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Selected English Language Broadcasts: Winter 1987
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- Deep Sea Ship Communications
- The SOS That Nobody Heard!
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EDITORIAL STAFF
Tom Kneitel, K2AES/ZF2JO
Editor
Elisa Nudelman
Associate Editor

CONTRIBUTING EDITORS
Gerry L. Dexter
Shortwave Broadcast
Robert Margolis
RTTY Monitoring
Gordon West, WB6NOA
Survivalist Communications
Don Schimmel
Utility Communications
Edward Teach
Alternative Radio
Harold A. Ort, Jr.
Military Consultant
Janice Lee
Radar Detectors
Chuck Gysi, N2DUP
Scanners
Julian Macassev, N6ARE
Telephone Accessories
Mark J. Manucy, W3GMG
AM/FM Broadcast
Ed Noll
Antennas

BUSINESS STAFF
Richard A. Ross, K2MGA
Publisher
Jim Gray, W1XU
Advertising Manager
Dorothy Kehrwieder
General Manager
Frank V. Futa
Controller
Arlene Caggiano
Accounting
Cheryl Chomicik
Subscriber Services

PRODUCTION STAFF
Elizabeth Ryan
Art Director
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Artist
Dorothy Kehrwieder
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Pat Le Blanc
Florence V. Martin
Photographers
Hal Keith
Technical Illustrator
Larry Mulvehill, WB2ZP
Contributing Photographer

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WHO AM I TO FLY IN THE FACE OF TRADITION? HOW DARE I NOT TAKE THE OPPORTUNITY A JANUARY ISSUE OFFERS TO PRESENT PREDICTIONS FOR THE COMING YEAR? YUP—WE'VE NEVER DONE IT BEFORE. HOPE THE CRYSTAL BALL HAS THE RIGHT CHANNEL PLUGGED IN!

IT SEEMS TO BE A TRADITION HERE TO ASK FOR PREDICTIONS FROM THE ADVANCED SCANNERS' COMMUNITY AND NOW, WITH THE COMING OF A NEW YEAR, THIS IS THE TIME TO MAKE SUCH PREDICTIONS. I'VE BEEN THINKING ABOUT OUR FUTURE IN WIRELESS COMMUNICATIONS.

THE PREDICTIONS I'M GOING TO MAKE ARE BASED ON THE HISPANIC COMMUNITY'S FUTURE AND ITS RESPONSE TO THE PRIVACY ACT OF 1980. THE PREDICTIONS WILL BE BASED ON THE IMPACT OF THE PRIVACY ACT ON THE COMMUNICATIONS INDUSTRY AND HOW IT WILL AFFECT THE WAY COMMUNICATIONS ARE MANAGED AND MONITORED IN THE FUTURE.

I BELIEVE THAT THE PRIVACY ACT WILL HAVE A MAJOR IMPACT ON THE COMMUNICATIONS INDUSTRY. IT WILL CAUSE THE INDUSTRY TO BECOME MORE PERFORMANCE-FOCUSED, AND IT WILL ALSO ENCOURAGE THE INDUSTRY TO BECOME MORE EFFICIENT.

I THINK THAT THE PRIVACY ACT WILL ALSO CAUSE THE COMMUNICATIONS INDUSTRY TO DEVELOP NEW TECHNOLOGIES TO HELP THEM MAINTAIN THEIR PERFORMANCE AND EFFICIENCY.

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Radio Interview

Be sure to listen to the special DX/SWL-oriented Ray Briem Show that will be broadcast over the ABC Talk Radio Network on the morning of Saturday, January 10th. Ray has done this program in previous years and it’s always been very informative and popular, permitting DX fans to call-in and talk “live” with DXperts in various areas of the hobby.

This year, Ray’s guests include Stew MacKenzie, Dr. Bruce Elving, Bob Grove, and even yours truly. The overall program is 3 a.m. to 8 a.m. Eastern Standard Time (0800 to 1300 UTC), although some stations in the Network will not carry the entire five-hour program.

Some of the key stations in the ABC Talk Radio Network include: KABC, Los Angeles, CA (790 kHz); WABC, New York City, NY (770 kHz); WPRO, Providence, RI (630 kHz); WTKN, Pittsburgh, PA (970 kHz); WERC Birmingham, AL (960 kHz); KPRC, Houston, TX (950 kHz); KJAR, Phoenix, AZ (620 kHz); KFBK, Sacramento, CA (1530 kHz); KKL, Portland, OR (750 kHz); and (on tape delay) KGU, Honolulu, HI (760 kHz). There are other stations (including FM) in the ABC Talk Radio Network, so check your local area. If your nearest station doesn’t carry the entire program, you may be able to tune in on one of the key stations listed above.

The call-in number (a toll call) is 213-879-8255. The main local number in Los Angeles is 213-520-8255. In all cases, if it’s busy, keep trying. If it rings, just let it ring (no matter how long) until they answer, which will be just before it’s your turn to go on the air. As we go to press, I am tentatively scheduled for the 6 a.m. to 7 a.m. (1100 to 1200 UTC) time slot. Hope to hear from some of my friends.

Then I predict that time/frequency station WWV will get the message from the VOA and NOAA, and will follow suit with one or two brief commercials each hour wedged tastefully into their format. The National Bureau of Standards, which operates WWV/WWVH/WWVB has had its budget substantially whittled away by Congress. The agency could develop some non-governmental sources of income.

What with so many expensive wristwatches being made overseas by companies such as Seiko, Rolex, Tudor, Tourneau, Piaget, etc., it seems to me that the NBS family of stations would be a great place to offer worldwide commercial information on precision watches made in this country. Moreover, these stations could also be a medium for a wide assortment of American-made scientific, laboratory and research devices and equipment to be exposed to a worldwide audience.

I further predict that if WWV doesn’t kick off the idea, eventually Seiko will lead the way with commercial announcements over Japan’s time station, JJJ.

If all of this comes to pass, please remember that you read it first in POPCOMM. If, after a five year wait, none of it comes to pass, I sincerely hope that you tell everybody that you read all of this drivel in the copy of the National Enquirer you used for housebreaking Fido.

Hope 1987 is a good one for you!
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The most interesting questions we receive will be answered here in each issue. Address your questions to: Tom Kneitel, Editor, Popular Communications magazine, 76 North Broadway, Hicksville, NY 11801.

Protect Communications? No Way!
The Senate should avoid repeating the mistake made by the House when it unanimously passed the Electronic Communications Privacy Act. Purportedly a benign updating of the 1968 Federal wiretap law designed to guarantee privacy in the electronic age, the bill actually promotes the cellular telephone industry at the expense of the public good.

True enough, obsolete language in the existing wiretap law fails to address digital, video and other new forms of communications. The proposed law would fix that. But it would also declare certain communications legally private regardless of the electronic medium used to transport them. The mere act of receiving radio signals, except for certain enumerated services like commercial broadcasts, would become a Federal crime.

To disregard the medium is to ignore the essence of the privacy issue. Some media, such as wire, are inherently private. That is, they are hard to get at except by physical intrusion into a residence or from a telephone pole. Other media, notably radio signals, are inherently accessible to the public. Commercial radio and television broadcasts, cellular car telephone transmissions and other "two-way" radio communications enter our homes and pass through our bodies. Cellular phone calls, in fact, can be received by most TV sets on UHF channels 80 through 83.

If radio is public by the laws of physics, how can a law of Congress say that cellular communications and other forms of radio are private? The unhappy answer is that the proposed law appears to be a product of technological ignorance or wishful thinking. A similar edict applied to printed media would declare newspapers, or portions of them, to be as private as first-class mail. The result is plainly absurd and contrary to decades of reasonable legislative and judicial precedent.

In contrast, present Federal law prescribes a sensible policy for oral communications, protecting only those "uttered by a person exhibiting an expectation that such communication is not subject to interception under circumstances justifying such expectation." To illustrate, a quiet chat in one's parlor would likely be protected. Substitute for the parlor a crowded restaurant or the stage of a packed auditorium, and the expectation of privacy is no longer justified. The law would not grant it.

Congress should apply this same logic to electronic communications. The broadcasting of an unencrypted radio telephone call, or anything else, is an inherently public act, whether so intended or not. Thus, it violates the "justifiable expectation" doctrine, and warrants no Federal protection.

Protection or no, people will not be stopped from receiving radio signals. Even Representative Robert W. Kastenmeier, Democrat of Wisconsin, who championed the bill in the House, confesses that its radio provisions are essentially unenforceable. They will have no deterrent effect, and they will not increase the privacy of cellular phone calls or other broadcasts. Worse, the act would Lull the public into a false presumption of privacy.

On further examination, it appears that the legislation is really more a sham than an honest, if puerile, attempt by Congress to deal with new technology. Its sponsors say they aim to protect all electronic communications equally. Yet the bill creates at least four categories of phone calls, with varying penalties for interception. Cellular radio calls are guarded by threat of imprisonment, but there is no interdiction whatsoever against eavesdropping on "cordless" phones of the sort carried around the apartment or backyard.

So, Congress is about to give the cellular telephone industry ammunition for advertising and bamboozling, promising privacy that does not actually exist. Cellular service companies thereby hope to avoid losing revenue from customers who might use the service less if they understood its vulnerability.

If Congress were serious about privacy in the communications age, it would scrap the Electronic Communications Privacy Act and begin anew. Legislators and the public must first grasp the true properties of new technologies. Are those properties inanimate or unsavory? If so, relief will come only from research and more technology not wishful legislation.

Robert N. Jesse
Baltimore, MD

All we can add is, "Amen."—Editor

Noisy Scanner
I've had a scanner installed in my car for over a year now and until recently it was performing well. Last week my problems began, namely in the form of severe radio noise while the engine is running. Also, at the same time this commenced the vehicle became hard to start and it runs "rough." Not only do I have a car problem, but now the scanner is also on the fritz. Where do I begin? I have a '79 Olds Cutlass Cruiser Brougham.

