO, & KQW in CW at 0108. Like stas noted on 3136.8 kHz (Ed.).

3939: Edinburgh Rescue, Rescue 122, 126, 181, all helos noted wkg after PanAm 103 crash. Some related activity on 5680 kHz (Gordon, CT).

4030: YL/RR in AM-mode at 0624 w/5F grps, each repeated. Diff text than 3225.5 kHz (Fernandez, MA).

4066.1: **USS Claude V. Ricketts (DDG-5)** clg Norfolk ICSB op re need for more ammo during firing exercise; NUSA, **USS America (CV-66)** wkg Norfolk ICSB for patch to ICSB Puerto Rico re supply req for COMNAVAIRLAND (Gordon, CT).

4182.6: UQGP, Soviet **R/V Vulkanolog** in CW at 1237 wkg UBE2 (McDonald, BC).

4204.2: 7SPV, un-ID, in CW w/call sent every 13 seconds, then into occasional text at 0637 (Fernandez, MA). Note similarity to intercept on 3275 kHz-- Ed.

4481.5: Vessels **Tiger & Endeavor** in USB at 0528 for 1-hour re rendezvous point, speeds, bearings, maneuvers, etc. (Sabo, CA).

4525: Y3S, Nauen, GDR time sta at 0528 (Jarrett, TN).

4545: 2 OM/EE in USB at 0718 w/2L ID's passing coded (alphanumeric) tfc (Fernandez, MA).

4623: 5 char alpganumeric grps in CW at 0308. Inasmuch as the headers carried 1987 dates was prob a training net (Ed.).

4634,5: KB2909, an oil rig, wkg un-ID shore station, USB at 0755 (Sabo, CA).

4640: YL/EE w/5F 3/2 type grps in AM-mode at 0015 (Scalzo, PQ).

4740: Trumpet tune used on CZ numbers freq. At 2030 sent 50869 in CW & into 5F at 2035 (Mason, England).

4778: Un-ID sta w/outo sent seq of 18 3-character grps, pause at end of seq then rptd. Seq seems to be changed 3 to 4 times per hr. Also on 10868.5 kHz w/diff sequence (Ed.).

5015: Flute mx w/YL repeating Hotel November at 0001 (Gerard, CT).

5063: CENTPAC LORAN net, weak in USB at 0757 included NRO (Johnston Is.), NRO5 (Upolu Pt.) & another un-ID sta w/comms checks (Sabo, CA).

5135.8: RYK, OUW, GWU, KSD, ZMR, LUZ, all un-ID, in CW at 0321 (Ed.).

5175: 54118 repeated in CW at 2130-2135, then 27 27 & into 5F grps (Mason, England).

5284: YL/GG in USB running 3/2F grps (each repeated), but after few mins spaces shortened & text sounded like regular 5F grps. Was a gradual change over a 5-min period. Noted at 0701 (Fernandez, MA).

5305.4L FSB, INTERPOL HQ Paris, France in CW w/call foll by hi/lo tones repeated at 0717 (Fernandez, MA).

5571: Omaha 49 & Blackfeet w/clear & green (scrambled) comms in USB at 0459 on YB Channel. Anti-smuggler ops (Sabo, CA).

5628: JNA, Tokyo, Japan wkg Japan Air 42 for pos report, USB at 1450 (Szalony, CA).

5643: 3DN, Nandi Aerodio, Fiji in USB at 1047 wkg Continental 86; also VLS, Sydney Aerodio, Australia in USB at 1053 wkg Qantas 25 (O'Connor)

5692: USCG Commsta Boston wkg helos Rescue 1504 & 2121, also Navy 0SK re search for survivors from 250 ft. Cypriot freighter **Lloyd Bermuda** which rolled over & sank in 25 ft. seas 200 miles E of NJ. Noted most of day & nite on this and other freqs re this SAR mission, also in comms w/civilian vessel **Medallion** on 6200 kHz (shore 6506.4 kHz), near scene of sinking. Ended up w/3 saved, 2 dead, 6 lost at sea from **Lloyd Bermuda.** Other freqs in use during this SAR included 2670, 3275, 5686 kHz, VHF 157.10 MHz, UHF 282.8 MHz.

5696: SAR described re 5692 kHz also noted here w/CG Boston, Cape Cod Air, CG Portsmouth, NNGR (**USCGC Tamaroa**), Rescue helos 1493, 1503, 1718, & 1719, went all day/nite for 2 days (Kneitel, NY); CG Commsta Bostan & Rescue 1493 in USB on SAR mission dor downed a/c at 0801. At 0900 landed at Worcester (MA) Airport because of fog. SAR mode in combo w/CAP. Hrd 0801-1100 (Fernandez, MA).

5763: YL/SS w/5F grps in AM-mode at 0615 (Sabo, CA).

5970/6140/6150: Warble type jammers going on all 3 freqs a month after lots of other SWBC jamming stopped. Noted 0300 (Kneitel, NY).

6470.2: 6YI, Kingston R., Jamaica clg CQ in CW w/tfc list at 0029 (Ed.).

6577: YL/SS w/5F grps of 3/2 type at 0215. She gave New York Oceanic a bit of a problem (Scalzo)

6675: YL/EE in AM-mode repeating 43473 from 2100-2105 then into 3/2F grps. Finished up w/END (Mason, England).

6693: Cormorant to CJX, Saint John's Militafy, NF w/req for patch to BC, in USB at 0201 (Sabo).

6694.4: No ID's, text in SS w/digits given then spelled out. Partial heading seems to indicate Mexican mil. Was USB at 0201 (Sabo, CA).

6697: IFG/D2G in USB at 0718 w/coded comms. Possibe a/c tracking? (Fernandez, MA).

6746: SAC stas Solution, Griswald, & Antiquity w/comms in USB at 0645. Called this Sierra Alfa channel (Sabo, CA).

6749: YL/EE w/Mossad xmsn Charlie India Oscar Xray 2, AM-mode at 0223 (Scalzo, PQ).

6756: Air Force 2 at 2258 w/patch via Andrews AFB (Lamar, FL).

6761: Griff 34 (a B-52G) passing low level wx to San Hill via Star Date just after exiting training route #IR-075. Tribe 84 (a B-1B) w/ops status relay to Mandatory after exiting the route. Monitors in central KY w/UHF scanners can hear IR-075 comms on 354.3, 255.4, 259.3, 246.0, 272.7, 278.3 & 323.2 MHz, all AM mode (J.M., KY).

6786: Cut # callup of WAM TA (X3) which probably breaks down to addressee 519 w/1 msg upcoming. Foll by NTT IN (200 72) BT & into 5L tfc. This cut # system prob 1-0=ANDUWRIGMT. Hrd in CW at 0202-0209. Note similority to intercept on 3389 kHz this month (Ed.).

6803.5: Un-ID sta sending V's then QSA (X2) GA (X2) BT (X2) & back into V's. Then shift to 425/45 RTTY & runs RYRY w/o ID. Poss Cuban mil link between Cuba-Angola. The 45 baud rate is a good clue (Ed.).

6805: YL/SS w/4F grps. Beacon D could be hrd beneath the xmsn. Beacon vanished when she went off. AM-mode at 0430 (Scalzo, PQ).

6840: YL/EE & 3/2F grps 2300-2340 & at 0230 YL/SS w/4F grps. On 1 sked the voice stopped so that person could do test whistling. USB mode (Fosella, FL).

6963.3: YL/EE running 3/2F grps, USB at 0215 (Kneitel, NY).

7010/7132: Warble type jammers at 0456 (Kneitel, NY).

7410: 5F grps in CW at 0334 while tfc in progress. At end sent AR BT 753 (X3) & off 0338 (Ed.).

7582: Omaha 17 & Hammer w/occasional anti-smuggler comms, USB 0218-0318. Known as Foxtrot channel (Sabo, CA).

7535: NRVF, **USS Hermitage (LSD-34)** wkg Norfolk SESEF at 1920 w/tests of HF equp in various modes. SESEF stands for Ships Electronic Systems Evaluation Facility. Loc is actually Fort Story, VA (Gordon, CT).

7565: Paddle clg Noblemon, New Crop, & Electric in USB at 1940. Locs annc'd as near US, Brit Columbia & Alberta borders (J.M., KY).

7645: Rover 4151/8028 w/foxes(!) & counting in CW at 1430. Same xmsn on 10168 at 1840 (J.M.).