Mack Meyers
Wichita, KS

Although I'm not much of a car repair specialist, I'd say that it's worth seeing if the cable between the distributor and the ignition coil has come loose at one end or the other or has dirt in its contact points. I don't think that the scanner itself is at fault, but a problem with this cable could well cause all of the annoyances you listed, including the noisy scanner. —Editor

DXing Ma Bell
I enjoyed the story you ran a while back on "telephone loop numbers" and how lots of people try to see who they can come up with by probing "loop" numbers. I have a different telephone hobby. First I dial "800" and then follow it up with random combinations of 7 digits. This connects me (at absolutely no cost) to all sorts of fascinating people and places. I've hooked up with airlines, oil companies, government agencies, hotels, bookies, etc. etc. You'd be surprised at some of those who have these "free call" numbers and don't expect to get calls on them except from a certain very select and limited number of clients. It's like calling "CQ" on the Ham bands, except that I didn't have to take a test or buy a Ham rig!

"Touch-Tone Tony"
Terra Alta, WV

If you can get them to QSL, then maybe you really have something there, Tony! —Editor

'At Is The Answer
I have occasionally run across the term "ATIS" in reference to communications, yet I haven't been able to locate any definition of its meaning. Please explain.

Stanley R. Teasdale
Chelan, WA

At larger airports, ATIS is a recorded VHF (and/or UHF) aero band one-way broadcast containing the latest information for arriving/departing aircraft. This broadcast (which is frequently updated) might contain weather, wind, and runway conditions/usage, frequency data, etc. In this case, the letters are the initials for Airport Terminal Information Service. But don't go away yet, ATIS also has another meaning. The letters also stand for Automatic Transmitter Identification System. This ATIS is a component that is embedded to be built into transmitters so that even when they are keyed they automatically send out a short data burst containing a coded identification number permanently programmed in the equipment's manufacturer. The FCC is considering new regulations that would call for such ATIS devices to be built into all communications transmitters. This, in an effort to discourage operation on unauthorized frequencies and other rule violations. There is still some question if this would be a viable project that couldn't be easily defeated. Take yer pick!—Editor
Electronic Communications

Privacy Act Is Law!
We thought that it couldn't happen, but it did. A ridiculous new law has been foisted upon us. Just tuning the radio spectrum now can make you a criminal. Of course, your chances of being caught are close to nil. But just the very concept of restricting radio receivers sends chills up our spines ... what country are we living in anyway? Even the way the law was passed raises some interesting questions about how our government works. In the closing hours of Congress, when there was little time to carefully review anything, the privacy act legislation was tacked onto the drug enforcement legislation package. Now we all know how every politician has been trying to prove they are tough on drugs—especially before elections—so the drug enforcement package was sure to pass. The net result is that you and I with our scanners were thrown in the same basket as cocaine dealers. Outrageous! But that's exactly what has happened.

While we should not minimize the damage that has been done to our traditional American right of free access to the airwaves, and especially the precedent that it may set for future restrictions, we were able to make some significant changes in the Electronic Communications Privacy Act before it passed. One key reason why we were able to have some significant changes made was the effort many of you made in communicating with your U.S. Senators and Representatives by letters, especially the law was passed raises some interesting questions about how our government works. In the closing hours of Congress, when there was little time to carefully review anything, the privacy act legislation was tacked onto the drug enforcement legislation package. Now we all know how every politician has been trying to prove they are tough on drugs—especially before elections—so the drug enforcement package was sure to pass. The net result is that you and I with our scanners were thrown in the same basket as cocaine dealers. Outrageous! But that's exactly what has happened.

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As the deadline for this column is upon us, we still do not have the final details of the legislation, which is about to be signed by President Reagan. Next month we will have complete details for you, but for now rest assured that most—if not all—of your current monitoring activities will not be affected. We plan to have a full update and some advice on how to operate under the Electronic Communications Privacy Act next month.

Something You Can Do To Help . . .
Without question we would have lost the battle if it had not been for the Neighborhood Crime Prevention Coordinating Committee (NCPCC). This non-profit organization has been a primary mover behind the "Neighborhood Watch" concept that has been so successful in reducing neighborhood crime. Most importantly, from the viewpoint of a scanner enthusiast, is the fact that this organization has always promoted the usefulness of ordinary citizens listening in on local police communications. This has not always been a popular idea with some police and sheriffs' departments. But over the years, as NCPCC carefully documented the many benefits of informed citizens in aiding their local police, opinions changed. Today, both the International Association of Chiefs of Police and the National Sheriffs' Associations are on record as endorsing the use of scanners. When the framers of the Electronic Communications Privacy Act (ECPA) wanted to ban the use of receivers for anything but broadcast, they were shocked and dismayed that law enforcement agencies did not support their proposal! Therefore, early on, public safety communications were excluded from the proposed ECPA.

The NCPCC operates without any government subsidy, all of its funds come from public donations. Over the years it has produced a number of " Neighborhood Watch" TV spots with personalities such as Jamie Farr (from "A Star Is Born") and Lonnie Anderson donating their talents. Each of these announcements includes prominent use of scanner radios as part of crime prevention efforts. We think that it is time for the scanner radio community to step forward and help support this organization which desperately needs funding to continue  

its work. Each of us sent in just $5.00, NCPCC would have the resources to launch another major TV campaign about the use of scanners in crime prevention. Therefore, SCAN is establishing a fund drive for NCPCC to demonstrate our support for their efforts. This organization is classified by the Internal Revenue Service as 501(c)(3)—which means that your donation qualified as tax deductible on your income tax.

Here's how to do your part ... simply send a check or money order made out to the Neighborhood Crime Prevention Coordinating Committee (or to "NCPCC"). Please do not make out your check to SCAN or POP'COM and do not send cash. Mail your donation to NCPCC Fund, c/o SCAN, P.O. Box 414, Western Springs, IL 60558. It takes a lot of money these days to produce and distribute a TV commercial, even when the airtime is donated by the stations. We want to provide NCPCC with $20,000 to continue their work in 1987 ... so please send as much as you can. In return, NCPCC has a handsome membership card which is recognized by law enforcement agencies nationwide and will be sent to you as acknowledgement for your donation. NCPCC was there when we needed them, why not do your part to support them?

800 MHz Scanners In Short Supply
As mentioned in the All Ohio Scanner Club newsletter, scanners covering the 800 MHz band are likely to be scarce in the foreseeable future. Manufacturers understandably curtailed production, not wanting to be stuck with merchandise that can't be sold. So, if you want one of these units and find a dealer with one in stock, better snap it up! Even after the ECPA regulations are clarified, it could take many months before 800 MHz units are again in full production.

Incidentally, the All Ohio Scanners Club is an excellent organization to get to know if you live in Ohio or adjoining states. For information you can write them at their new address: All Ohio Scanners Club, P.O. Box 148, Vandalia, OH 45377.

Washington Legal Foundation Petitions FCC To Require Cellular Phone Warnings
The Washington, D.C. based Washington Legal Foundation, a national public interest law firm, has filed a 13-page formal petition for a ruling that would require manufacturers of cellular phones to put warning labels on the phones stating that the communications are not private. The Foundation noted that the ECPA may give users of cellular phones a false sense of security when, in fact, the calls can be intercepted by many VCRs and TV sets as well as scanners. The Foundation also noted that the FCC already requires warning labels on cordless phones. It will be interesting to see how the FCC and the cellular phone industry react to this proposal!

Auto Transmitter ID In Our Future?
Every few years it seems that the idea of ATIS (Automatic Transmitter Identification Systems) becomes a subject at the FCC. During the CB boom years the subject was hotly debated as the FCC struggled to control illegal operation. The next time the subject was brought up was when proposals for a new type of CB service were made for the 900 MHz region. Now faced with severe budget cuts, the FCC has again raised the issue with an official Notice of Inquiry. The proposal would require that transmitters in all services be outfitted with automatic identification devices to transmit ID codes issued or registered at the FCC.

The type of code used is left open for discussion, but it might very well be a computer compatible ASCII code. Whatever the merits of requiring ATIS, it may make scanner listening with a decoder quite interesting. Imagine having a display which would tell you who was transmitting even if they didn't identify themselves by voice. The FCC sounds serious about their proposal this time around, and technology has made it far easier and less expensive than it would have been a few years ago . . . so don't be surprised if it actually happens. We'll keep you posted.

THE MONITORING MAGAZINE
January 1987 / POPULAR COMMUNICATIONS / 9
It Started In Tangiers

A Look At Trans World Radio

BY GERRY L. DEXTER

Like the late Clarence W. Jones who founded HCJB, Dr. Paul Freed had long felt the call to go into missionary radio broadcasting. Not in the service of an already established missionary radio group, but with a new organization that he could guide with his own hands.

By the late 1940s this desire had been teamed with determination. Unfortunately, Dr. Freed faced the same problem most of us face—money. Insufficient amounts of it. So, in order to raise enough money to at least start himself toward the goal, Freed formed a company to build houses and house trailers. All the profits from this business went into a fund for the future radio effort.

By 1952, Freed had enough money to get started, at least on paper, so Trans World Radio was born under the name “International Evangelism.” An actual broadcasting station was still some distance away.

Freed’s initial plans had been to broadcast the Christian religion to the Arab world, but that was not to be, at least not in the beginning. Instead, a number of factors combined to spotlight Spain as the initial target area of the new broadcasts.

At that time Tangiers, on the north coast of Morocco, was an open, international city. Freed felt that Tangiers would be an ideal site for broadcasts to Spain and so began what looked like a long trek through governmental bureaucracy—a license to broadcast was the prize at the end of the trail.

But, along the way, Freed met a man named Southworth who had already heard about Freed’s plans and, it so happened, already had a license to put a station on the air from Tangiers. Southworth was, in fact, in the process of building the station. Southworth offered to supply the station to Freed through a lease arrangement. So Trans World Radio’s first station, WTAN. The Voice of Tangier, went on the air over Southworth’s “Radio International” facilities overlooking the Straits of Gibraltar. That was in 1954, using an initial power of only 2.5 kW, although a 10-kilowatt unit was added shortly afterwards.

One might think that the success in getting on the air and the development of programs for Spain as well as the quick expansion into programming in Romanian and Serbo-Croat would have had TWR off to a great start.

But, in another parallel to HCJB, the initial success was followed by a slump. What few funds had been accumulated were soon depleted. Freed’s parents, who had given up their plans for semi-retirement in order to go to Tangiers and run the station there, were within days of giving it all up when an American church decided to take financial responsibility, freeing personal support.

Things began to improve financially and, by 1956, a second 10-kW transmitter had been added, along with a more effective antenna system. By the end of the first five years of its operation, Trans World Radio had a staff of 26 operating in Tangiers.

Meantime, Freed had discovered Monte Carlo, found the place fascinating and began thinking about the possibility of headquartering TWR there, perhaps even putting up a second TWR outlet in Monaco, this international playground of the very rich.

International politics forced a decision. In 1959, Morocco gained its independence...
from France and the new Moroccan government not only shut down Tangiers' former “open city” status but announced that all broadcasting from Tangiers would be nationalized. So, the rather leisurely pace at which Monaco was being approached suddenly took on a new urgency. The Voice of Tangier had only nine months to live!

Eventually, a franchising agreement was reached with the government of Monaco. Under the agreement, Radio Monte Carlo would own the facilities of the proposed new Trans World Radio there and then lease the facilities back to TWR. The new TWR station would be housed in a huge stone building located on Mt. Agel, 2500 feet above the city of Monte Carlo. Trans World Radio's use of the building for a missionary radio station represented a great change from its originally intended use. The building had been built by the Germans during World War II and was meant to house a Nazi propaganda broadcaster but the war ended before it could be put on the air.

On December 31, 1959, the Voice of Tangier aired its last broadcast. And Trans World Radio's programs were no longer heard on shortwave or mediumwave.

In Monaco the activity was at a furious pace. Some 90 tons of antenna towers were hauled up the mountain. In all, there were 21 towers that would support giant curtain antennas aimed at the Mideast, Britain, Scandinavia, Russia, Spain and Eastern Europe. The antennas would be fed by a 100-kilowatt transmitter. This was a four-fold increase in power over the Tangiers site but it was also just one transmitter compared to the three in use at Tangiers. That meant cutting out some programming. There are only 24 hours in a day, even in Monte Carlo.

Some nine months after the Voice of Tangier left the air Trans World Radio signed on from Monaco.

Money became a problem again as the TWR group scrambled and prayed for the $83,000 payments which had to be made to Radio Monte Carlo at specific intervals. On one occasion the last few thousand dollars arrived within hours of the deadline. On another, Freed was actually in the bank director's office—a few thousand short—when the banker took a phone call with the news that the necessary amount had arrived at the last second.

On a third occasion there was no last minute telephone reprieve. The banker checked over the figures a second time, this time basing his calculations on new exchange rates, and found the difference in TWR's favor was just enough to cover the missing amount!

TWR's first year of Monte Carlo operation brought in 18,000 letters and, like a snowball gaining size and speed as it rolls downhill, Trans World Radio began to grow in size and services.

Studios in Tangiers were kept in use and provided Spanish language programming. A network of monitors was set up throughout Europe to provide the station with signal reports on a daily basis, identify interference and recommend frequency changes. A recording studio was opened in Oslo, Nor-
way. The Gospel Recording Society was created to produce programs for Israel and the Arab world. In 1966 TWR began airing its programs over Radio Monte Carlo's 400-kilowatt mediumwave transmitter during hours in which the station would otherwise have been silent.

By the early 1960s, Freed was looking at maps again. He wanted to expand in new directions and felt that a station located in the Caribbean would be just the thing to cover parts of the Western Hemisphere.

Negotiations began with the government of Curacao in the Netherlands Antilles. An agreement to put up a TWR station there was even signed. Then someone wondered about the close proximity of the planned site to Curacao's international airport. Tall towers and airports can be a deadly combination.

The two parties tore up the agreement and TWR looked next door, to the salt flats of Bonaire island. The Bonaire government welcomed the idea. So much so that it agreed to prepare the land, build roads, provide landscaping and landfill at the proposed site just outside the capital, Kralendijk.

So, on October 1, 1964, Bonaire's Trans World Radio station came on the air with a half-million watts on 800 kHz—easily receivable in the U.S. at night. The next year a 300-kW shortwave transmitter went on and a second such unit was added later. The snowball was picking up speed.

Ten years later, Trans World Radio went back to Africa, though to a place almost at the other end of the continent from where it all began. The Kingdom of Swaziland was to be TWR's new African base. A 50-kW mediumwave, four 25-kW and one 100-kW shortwave units were installed at Mpangelana Range to serve northeast and southern Africa.

Just two years after Swaziland went on the air, Trans World Radio landed on another island—Guam, in the South Pacific. A 10-kilowatt mediumwave station, KTWG, began broadcasting in 1976 followed, a year later, by two 100-kW shortwave outlets.

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Trans World Radio Shortwave Frequencies

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<tr>
<th>Trans World Radio</th>
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<td>3200 - S</td>
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<tr>
<td>7295 - S</td>
<td>11965 - M</td>
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</table>

S = Swaziland, M = Monaco, B = Bonaire, G = Guam.

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A partial view of the TWR building in Monte Carlo with antennas. Trans World Radio's staff at Monte Carlo.

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CIRCLE 76 ON READER SERVICE CARD

12 / POPULAR COMMUNICATIONS / January 1987

THE MONITORING MAGAZINE
Trans World Radio
International Headquarters:
P.O. Box 89
Chatham, NJ 07928

Bonaire:
Trans World Radio
Bonaire, Netherlands Antilles

Swaziland:
Trans World Radio
P.O. Box 64
Manzini, Swaziland

Monaco:
Trans World Radio
5 rue de la Poste
Monte Carlo, Monaco

Guam:
KTWR
Box 3518
Agana, Guam 96910

operating as KTWR. There are now four 100-kW units at Nimitz Hill on Guam, beamed to China, eastern Russia, southeast Asia, Japan, Indonesia and northern Australia.

Still the snowball rolled and, a year later, TWR put a 40C-kW mediumwave outlet on the air from Puttalam, Sri Lanka (on 882 kHz), beaming programs to India, Pakistan, Bangladesh, Burma, Tibet and Afghanistan.

Throughout the years, the building of broadcast training centers accelerated. The one in Hilversum, Holland provides instruction in broadcast techniques to the many independent producers who provide programming for TWR. Other studios and offices sprouted in places like Buenos Aires, Belwyn (Australia), San Paulo, London, Beausoleil (France), Wetzlar (West Germany), Hong Kong, New Delhi, Nairobi, Barcelona, Maracaay (Venezuela) and Montevideo. World headquarters were established in Chatnam, New Jersey. The various stations, studios and office sites around the world now total 29! TWR's combined wattage has surpassed 5 million watts!

Trans World Radio verifies correct reception reports with attractive QSL cards. You can write directly to the individual stations since each has a staff on hand to answer mail.

It has been more than 30 years since the first broadcasts went out over the Voice of Tangier. What might have been a disaster for Trans World Radio in North Africa instead contributed to the creation of one of the world's most powerful and widespread religious broadcasting organizations. It makes you wonder if the snowball has yet reached the bottom of the hill.

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THE MONITORING MAGAZINE
Two Policemen Rescue Three From Burning House

Policemen put their lives on the line every day, but two officers in Fullerton, California went far beyond the call of duty in helping three people escape from a burning house.

Officer Scott Camery, 27, and Officer Robert Richardson, 30, were credited with saving the lives of three people when fire swept their two-story home. Both officers are members of the Fullerton Police Department.

Officer Scott Camery of the Fullerton, CA Police Department is one of this month's award winners.

They tried to go down the stairs, but the heat and smoke kept them upstairs.

Thomas Thompson, an inspector with the Fullerton Fire Department, said that the two officers were finally able to help the two people escape from an upstairs window with the aid of an unidentified neighbor.

Parker suffered a bruised foot while climbing down a ladder to safety, and the other two occupants of the building were uninjured, according to the Register. The blaze was reportedly started by an electrical short that ignited the paneling in the bedroom.

For their heroic rescue, Officers Camery and Richardson will receive the SCAN Public Service Award. The award includes a $100 cash prize and a special commendation plaque. Darrin Kossky of Placentia, California will also receive a plaque for making the nomination.

Congratulations to all of you!

Send all SCAN Public Service Award nominations to SCAN Public Service Award, P.O. Box 414, Western Springs, IL 60558. Please send a letter along with background information, such as newspaper clipping.

Best Equipped

As you can plainly see, E. J. Berryman of Lincoln, Nebraska is not short on equipment! He has arranged an interesting mix of scanners, receivers and accessories on a 60-inch steel pedestal desk.

E. J., who goes by the moniker call sign WDXOEYN, uses four scanners: Bearcat 220; Bearcat 300; Regency TMR8-H/L; and Hy-Gain Pro-Scan. A Japan Radio Corp. NRD-515 and Yaesu FRG-7700 are used for shortwave listening.

Accessories include Yaesu's FRV-7700 UHF adaptor and FRA-7700 antenna, along with a McKay Dymek DA-7 medium-wave antenna, MFJ-959 antenna tuner, Autek Research filter, and a Weather Alert weather radio. A Sherwood S7100 AM/FM stereo receiver rounds out this setup.

Best Appearing

The centerpieces in George W. Finger's radio shack are a Bearcat 250 scanner and a Yaesu FRG-7700 communications receiver. The Watkinsville, Georgia listener uses a descrambler/external speaker combination and EA-14 antenna amplifier with the Bearcat and a Yaesu FRG-7700 antenna tuner with the FRG-7700.