7904: Beacon D in CW at 0240 (Kneitel, NY).

7918.5: Pacific-4, -16, Sourdough-4, CAP net in USB at 0254 (Sabo, CA).

8367.6: EMWG, Soviet vessel **Barit** in CW at 1530 clg UAI3 (McDonald, BC).

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)**

8663.5: UJQ7, Kiev R., USSR clg CQ in CW at 0309 (Kneitel, NY).

8670.5: Beacon U in CW at 0803 (Fernandez)

8861: Nouakchott Aeradio, Mauritania wkg Varig 716 in USB at 0717 (Sabo, CA).

8864: Egyptian AF 1125 in USB at 1545 w/pos rpt to NY; QSY 13291 due to poor comms (O'Connor, NH).

8942: Manila & Ho Chi Minh Ville Aeradios wkg var a/c's, USB around 0916 (Sabo, CA).

8985: 2 OM/SS w/refs to mil stuff USB at 2202 (Elia, FL).

8993: MAC 50276 w/patch via Albrook to Farmat. IFF needed fixing & wanted to know if they should go to McGuire or Rota for repairs. Told to go to Rota. At 0135 (Willmet, MI).

9011: MAC 60149 calling Clark AB w/o luck, USB at 0308. Hrd both stas weakly a min earlier on 11176 kHz (Sabo, CA).

9040: YL/EE in AM mode w/count & 017 (X3) at 1400. At 1410 "Count 210" then into 5F (Mason, England).

9147: YL/EE running 3/2F grps, USB at 2200 on Fri w/callup to 696. Doesn't fade much here in central FL, either. HM, are you reading this?? (Elia)

9200: KNY25, Rumanian embassy, Washington, DC w/CW ID at 2010 (J.M., KY).

10000: LOL, Buenos Aires, Argentina time sta at 2339 w/CW ID (O'Connor, NH).

10415: Coffee Table clg Brochure for sig check, USB at 1620. Brochure said he was using Pacer Bounce eqpt. Coffin Corner was describing his comms eqpt to Coffee Table at 1750 (J.M., KY).

10493: WGY904, FEMA Thomasville, GA telling WGY912 to switch to freq F-37. Noted in USB at 1817 (J.M., KY).

10644: Beacons C & O in CW at 0304 (Ed.).

10820: YL/EE in AM-mode at 1810 counting, calling 339, then 10 tones, group count of 130 & into 3/2F tfc (Sabo, CA).

10868.5: Seq in CW of 18 grps of 3 alphanumeric characters repeated, changing about 4 times per hour to diff sequences. Tuned at 1803 (Ed.).

11242: AeroFlot #4114 in USB w/comms to Foursome. Patches & ETD JFK Airport (NY) w/ETA Moscow at 1658. Logged 1 hr before Gorbachev left NY (Gerard, CT).

11396: N4EG, not a ham, but a Cessna Citation a/c owned by Edward S. Gordon Co., hrd in USB at 1615 w/pos rpt to NY Aerodio (O'Connor, NH).

11466: Air Force 1 w/patch to Crown via Andrews enroute Andrews from Philadelphia. USB at 2223 (Lamar, FL).

11494: Slingshot & "12" w/anti-smuggling comms in USB at 0529. This is actually SAC's Lima channel but has been noted w/this type of tfc & data bursts (Sabo, CA).

12149.5: Beacon K in CW at 0409 (Kneitel, NY).

12165: Angry Warrior trying to contact India-42 in USB at 1523 (J.M., KY).

12184.5: Beacon U in CW at 1238 (Kneitel, NY).

12333.1: PJCO, Dutch passenger liner **M/V Noordam** wkg KMI in USB at 1810; ELBM3, Liberian flag passenger liner **M/V Tropicale** in USB at 2145 wkg KMI (McDonald, BC).

12370.3: WTEB, NOAA hydrographic ship **R/V Fairweather** wkg KVJ (Seattle/Pacific Marine Center) in USB at 1748 (McDonald, BC).

12541.6: UFLX, Soviet cargo ship **Sochi** in CW at 2334 wkg UFB; USDE, Soviet bulk carrier **Chkalovsk** in CW at 0333 clg UFB (McDonald, BC).

12994: VIP04, Perth R., Australia in CW at 2204 clg CQ & VVV marker (Kneitel, NY).