George says that he is able to consistently pick up Atlanta stations, over 70 miles away, by using a Butternut SC-3000 antenna, Grove Electronics scanner beam, and a B&W CS-3G antenna switch.

In his automobile, George has a Bearcat 250 with an M-25 descrambler, VE-18 voice equalizer and EA-14 antenna amplifier, all from Capri. He also has a Bearcat 100 portable scanner and a Sony Air-8, and uses an aluminum case with a Grove ANT-8 portable antenna to take his scanning hobby with him wherever he goes. George says that the aluminum case is modified to accept portable external power, chargers for radios, headphones and extension cables for the extra antennas.

George describes himself as an "absolutely dedicated scanner enthusiast," and enjoyed a recent trip to New York City with his portable scanner set-up.

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

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January 1987 / POPULAR COMMUNICATIONS / 15
The day was typical of South Dakota in late February, bitter cold and gray. A cutting wind swept down from the northwest. It was the day that a band of Oglala Sioux occupied the trading post and church at Wounded Knee in a bitter confrontation with federal agents that was to last for nine harrowing weeks. The Oglala Sioux said they were protesting consistent U.S. violations of Indian treaty rights, particularly the Treaty of 1868 between the Sioux and the United States.

Then, American Indians (or, Native Americans, if you prefer) occupied the federal-ly-abandoned Alcatraz penitentiary in San Francisco harbor as a militant protest against perceived injustices.

The Ute Indians went to court and were awarded almost $32 million as compensation for tribal lands taken from them in Colorado and Utah between 1891 and 1938.

These incidents aren't from the distant past; the siege at Wounded Knee took place in 1973! In 1975, at a peak of unrest amongst the Menominee Indians in Wisconsin, a clandestine broadcast station called The Menominee Warriors' Station, located somewhere near Keshena, turned up on 1580 kHz (only 10 kHz away from a nearby commercial broadcast station) in order to be used as a forum for voicing numerous complaints against Washington.

Even as this is being written, Navajo and Hopi Indians in Arizona are engaged in a very serious territorial dispute, while tribes in New England continue to press their claims to millions of acres of land that they feel were taken from them illegally.

The news media devotes little attention to the plight of Native Americans during these days of headlines about international terrorism, drug smuggling, and the arms race. The Indian has, for the most part, and unfortunately, become much of a forgotten American insofar as the general public's perception of their claims, needs, activities, and status.

There are probably about 2.5 million U.S. citizens who consider themselves Native Americans by virtue of some degree of Indian heritage. While more than half of these people are assimilated into the general population, the remainder live within territories known as Federal Indian Reservations. Some of the approximately 250 Reservations consist of a mere few hundred acres, although the Navajo/Hopi Reservation in Arizona, Utah, New Mexico, and Colorado equals the size of West Virginia.

At the present time, Washington recognizes and acknowledges that it has a special relationship and a trust responsibility for 506 federally-recognized Indian entities (tribes, bands, villages, groups, pueblos, etc.) that qualify for special governmental services and benefits.

For better or worse, Indian Reservations were established in the aftermath of decades of brutal warfare as settlers moved west into lands that had been traditional Indian villages and hunting grounds. Treaties were eventually signed, and special tracts of land were set aside for Indian settlements under the general administration of the Bureau of Indian Affairs (BIA), a division of the U.S. Department of The Interior. For the most part, Federal Indian Reservations are self-governing areas that exist almost as separ-
ate mini-states with the United States, having unique status in the eyes of federal and state governments.

The BIA is charged with administering the federal programs directed at those who reside on the Reservations, including education, vocational training, and numerous social welfare programs. The BIA is also the trustee for money earned as a result of the exploitation of the natural resources found on Reservations (oil, gas, uranium, timber, hydroelectric power, etc.).

In addition to these duties, the BIA also operates its own public safety services, including a law-enforcement arm. The tribes themselves also (and often) have their own tribal public safety services within the Reservations. Another federal agency operating on some Reservations is the Department of Health and Human Services (HHS). For the most part, these are the agencies that appear to carry the bulk of the services within the Reservations, with surprisingly little involvement by state and county governments.

When I sought to compile a listing of BIA stations and frequencies, I quickly realized that it would be necessary to add selected listings for vital tribal services, inasmuch as they are as much in evidence as the BIA and HHS communications. What I ended up with was a book-length directory of services that is the only listing of its type ever presented.

On the tribal level, all known public safety (plus a few business/industrial) services are shown. Listings indicated as being for "miscellaneous" purposes are used for either police, fire, highway maintenance, schools, logging, oil or gas exploitation, mining, governmental administration, civil defense, ambulances, or a combination of several of these services.

Where possible, information is given to indicate the name of the tribe(s) that are covered by a station's activities. In the case of BIA stations, the locations given in the official records used were frequently abbreviated to the point of being undecipherable. Other locations were specified in terms of locally-known landmarks since they were probably miles from the nearest post office. Under such circumstances, some BIA station locations have defied all attempts at providing better-known locations, although I did manage to track a good many of them down.

The structure of the BIA consists of Area Offices and local Field Offices or Agencies. Such designations are shown next to appropriate listings. BIA listings not shown with specifications are Field Office sub-stations, repeaters, relays, schools, and VHF or UHF links. Larger Reservations usually contain remote and mountainous areas that require complex systems in order to achieve reliable communications. Listings that don't specify BIA or HHS are generally those operated by the tribes themselves.

Not all Indian Reservations are recognized as such by the BIA. Furthermore, not all recognized Reservations have BIA or tribal communications within their borders. In such cases, public safety services are routinely provided by state, county, and local agencies that normally serve the areas surrounding the Reservations.

In looking over this directory, some observers will be surprised to note that there are few listings for Texas. That's because there aren't many Reservations there, and no BIA offices. There aren't any formal Reservations in Oklahoma similar to those located in other states. While there are about 160,000 Native Americans from at least nine major tribes in Oklahoma, the BIA considers these people to be mainly assimilated into the general population. There are, however, BIA, HHS, and tribal communications facilities in many areas of Oklahoma having large Indian populations.

While it's true that the national news media pays scant attention to the Native American, the fact that many live on Reservations doesn't at all mean that their evolution and history came to an end sometime in the 19th century. Indeed, only last September a federal appeals court, in a 5 to 4 decision, upheld the finding of another court that Alexander Haig and other former government officials are permitted to be sued by the Sioux Indians who occupied Wounded Knee in 1973! The Sioux say that military forces illegally intervened in the incident, thus violating the 1878 congressional ban on the military's enforcing of civilian law.

The appeal court ruling obtained by the Sioux seems to weigh heavily upon the possible use of military forces in patrolling the nation's borders in an effort to curtail international drug smuggling. This is only one example of the very active Native American political movement (which some see as controlled by radical factions) as it claims to fight for many pro-Indian causes including land reform, treaty compliance, cultural and religious restoration and redress of numerous grievances.

The Native American culture is a proud one, rich in tradition and colorful in nature. The many events taking place within Indian communities clearly indicate that their present and future is easily as fascinating as their past. This, despite the fact that the national media tends to ignore their plight and current activities.

There's a lighter side, too. Many Reservations openly seek out tourists and visitors, offering tribal pageants and pow-wows as well as crafts shows on a regular basis. Communications relating to all of these activities, plus routine public safety traffic (including those concerned with fish and game management) may be monitored on the channels listed herein.

The Native American may have become the forgotten American, but, no, his activi-
ties didn't stop at the turn of the century. Moreover, his communications have long since surpassed smoke signals. You can tune in on real American history just as it is being made—every bit as current as it was during the days of Sitting Bull, Crazy Horse, and Geronimo!

Whether you tune in from where you live or while you’re on vacation, your scanner can put you in touch with a unique people whose roots in North America trace back far more than 50,000 years. That's something to go out of your way to hear!

**ALASKA**

Anchorage
BIA Field Office
KWA397 164.25
HHS
KWS615 164.20 171.235

Bethel
HHS
164.30

Metlakatla (HQ Metlakatla Indian Community)
BIA Field Station
KWA299 168.35
Police
KNV997 155.25 155.37
Power Utility
WPP756 156.25 157.025

Mount Edgecombe
BIA
KWC596 164.80

HHS
164.80

Tokana
HHS
KX213 164.20

**ARIZONA**

Statewide: Salt River Project uses 152.45 152.515 152.62 153.71 153.18 153.97 171.92 406.075 415.05 415.075 415.25 415.275 415.425 420.725 426.725 462.80 462.85 816.875-820.875

Apache County (Navajo)
Police
KBEB84 157.47

Avayup
BIA
KOJ194 171.75 171.625

Black Mesa (navajo)
BIA
KPO548 164.77 164.80 417.675

Medical Emergency
KZO415 463.00 463.175

Black Peak
BIA
KOJ195 171.75

Black Pcliffe
BIA
KOJ194 171.65 172.525

Cameron (Navajo)
BIA
KLMF59 154.98

Camp Verde (Apache Visitor Center)
Miscellaneous
KAD035 462.625

Carefree
BIA
KX507 156.055

Chandler
BIA
KOJ522 172.675
KOJ525 172.675

Chino (Navajo)
BIA
KOJ522 172.675
KOJ525 172.675

Chiricahua
BIA
KOJ522 40.31 165.687

Chiwa (Apache)
BIA
KPO511 40.01
HHS
KOJU611 164.30

Police
KY389 46.02

Medical Emergency
KY851 463.00 463.175

Miscellaneous
WPH771 156.98

- KX589 156.98

- KNC869 156.98 155.04 155.725 155.82

- KWL580 46.52

**THE MONITORING MAGAZINE**

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Masthead

18 / POPULAR COMMUNICATIONS / January 1987

THE MONITORING MAGAZINE
39.32, & either 39.24 or 39.28 in addition to or instead of other frequencies. On these frequencies, base station IDs are often prefixed by numbers such as "174.9" or "175.8," with their associated mobile units using the same numbers followed by a letter, such as "174.9A" or "175.8L." In the following list we have shown such designations only for BIA & Tribal Police, although other types of agencies may also be monitored using dopplerphone IDs.