13068: TFA, Reykjavik R., Iceland in CW at 2130 clg CQ (Ed.).

13211: Chimney Pot wkg Mayflower in USB at 2105 on SAC's BW channel (SAbo, CA).

13312.5: Un-ID agency w/surveillance of civilian a/c in Caribbean area. Comms between ground trackers & a/c engaged in shadowing & pursuit activities between Bahamos/Florida (Spivak, MA). Kneitels "Top Secret" Registry lists this as the Yankee Echo channel for anti-smuggler operations--Ed.

13556.2: Several xmtrs here; 1 xmts a dit, another a dash; then 1 sends 2 dits, another 2 doshes, then 1 w/3 dits, another w/3 dashes. Sounds like at least 8 diff stas. In CW at 1612. Hrd similar on 13566 but not identical to those here (Ed.).

13816: Un-ID CW sta at 1619 w/5L grps, auto sent. Finished w/BT AR K K, off 1627 (Ed.).

13950: OM w/whistling & un-ID callups in SS on US-South-Central Amer MAG Channel 4, USB at 0445 (Sabo, CA).

14402: AEM1QF, US Army MARS, W. Berlin, FRG in USB at 1633 w/patch thru ARA5KM (O'Connor, NH).

14441: NNN0CUP, **USS Nimitz (CVN-68)** USN MARS in comms w/NNN0NUW, USB at 1622 w/patches (Gerard, CT).

14470: NNN0OTW w/g NNN0CVS, **USS Mississippi (CGN-40)** w/patches, LSB at 0107 (Gerard, CT).

14477: NNN0CWI, **USS Wisconsin (BB-64)** new USN MARS sta wkg NNN0NAV at 0120 (Gordon)

14487.3: AAV4AN, US Army MARS sta flg ABM4USA at Camp Coiner, S. Korea, USB at 0704. Then QSY 14486.5 (Sabo, CA).

14555.5: Un-ID CW sta at 0020 w/5F grps, auto sent, ences w/AR (Ed.).

14686: Atlas wkg Ambush, anti-smuggling ops, USB at 2137 on Papa channel (Sabo, CA).

14775: Chimney Pot w/alfa monitor tfc in USB on PACAF's Mike channel (Sabo, CA).

14832: A67, un-ID sta w/5L grps & embassy circulars from AM embassy "Khart" to AM embassy "Virgo" in CW at 1830 (J.M., KY).

15000: BPM, Xian, PRC time sta in AM/CW at 0900 (Fernandez, MA).

15050: 4XZ, Haifa Navrad, Israel in CW at 0012 w/VVV marker (Kneitel, NY).

16512.7: **HMS Jupiter (F-66)**, a frigate, in USB at 1736 w/patches thru Portishead R (O'Connor)

16720: UVJX, Soviet refrig factory fishing stern trawler **Fiolent** in CW at 0559 clg UJQ in CW (McDonald, BC).

16794: VRKC, **M/V Taiwan Senator** in CW at 1542 clg NMN (McDonald, BC).

16842: UFAN, Soviet refrig cargo ship **Karlis Ziedins** in CW at 1300 testing w/VVV then sending a telegram to un-ID sta (Kneitel, NY).

16932: 7TF, Boufarik R., Algeria calling CQ in CW at 1941 (Kneitel, NY).

17091: XSQ, Guangzhou R., PRC clg CQ in CW at 0043 (Kneitel, NY).

17096: VPS, Victoria Isl. R., Hong Kong w/CW call marker at 0047 (Kneitel, NY).

17103: XSG, Shanghai R., PRC clg CQ in CW at 0048 (Kneitel, NY).

18027: CFX, Halifax, NS mil sta w/aero wx, USB at 2023 (J.M., KY).

18060: Air Force 1 w/patches to Crown via Andrews AFB, USB at 2130. Also using RTTY (Lamar, FL).

18461.7: PCW1, MFA The Hague, Holland w/CW call marker & data burst at 2000 (Kneitel, NY).

18594.5: 2 OM/EE talking about leaving vessel & flying out from un-ID loc. One sta referred to other as Sunshine. USB at 1647 (Ed.).

18666: Atlas to Ambush re contacting Hammer w/anti-smuggling comms, USB at 2141. This is the Hotel channel (Sabo, CA).