Statewide
Police 39.32
KACS58 164.675

Dear
Allen
KAC521 169.625

Breslaid (Oglala Sioux)

School Bridge

KACC541 39.88

Brown Valley (Sisseton-Wahpeton Sioux)

Police 57-7N 39.10 39.16 39.24

Buillhead (Standing Rock Sioux)

BIA Police 20-7M 39.32

Civil Defense

WBM20 158.82

Cherry Creek (Cheyenne River Sioux) Police

KACS56 39.88

Dakota (Cheyenne River Sioux) Police

Police 24-7Q 39.10 39.16 39.28

Civil Defense KRLS8 39.82

Eagle Butte (Cheyenne River Sioux) Field Office

BIA Police Field Office KACC55 39.88

Police 24-7Q 39.10 39.16 39.28 39.32

Police 27-7 39.10 39.16 39.28 39.32

Miscellaneous KACC666 39.10 39.16 39.18 39.22

Civil Defense KACC66 39.10 39.16 39.18 39.22

Oglala Sioux

Civil Defense KACC685 154.785

Civil Defense KACC668 39.10 39.16 39.18 39.22

Judge (Standing Rock Sioux) Police

BIA Police 20-7M 39.32

Pinnebog (Mandan) Police

KACC685 39.10 1.39 39.16 39.18 39.22

Isabel (Cheyenne River Sioux) Police

KACC675 39.32

Jemez (Quapaw Tribe) Police

KACC59 158.82

Kanata (Oglala Sioux) Police

KACC58 141.825

Strawberry (Cheyenne River Sioux) Police

KACC58 158.82

Lake Artesis

KACS58 141.825

Lantry (Cheyenne River Sioux) Police

KACC58 141.825

Meadowlows (Standing Rock Sioux) Police

KACC520 148.825

Little Eagle (Standing Rock Sioux) Police

KACC522 148.825

Police 20-7M 39.10 39.16 39.28 39.32

Civil Defense

WBM21 158.82

Loveren

KACC520 148.625

KACC515 148.625 148.775

Lower Brule (HQ) (Standing Rock Sioux) Police

Field Office KACC577 39.88 414.825

Police 42-7 39.88 39.10 39.16 39.32

Police KNCC45/NN4047 153.19 153.91

Civil Defense

KRL20 158.82

Meadowlows

BIA KACC522 148.625

Marin In (Pipe Ridge Reservation)

Police 65-7A 39.10 39.16 39.24

Mcintosh (Standing Rock Sioux) Police

KRH737 39.10 39.16 39.24

Civil Defense KRL20 158.82

Miscellaneous

KACS58 141.825

Molgau (Standing Rock Sioux) Police

BIA KACC543 153.785 155.91

Police 20-7T 39.10 39.16 39.28

Civil Defense WBM24 158.82

Miscellaneous KACC659 154.825

Mission (Rosebud Sioux)

BIA KACS51 38.98


Schools KAV6201/NSY350 46.00

Medicine (Rosebud Sioux) Police

BIA KACC53 38.98

Police 34-78 & M 39.10 39.16 39.28 39.32

Civil Defense KRL72 158.82

Mound City

Civil Defense KRL88 158.82

Mississippi

Civil Defense KRL91 158.82

Mosel (Choctaw Reservation)

BIA 146.625

Myrick (Oklahoma) Police

KACS52 153.82

Note: Many BIA & Tribal Police agencies, as well as various state & federal agencies operate in all areas on 39.10, 39.16

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THE MONITORING MAGAZINE
In our June issue we saw a series of photos showing various stages in the construction of the WTAM (Cleveland, Ohio) antenna built in 1938. That brought in a communica-
tion from Kirk Sanderson, one of our readers in Cleveland.

Three years ago, Kirk retired after 43 years in the broadcasting field. This included several years as a Technical Director with NBC-TV. Kirk recalls how, in 1948, he started working for WTAM as an engineer and spent many chilly nights in the WTAM tuning house shown in our June issue pictures. He notes that this same tower is still in use, serving stations WWWE (AM), WZAK (FM) and WBNX (TV Channel 55).

Kirk furnished us with two photos including the WTAM transmitting plant on Snow-
ville Road in Brecksville, OH as it looked in 1948. That was prior to the addition of FM and TV transmitters.

The other photo shows the Western Electric Cloverleaf installed at Burlington, IA in 1947. This was for station KBUR-FM (92.9 MHz), the first FM broadcaster in Iowa. This station is no longer in operation. We sincerely thank Mr. Sanderson for sharing this with us.

Mysteries Getting All The More Mysterious!

We have had a few brave souls attempt to solve some of our recent mystery station photos. Close, but no cigar — as someone once told me, “close only counts in pitching

horseshoes and hand grenades.” The Miami Beach station (1922) has been guessed as being Southern Bell Telephone’s coastal station WDR, and also as broadcast station WQAM. Our records show that WDR was not licensed on Miami Beach until many years after our 1922 view. As for WQAM, it was on the air in 1922 but from Miami Beach (so far as any records I can locate).

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AIR BAND-2M/PSB-FM-AM(LW-MW-SW)

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- Computer controlled PLL tuning system
- 40 memory presets
- Multi scan system (manual and auto)
- 11" Helical antenna w/BNC connector
- Priority channel
- Squelch (auto and manual)
- Direct tuning

Here's true Sony quality! Feel the rugged construction, and listen to the high quality sound, and you'll know it's a Sony! The new AIR-8 can scan four different frequency ranges in either direction and can store a total of forty frequencies in its four memory banks. You can recall any memorized frequency with the touch of a key, and can scan the ten channels in each of its four memory banks in any order. The AIR-8 also has a delay function that prevents dropout enabling you to hear both sides of a conversation, and also a priority feature that samples a chosen frequency every three seconds for a signal. The quick-disconnect BNC connector allows different types of antennas to be easily coupled to the AIR-8 for maximum performance.

The AIR-8 measures 3 1/2 " x 7 1/2 " x 2", and weighs just 21 oz. This is truly a sturdy little companion that will give you years of dependable performance wherever you go.

6 Frequency Bands

<table>
<thead>
<tr>
<th>Band</th>
<th>Frequency range</th>
<th>Tuning interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSB</td>
<td>144 - 171 MHz</td>
<td>5 kHz</td>
</tr>
<tr>
<td>AIR</td>
<td>100 - 138 MHz</td>
<td>25 kHz</td>
</tr>
<tr>
<td>FM</td>
<td>76 - 108 MHz</td>
<td>50 kHz</td>
</tr>
<tr>
<td>SW</td>
<td>160 - 210 kHz</td>
<td>10 kHz</td>
</tr>
<tr>
<td>MW</td>
<td>530 - 1600 kHz</td>
<td>10 kHz</td>
</tr>
<tr>
<td>LW</td>
<td>10 - 530 kHz</td>
<td>1 kHz</td>
</tr>
</tbody>
</table>

7 Functions on LCD Display

1. Indicates the band being received.
2. Indicates the priority function is activated.
3. Indicates that the frequency is out of range.
4. The large black dot indicates that the frequency is memorized in the 4 key.
5. The small black dot indicates that the frequency is memorized in the 4 key.

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CIRCLE 78 ON READER SERVICE CARD

26 / POPULAR COMMUNICATIONS / January, 1987
Roses are red; Violets are blue; A poem about radio; So what else is new?

RADIO - SAIGON
Boîte Postale 412 - SAIGON (Indochine française)
Nous avons le plaisir de confirmer notre réception de "THE AMATEURS"
transmettant sur
broadcasting on
1939.
Radio Saigon sent out these QSL's in 1939.

Radio Saigon
LA VOIX DE LA VOICE OF THE 
EXTREMÉ-ORIENT EAST
11.00 to 11.45 a.m., News and music
3.30 to 4.00 p.m.

<table>
<thead>
<tr>
<th>kHz</th>
<th>mètres</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.116</td>
<td>49.05</td>
</tr>
<tr>
<td>11.780</td>
<td>25.46</td>
</tr>
<tr>
<td>1.000</td>
<td>300.00</td>
</tr>
</tbody>
</table>

Roses are red; Violets are blue; A poem about radio; So what else is new?

that many Americans remember with a variety of emotions.

In 1939, things were far more tranquil and this station operated on the BCB at 1000 kHz, with shortwave relays on 6116 and 11780 kHz. This station operated from 1100 to 0400 GMT in English and French and even relayed "Paris-Mondial" from France on a daily basis. The station's QSL card has a printed inscription, "Please request your local Radio Magazines to publish our Programme!" So, we're getting around to this only forty-eight years later, but we meant well.

It's A Sign Of The Times
Carl McDaniel, W3HCW, of the QCWA and the Bald Eagle VHF Society in Pennsylvania, couldn't resist buying an old wooden sign at a garage sale in Williamsport, PA. Other than that it's colorful, 12" by 19" in size, old, and relates to "Limited Commercial Radio Station WPH," Mac's in

the dark. He asks if we can help to identify his treasure.

Well, in 1919, the callsign WPH was being used by a ship called the SS S.M. FISCHER. That's not the station in the sign, however, Mac's WPH was located right in his home town of Williamsport and was operated by the Pennsylvania Power and Light Company. This WPH appears in license records of the early 1920s as being operated on 2222 kHz. Records of 1930 and 1931 indicate operation on 3184 kHz. Hope that information helps!

WHAZ Whiz
Bob D'Imperio, Pensacola, FL offers for your approval a photo identified only as "The Operating Room of Radio Station WHAZ." This station, which also operated as 2XAP in the early days of radio, went on the air in 1922. Operated by Rensselaer Polytechnic Institute, Troy, NY it started out on 790 kHz (500 watts), then went on 1300 kHz, then (by WWII) to 1330 kHz with 1 kW. Today, WHAZ still operates on 1330 kHz with 1 kW.

Although it's a long-lost fact, in the early days of broadcasting, WHAZ used the second Monday of each month from midnight to 1:30 a.m. to run a special trans-Atlantic and transcontinental DX test transmission.
Arkansas

Arkansas Traveler

In 1914, a “Special Land” station was authorized for operation at Fayetteville, AR. By 1916, this station, licensed to the University of Arkansas, was known as 5YM, only to be removed from the airwaves during WWI. After the war, the station returned to the air from the Engineering Hall, running its signal into a 100-foot longwire (and fan-type counterpoise). In December of 1923, the callsign KFMQ was issued to this station for 100 watts on 1140 kHz, shifting to 1000 kHz by February of 1925. This station became known as, “KFMQ, The Voice of the Ozarks” and soon upped its power to 750 watts.

In February of 1926, the callsign KFMQ was changed to KUOA (some said it meant “Kali University of Arkansas”). By April of 1927, KUOA was ordered by the government to drop down to 500 watts and change its frequency to 1010 kHz; but by early 1928, the station was permitted to increase its power to a full kilowatt. Eventually, KUOA was forced to share time with station KRLA (Little Rock), a rather uncomfortable relationship that ultimately (by 1931) permitted KUOA only four and a half hours per day (the station was normally silent during summers). After a destructive fire in February of 1933, the station was moved off-campus to the Mountain Inn in Fayetteville.

In April of 1933, KUOA was sold and soon thereafter was granted permission to switch to 1260 kHz where it would no longer have to timeshare. In mid-1936, the station was granted permission to move to Siloam Springs, AR and operate with 2.5 kW (Western Electric Model 355-E1 transmitter) into a 450-ft. transmission tower. KUOA’s owners, John Brown University, in March of 1941, the station shifted frequency to 1290 kHz. The station presently operates with 5 kW on 1290 kHz.

Our 1949 view of KUOA shows its transmitter building at night from its location in Siloam Springs. The handwritten message on the flip side of the card is addressed to someone in Texas and says, “Dear Sally, I’m kind of homesick. Doing actual announcing and control room work here. Good. (Signed) Fred V. Brewer, John Brown University, Siloam Springs, Arkansas.”

Los Angeles Shortwave Pioneer

When Los Angeles station KGFJ commenced broadcasting on 7 February, 1927, it had little idea that ten years later it would be operating one of this nation’s earliest shortwave broadcasting stations, W6XKG. KGFJ was operating on 1200 kHz with 100 watts, definitely not one of the high-powered heavyweights operating from California’s sunny climes. The station was owned by Ben S. McGlashan, of 1417 South Figueroa Street, Los Angeles.

As shortwaves became popular in the 1930s, several major broadcasting stations such as KDKA, WLW, WGN, and others obtained experimental licenses for the purposes of relaying their programs. Oddly enough, little 100-watt KGFJ applied for one of these licenses and was granted authorization to operate experimental shortwave relay broadcast station W6XKG on 25.950 MHz. True, this wasn’t one of the prime bands for reaching the world (other, larger broadcasters had channels in the 9, 11, and 15 MHz bands). Also true that Radio Station Treasury notes that W6XKG shared time with two other stations, W4XR (relaying WSPA, Spartanburg, SC) and W9XUP (relaying KSTP, St. Paul, MN).

Nevertheless, the gutsy little shortwave station was on the air for a year or two and even sent out a smattering of QSL cards that proclaimed itself as “The Pioneer Shortwave Station of the West.” We obtained one of these very rare QSL’s dated 10 March, 1938. It is printed with red call letters on a light blue card. The text is printed in
PCJ, the ever-lovin’ “Happy Station” in Hilversum, Netherlands, has been one of the best friends DX’ers have ever known. Here’s their QSL from 1939.

dark blue ink. This station ran 100 watts, same as its big brother, KGFJ.

Happy Station

If any international broadcast station could lay claim to being a sentimental favorite for all of the world’s listeners, certainly, “The Happy Station,” otherwise known as PCJ (and presently as Radio Nederland) in Hilversum, Netherlands, would have the inside track on the honor.

This station goes back in history to the earliest days of shortwave when it was the station operated by the Phillips Radio Works at Eindhoven. Always interested in accommodating the radio hobbyist, the station has gone out of its way to produce programing and QSL’s that have had enormous appeal to listeners in all nations.

We came across one of PCJ’s 1939 QSL’s, issued only a few months before the Netherlands was invaded and brutally occupied for five years by Nazi Germany. In 1939, PCJ operated on 9590 and 15220 kHz, although these days the station utilizes more than 35 shortwave frequencies. Interestingly, 9590 kHz is still used by Radio Nederland.

Our black/orange QSL on white card stock shows PCJ’s absolutely outrageous answer to the problems of directing signals to a specific target area. Two full-sized steel lattice towers mounted on a gigantic turntable permitted rotating the array towards any desired point of the compass.

A tip of the hat, complete with earmuffs and pompon, to the station at Hilversum, a wonderful old friend whose efforts have brought so much happiness, entertainment, and information to the world’s DX’ers.

Canned DX’er

An old radio-joke postcard from the 1920’s shows a konked-out DX’er deposited in an ash can, his prized receiver knocked over on the ground beside him. The caption tells of bad conditions due to moisture, and chances are the moisture in this guy’s life was Prohibition-era 90-proof homebrew “right off the boat” rather than high atmospheric humidity.

So, before I leave you this month with my best wishes for a healthy and prosperous 1987, I’d like to remind you not to experience any bad conditions due to moisture like our ancestor in the cartoon.

The same kind of “moisture” that adversely affected our 1920’s DX’er is no less harmful, especially when combined with driving. Play it safe this New Year’s Eve; if you’re going to sop up “moisture,” avoid the possibility of “bad conditions.” Stay home and listen to the many special DX programs that are copiously available that night.

Now I can wish you that healthy, prosperous, and safe 1987!

Historic Ham QSL’s

This month it isn’t as much historic as it is unusual—a Ham station in Iran operated by an American. But our QSL from EQ4DC is more than 40 years of age, dating from August of 1946!

For many years, Iran was hospitable to all Hams, including foreigners. Back in 1938, the Amateur prefix was listed as EI. A year later it was EP, eventually modified to EP and EQ. By 1955, the ARRL listed only EQ, but the 1982 ARRL listing showed only EP.

Americans, along with other foreign Hams in Iran were listed in callbooks right up until political unrest resulted in a revolution in which the Shah left the country in 1979.

Presently, Iran is suspicious of and hostile to most foreigners, with Americans high on the suspect list. In 1946, right at the tail-end of WWII, things were obviously quite different. The operator of EQ4DC was probably a diplomat or a member of the military. He mailed his QSL from Milwaukee almost three months after the date of his 20-meter band CW QSO with an American Ham in Pennsylvania.

The son of the late Shah has recently made announcements to the effect that he would like to establish a new government with himself at the top. His method of communicating with the Iranian public was by means of clandestine radio and TV broadcasts. Looks like he’s hip to communications. Could it be that this strange and strife-torn nation, some time in the future, may once again be the operating site for those great old EP (or EQ) stations with Yank accents? For now, I wouldn’t suggest asking for a license there!

TEHERAN, IRAN

QSO................. on 7.1440 at 0223 GMT Uri AGX R5S8T9

January 1987 / POPULAR COMMUNICATIONS / 29
Selected English Language Broadcasts

BY GERRY L. DEXTER

Note: This list of English language broadcasts was accurate at the time of compilation, but stations often make changes in the hours and frequencies of their broadcasts with little advance notice. Hundreds of broadcasts are aired in English on the shortwave broadcast bands every day, many of them directed to an audience in North America. This is a representative sampling and not intended as a complete reference. Some broadcasters air only a part of their program in English during a given hour, or may run the English segment into the following hour. Times are UTC. Numbers in parentheses indicate a starting time in English that many minutes past the hour.

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<th>Frequencies</th>
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<td>0000</td>
<td>Radio Canada International Radio Baghdad, Iraq Kol Israel Vatican Radio (50) Radio Tirana, Albania BBC, England RBI, East Germany Radio Beijing, China RHC, Cuba Radio Moscow Spanish Foreign Radio BRT, Belgium (30) Radio Portugal</td>
<td>5960, 9755 11750 5855, 7465, 9435 6015, 9605, 11845 7065, 9750 5975, 6005, 6120, 6175, 7325, 9410, 9515, 9590, 9915 6080, 6125, 9730 15445 6100, 6140 7115, 7175, 7185, 9600, 9720, 9865 6055, 9630 9830, 9925 9680</td>
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<td>0100</td>
<td>Radio Canada International DW, West Germany RAI, Italy Voice of Nicaragua Radio Tirana, Albania HCJB, Ecuador Radio Netherlands Voice of Greece (30) Radio Austria International (30)</td>
<td>9535, 11845, 11940 6040, 6085, 6145, 9545, 9565, 11785 5990, 11800 6015 7120, 9750 9870, 11910, 15155 6020, 9895 7430, 9395, 9420 9770</td>
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<td>6025, 6110, 9520, 9835, 11910</td>
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<td>6905, 6135, 7145, 7270, 9525, 11815, 15120 11745 5885, 7465, 9435 15195, 15420 5985, 9680, 9765, 11740, 11745, 11825 7165, 7175, 7205, 11790, 13605, 15180 3285 5930, 7345, 9540, 9740, 11990 9690, 11710 9725, 9885 5980, 6010, 9615 5990, 6155, 9510, 9570, 11810, 11940 9475, 9675 9695</td>
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<td>Radio Botswana Radio Japan Voice of Nicaragua TGNA, Guatemala Swiss Radio International</td>
<td>4820, 7255 9615 6015 3300 6135, 9725, 9885</td>
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Japan Radio's new NRD-525 receiver offers unparalleled performance coupled with sophisticated features including NOTCH, PBS, RIT, SQUELCH, TONE, KEYPAD & 200 ch. intelligent scanning/sweeping MEMORY. Readout to 10 Hz. Options: RTTY Demod., VH/F/UHF & RS-232. $1179.00 + ship. Write for full details.