18663.9: Was in RTTY but started sending few grps in CW, paused then sent few more. Appeared to be repeating grps per req from another (unhrd) sta. ID's as CLP & tells other sta to send RY's so he must be on RTTY (Ed.).

19170.5: FPT7, DGT Paris, France, YL/FF w/voice mirror in USB at 2005 (Kneitel, NY).

19954: Either the Salyut or MIR Soviet space stas w/some neat sounds. USB at 0535 (Scalzo, PQ).

23532: EC3Y, un-ID (Spain?) in CW w/call marker at 1301 (Ed.).

26124: CLA, Havana R., Cubo clg CQ in CW at 2045. Annc'd //12673 kHz (Kneitel, NY).

Beaming In *(from page 5)*

SPEEDX, and the ODXA. I wrote them up and ran their information in the February issue. After it was too late to get anything into that story, the NRC did send some information which I passed along to the *Broadcast DX Column* for use there.

Still, I knew that as soon as the February issued appeared, I was going to be hearing from people who were either disappointed, offended, dumbfounded, disgusted, or completely outraged that I had the audacity to snub *this* or *that* club in the February issue story. And, I was right. As soon as the issue came out, I began hearing from readers who took me to task for not publicizing some group they liked, and chiding me for refusing to give adequate publicity to monitoring clubs.

Actually, the February issue *should have* told you about the NASWA, SCAN, IRCA, WTFDA, ADXR, LWCA and ODDX groups. I tried to make it happen. Unfortunately, they decided not to furnish the requested information, as was their right. We can do no more than invite monitoring clubs to provide us with information to use in publicizing their activities, but we can't force them to do so if they don't want the publicity for whatever reason. I still feel these are among the better groups known to me. As such, they are worthy of your consideration. PC

Scanning Today

(from page 8)

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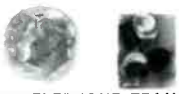

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WANTED: SHARP VC-7844U VCR Schematics/Parts/Repairs, IBM PC/XT/AT or Clone, Laser/Other Printer, MIDI Board, Electronic Parts. Williams, 2011 Crescent, Alamogordo, 88310. 505-434-0234.

For sale, (to person with best offer) or trade for scanner capable of aircraft frequencies. My scanner—Uniden handheld Bearcat 50x1. Mike Grasso, 4658 Willamette, Central Valley, California, 96019.

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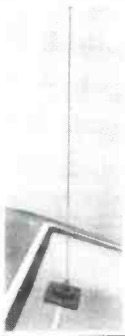

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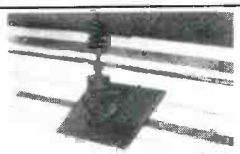

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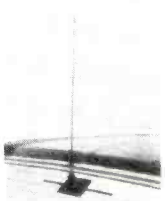

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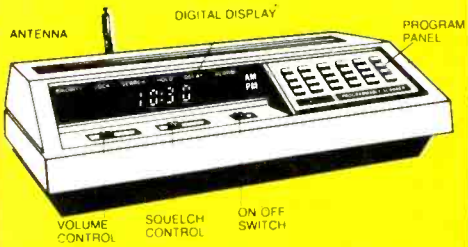

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RZ-1
Wide-band scanning receiver

The RZ-1 wide-band, scanning receiver covers 500 kHz-905 MHz, in AM, and narrow or wideband FM. The automatic mode selection function makes listening easier. One hundred memory channels with message and band marker, direct keyboard or VFO frequency entry, and versatile scanning functions, such as memory channel and band scan, with four types of scan stop. The RZ-1 is a 12 volt DC operated, compact unit, with built-in speaker, front-mounted phones jack, switchable AGC, squelch for narrow FM, illuminated keys, and a "beeper" to confirm keyboard operation.

Optional Accessory
- **PG-2N** Extra DC cable

Optional Accessories

R-2000:
- **VC-10** VHF converter
- **DCK-1** DC cable kit for 12 volt DC use.

R-5000:
- **VC-20** VHF converter
- **VS-1** Voice module
- **DCK-2** for 12 volt DC operation
- **YK-88A-1** AM filter
- **YK-88SN** SSB filter
- **YK-88C** CW filter
- **MB-430** Mounting bracket.

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