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Spy-Tech

The day-to-day activities of a real-life espionage agent (spy) may not be too much like a James Bond movie, but much of the hardware in use is far more innovative and bizarre than could be created by either author Ian Fleming or his Hollywood counterparts! A fascinating book called Spy-Tech takes an in-depth look (in words, plus many photos and drawings) at the latest tools of the spy trade. These range in complexity from very basic items all the way to secret surveillance satellites.

Spy-Tech is a 288-page hardcover book that includes specific and highly-detailed information about U2 and SR-71 spy planes, the spy satellites of the West and the East (along with their uses and limitations), telephone surveillance and countersurveillance, bugging and debugging, data surveillance, visual surveillance, secret communications, cryptology, the technology of the National Security Agency, and all sorts of "black bag" and "dirty tricks" devices, techniques and information. An extensive bibliography and index is included.

In reading Spy-Tech (probably the most authoritative book yet published on the subject) you'll learn not only how and when espionage agents use the various tools at their disposal, but also how those devices work. Even when dealing with complex subjects such as lasers, satellite photo interpretation, and the ins-and-outs of bugging, the author's explanations are vivid, interesting, and easy to understand. The electronics and communications devices shown and described in Spy-Tech are quite sufficient to intrigue any and all who always wondered what's really being used by the CIA, NSA, and Soviet KGB. Author Graham Yost knows his topic well and is adept at putting it into words. You'll like Spy-Tech.

Spy-Tech is available at $17.95 per copy (plus $1.50 postage/handling to addresses in USA/Canada/APO/FPO) from CRB Research, P.O. Box 56, Commack, NY 11725.

Radio Database International

Under the direction of Larry Magne, the new edition of Radio Database International has arrived upon the scene. A look through the masthead of RDI says it all, with input from the likes of DX experts such as Larry Miller, Don Jensen, George Wood, Graham Mylton and others.

RDI is a 352-page book that gives a frequency-by-frequency graphic exposition of the international shortwave broadcast bands between 2.2 MHz and 22 MHz. Each frequency is listed individually along with the identity of all stations known to be using it at various times around the clock, along with supplemental information about languages employed, seasonal factors, jamming problems noted, transmitter power, and the directions in which the signal is beamed. This, the main portion of the book, is excellent.

In the back of the book, Larry Magne offers his 1987 guide to world-band radios: portable, table-top, and super-duper chrome-plated professional. I found this section of the book to be more useful as an overview of the brands and models on the market than as the "gospel" of which ones range between great or absolutely awful as they are rated therein. I suppose, like movies, cars, sports teams, favorite foods, vacation spots, etc., it's really all a matter of what you're looking for, or how much you're willing to spend, combined with your needs and tastes. In that respect, I have usually found that Magne's tastes and preferences are a considerable distance from my own. He tends to be overly critical of low and medium-priced equipment when I'd consider that the same gear is performing adequately for what it costs and what it presents itself as.

On the other hand, his being overly impressed with equipment carrying a $5,000 to $8,000 price tag really isn't giving much information that you might have not already guessed on your own, although his descriptions of the equipment's features are quite thorough. The reader should therefore keep in mind that the highly detailed reviews are done with a definite touch of elitism. I thought several to be somewhat unfair.

RDI is available at $12.95 per copy from International Broadcasting Services, Ltd., P.O. Box 300, Penn's Park, PA 18943.

You'll find it to be a worthwhile addition to your DX efforts.

Understanding Advanced Solid State Electronics

Howard W. Sams & Co. has recently published Understanding Advanced Solid State Electronics, a 272-page addition to the Sams/Texas Instruments Understanding Series, retailing for $14.95.

No single invention has influenced the electronics industry more than the integrated circuit. This volume covers all the major benefits of IC technology for the experimenter, serious hobbyist, and electronics technician.

This easily-understood, fully-illustrated text provides self-paced instruction beginning with a review of IC technology and logic circuits.

Topics covered include: Integrated Circuit Technology, Logic Circuits, Logic Cells and Arrays, Microprocessors, Digital Signal Processing, Graphics Processors, Communications Processors, Bit-Slice Systems, Linear Integrated Circuits, and Interface Integrated Circuits. Glossary, Index, and Chapter Review questions and answers are also included.

Don Cannon is an associate professor of electrical engineering at the University of Texas and a staff consultant to the Texas Instruments Information Publishing Center. Sams books are available through bookstores and electronics distributors.

January 1987 / POPULAR COMMUNICATIONS / 35
"Mayday — Whiskey Sierra Delta X-Ray"

The SOS That Nobody Heard

BY PAUL L. SCHMIDT, W9HD
Naval Cryptologic Veterans Association

The telephone in my state room was ringing. I picked it up and heard, "Sparks."
"Yes, this is the Radio Officer."
"Sparks, this is the Captain. Call the Coast Guard; the PRINCE WILLIAM SOUND is going down at 20-03N 106-41W."
"Yes, sir."

The time was 2:30 a.m., Monday, May 5, 1986. We were on the supertanker NEW YORK, callsign WSDS. We were heading for Petrol Terminal, Panama, as PTP to the tanker men. PTP is near David, in northwestern Panama, a hundred or more miles north of the Panama Canal. We were carrying nearly two million barrels of North Slope Crude from Valdez, Alaska.

The PRINCE WILLIAM SOUND was 250 miles ahead of us, also carrying a cargo of North Slope Crude bound for PTP when suddenly an expansion joint in the sea water line from the bottom of the ship to the condensers let go and flooded the engine room, quenching the boilers, knocking out the generators and seriously upsetting the trim of the vessel. The rear deck was almost under water. The crew was taking to the life boats.

In the wheel house the Master picked up the microphone of the ship's 25-watt VHF radio, "Mayday, Mayday. This is the tanker PRINCE WILLIAM SOUND, Whiskey Sierra Delta X-ray, sinking in position 20-03N 106-41W. Immediate assistance is required. We are about to lower lifeboats and abandon ship."

On board the NEW YORK, 250 miles away, the Second Officer on watch in the wheel house heard the distress call and answered it, and notified the Captain who then called the Radio officer. Another American vessel, the STUYVESANT, WTHF, also heard and responded to the distress call. The STUYVESANT was some 50 miles closer to the distress vessel than the NEW YORK.

On the bridges of all vessels in all the oceans the Captains, Deck Officers and Seamen are listening to Channel 16 VHF, 156.800 MHz. Most of the transceivers are 25-watt units with battery back-up. Many vessels have two transceivers. The normal range of these units is 30 to 50 miles in the daytime, with occasional longer ranges at night.

Had the Radio Officer aboard the PRINCE WILLIAM SOUND had power with which to run his main transmitter on 500 kHz, he may have put out the Auto Alarm signal which would have called me on watch, but evidently his 50-watt emergency radio was not "making the trip."

Immediately after my telephone call I stepped into my coveralls and shuffled into the radio room. Radio NMC, U.S. Coast Guard, San Francisco stands watch on 500 kHz. He also listens to CW Channel 11 (8368.4 kHz) for ships, and replies on 8574 kHz. I first put a receiver on 500 kHz, and static poured out unmercifully. Then I set up the ship's 1-kilowatt CW HF transmitter on Channel 11 planning to call NMC later. That transmitter has a three-minute time delay with no exceptions. While waiting, I turned on the quick warm-up 500-watt, 500-kHz transmitter and proceeded to call "NCO," meaning "Any Coast Guard Unit."

No answer; only static. Then I decided on the Urgent Signal, "XXX." I sent XXX CQ and notified the listeners out there that the PRINCE WILLIAM SOUND was in distress and to please answer me . . . static. Nothing but static.

By this time the kilowatt HF had timed out, so I called NMC in San Francisco on CW Channel 11, 8 MHz. No answer. I put a lot of my ship's business through the ITT (International Telephone and Telegraph) station in San Francisco, KFS, so I shifted to Channel 13, where KFS listens (8370 kHz) and called KFS, but he was taking messages from a passenger ship at the moment. Again, no answer.

About that time the Captain came in the radio room to see how I was doing. I glanced at the clock. We were in the Silent Period (15th to 18th minute and 45th to 48th minute of every hour), so I sent out the Auto Alarm signal on 500 kHz. That is a series of
four-second dashes with one-second spacing between the dashes. It sets off automatic SOS alarms on other ships in the vicinity. I sent about 12 of these long dashes, and then commenced to send an SOS explaining that it was for the PRINCE WILLIAM SOUND, who was sinking, adding, "please acknowledge." I listened. Heard through the static's roar was "HPKQ DE KLC QTC." It was Galveston calling a ship for whom he had a message. Nothing else.

I made yet another attempt at a distress message on 500 kHz, this time sending DODSOS which means, "This is an SOS for another ship" and told my listeners it was for the PRINCE WILLIAM SOUND which was sinking, "Please acknowledge." No answer. Still nothing.

The Captain shook his head and left for a cooler part of the ship. I turned my attention once again to the new Satcom (Satellite Communications) equipment. The STUYVESANT informed the Naval Disaster Headquarters in New York, who then informed the Coast Guard.

**Epilogue**

The following afternoon we passed by the PRINCE WILLIAM SOUND. A couple of foreign vessels were still standing by. The PRINCE WILLIAM SOUND's stern end was awash, but the bow was well out of the water. Overhead a beautiful shiny white Lear jet circle, bearing the Coast Guard logo and the red bow stripe. Overheard on VHF Channel 16: "PRINCE WILLIAM SOUND this is Coast Guard Aircraft 6076. How do you read?"

P.W.S. "Loud and clear."

C.G. 6076. "Are you stable? Can you last through the night?"

P.W.S. "Yes, we've stabilized. I'm certain we will remain stable all night."

C.G. 6076. "Is your diesel generator running now?"

P.W.S. "Yes, sir."

C.G. 6076. "How long will your supply of diesel fuel last?"

P.W.S. "We have enough for about a week."

C.G. 6076. "We plan to helicopter a new crew from Acapulco to relieve you people."

P.W.S. "Fine."

C.G. 6076. "We also plan to bring out pumps this evening before dark. Can you handle them?"

P.W.S. "Surely. Thank you. Anything else?"

C.G. 6076. "That's all. Good luck."

Now when one of my grandchildren asks me, "Grandpa, did you ever send out an SOS?" I can answer, "Let me tell you about my time on the S.S. NEW YORK ...."
CARA’s Adventures

In Shasiland

The Rarest DX Country That Almost Was!

BY DON JENSEN

A combat patrol comprised of a dozen dusty SADF troopers, deeply tanned and sweatstained, each carrying his 5.56-mm assault rifle at ready, carefully picks its way through the rocks and scrubby brush along the banks of the Limpopo River. Low overhead skims a military chopper, an airborne scout seeking signs of guerrilla activity on South Africa’s northern border.

Today, there’s a war going on here. Undeclared, but war nonetheless. People are getting killed and nobody’s smiling.

It’s a far cry from the last little police action hereabouts. It was a warm May morning in 1966, when a truckload of African police constables forded the muddy river and, grinning and almost apologetically, confiscated the half-built radio station on the tiny, almost uninhabited, island.

Almost as a lark, several of the policemen pulled down the wooden sign. It read: “Trespassers will be prosecuted. This island, named Shasiland, is a sovereign, independent state, not part of the Union of South Africa, Bechuanaland or Southern Rhodesia, and has been occupied by me since 1st July, 1952.” After giving the missionary a receipt for the confiscated gear, the police drove.

If you want to pinpoint any country on earth, from Assam to Zanzibar, ask a DX'er. The hobby has taught the DX'er how to find even the most obscure dot on the globe. But Shasiland? Where’s that? You’ll only get a shrug and a blank stare in return.

For Shasiland, a tiny would-be country in southern Africa, is almost totally unknown, despite the fact that 18 years ago it came within a hair’s-breadth of becoming home to the rarest shortwave DX target in the world!

But for the vagaries of African politics, shortwave listeners would be frantically tuning to hear a one-lunged missionary broadcaster called CARA, operated by a South African religious organization, Christian Action by Radio in Africa.

CARA’s adventures in Shasiland are really two tales in one—the story of how this strange little never-never land nearly came to be, and that of a small missionary society that almost beat overwhelming odds in its attempt to put a Gospel voice on the air in southern Africa nearly two decades ago.

The first tale began years earlier, when a prosperous South African businessman, W.B. Coetzer, who owned a farm on the border of what then was the British protectorate of Bechuanaland (now Botswana), made an interesting discovery. He learned by chance that uninhabited Shasi Island, located at the confluence of the Shasi and Limpopo Rivers, where Bechuanaland, South Africa and Southern Rhodesia (today’s Zimbabwe) met, was unclaimed land.

Never one to miss a bet, Coetzer staked his claim. On July 1, 1952, he nailed his sign to a big tree on the 215-acre island, proclaiming it his own, personal, sovereign and independent country.

As far as Coetzer was concerned, Shasiland was his. And no one else seemed to care. All the island had to offer was a jungle of huge twisted trees, monkey ropes, Malela...
A southern get but wave station ties.ing formed challenges. that chirped and shrieked cacophonously.

Missionary volunteers began construction of a transmitter building on Shasiland. It was never completed.

The would-be station's power generator was trucked to the Shasiland site in these makeshift shipping containers made from steel culvert pipes.

After a 1300 mile trip, the Grahams joined another missionary couple, Mr. and Mrs. J. Foster already on the island. A mud-brick transmitter building had been partially constructed. Work was progressing rapidly. It looked as though CARA's long awaited station soon would be on the air.

But 250 miles up the Limpopo, at the protectorate's capital of Gaborone, authorities became concerned at reports of a radio station under construction on the obscure island. The police raid was launched. The whole police action was friendly enough. The constables took the transmitter and issued a receipt, promising to return the equipment should CARA ever obtain permission to establish a legal station.

CARA wasn't interested in raising a fuss. It paid a small fine and the case was soon settled. The society applied to the new Botswana government for a broadcasting license, but after a year of waiting, the answer was a firm "no."

Discouraged, CARA's governing board, in late 1967, dissolved the group, turning its activities and assets over to MEMA, the audio-visual branch of the South African Dutch Reformed Church. Graham headed the MEMA team that produced popular religious programs that were broadcast over Radio Botswana and South Africa's Bantu FM network.

Coetzer indicated he intended to take the question of Shasiland's status to court, but nothing much came of his efforts. The Botswana and South African governments said that Shasiland and other boundary questions would be resolved by negotiations at a later date.

Whether it was or not seems to be one of those petty international questions whose answer is lost in the bureaucratic red tape. In short, if any authority knows, it isn't saying! It's probably a moot point anyway, since real control is in the hands of the South African Defense Force.

Goodbye, Shasiland, and goodbye to the DX listeners' chance to log the rarest country that almost was.

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Deep Sea Ship Communications

The excitement of the high seas awaits you.

BY JERRY V. CODY

Modern maritime operations require effective communication links between ship owners and cargos at sea. Without the ability to contact shore facilities, a ship's master could face disaster alone. Home offices would suffer if questions could not be answered about a ship's cargo or location.

Throughout the year, 24 hours a day, ships ply international trade routes at sea. It would be impossible for the United States to function without crude oil brought in from Alaska, Indonesia, or the Middle East. North Atlantic Treaty Organization (NATO) countries depend on each other for military sealift. Imported technology from Japan would be much more expensive if not for the ships.

Maritime communications also play a very important role in defending the United States of America. With approximately 75% of the Earth's surface covered by water, hostile forces could approach from the Pacific, Atlantic, or Gulf of Mexico. Only through communication links could the U.S. Navy mobilize its forces to repel such an attack.

Maritime communications consist of shortwave (mostly upper sideband), very high frequency (VHF), and satellite links. Shortwave is utilized primarily for distances of closer proximity to the continental United States such as Alaska, Hawaii, or the Panama Canal. VHF is utilized by organizations like the Columbia River Pilots in tasks such as navigating big tankers to the Portland Oregon Ship Repair Yard. Satellite communications are employed by home offices to direct ships in distant locations such as the Persian Gulf or Mediterranean Sea. This link provides a clear and fast relay should a ship need to be diverted because of cargo requirements or hostile political events.

Interesting upper sideband shortwave frequencies to monitor include:

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The CHEVRON LOUISIANA en route to the Willbridge terminal in Portland. It is owned by Standard Oil of California and carries gasoline and other refined oil products. The white peak in the background is Mount St. Helens.
Certain stations may move up or down a few kilohertz to diminish interference.

Ionospheric changes and sunspot activity determine which frequencies are used and when. When the F layer of the ionosphere changes height, certain frequencies are heard better during daytime than at night. The lower frequencies are refracted over greater distances at night and the higher ones not so well. The situation is reversed during hours of daylight. For approximately the past eight years sunspot activity has reduced the usage of marine channels located on 22,124 kHz, 22,127 kHz, 22,133 kHz, and 22,136 kHz. This cycle will change shortly and more activity will be heard on these channels.

Interesting VHF frequencies to monitor in MHz include:

- 156.3
- 156.65
- 156.7
- 156.8
- 157.1
- 157.175

Other frequencies may be in use from 156.275 MHz through 157.175 MHz depending on locality. VHF travels considerably farther over water than on land, so scanner owners will notice greater range as compared to land service.

An interesting facet of ship communications is the recent development of marine satellite links or "marisat" for short. Headquartered in London, England, the International Maritime Satellite Organization (INMARSAT) has a total of 44 member countries with close to 3800 ships ranging in size from fishing boats to supertankers using the system. Southbury, Connecticut and Santa Paula, California are shore relay stations located domestically, with an additional eleven overseas. People living on the Columbia or Mississippi Rivers will notice ships with marisat by looking for white fiberglass radomes located above the bridge next to the radar masts.

Ships utilizing satellite communication have a definite advantage over shortwave and VHF due to the intercontinental range and non-interference from the ionosphere. Satellites maintain their position in orbit by staying between the Earth's gravitational pull and the centrifugal force of their rotation. Two 720-pound marisat satellites were

The KEYSTONE CANYON on its way to the Portland ship repair yard, while degassing its cargo tanks to prevent the possibility of an explosion.

The USS DAVID RAY attending the annual Rose Festival of Portland - the City of Roses. This is a Spruace Class Destroyer of the US Navy that weighs in at 7800 tons and is used for anti-submarine warfare. The helicopter on board tows a mine-clearing device.

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The author's equipment, used for deep sea monitoring, includes an R-2000 Trio-Kenwood communications receiver, a Radio Shack Comp-100 scanner and a DX-400 shortwave radio.

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launched in February and June 1976 respectively, with one over the Pacific Ocean and one taking station over the Atlantic. A third marisat was placed over the Indian Ocean, but did not become operational until 1978.

When underway at sea, a ship’s satellite antenna under the radome remains locked on to the satellite as long as it is in view. Change from Pacific to Atlantic satellite would occur when a ship transits one side of the Panama Canal to the other. Monitoring satellite communications is possible in VHF and UHF, but fleeting due to the fact they fly over an area. Voice communications are much rarer than on shortwave upper sideband because much of the transmitted information is RTTY or ARQ.

Deep sea communications played a vital role in the rescue of 524 people from a stricken cruise ship on October 4, 1980. The 427-foot Dutch registered MS PRINSSENDAM was en route to Japan from Vancouver, British Columbia when fire broke out in the ship’s engine room. The ship’s master made the decision to abandon the PRINSSENDAM when fire fighting efforts proved futile because electrical power and water pressure were knocked out by the rapidly spreading blaze. A MAYDAY was sent out from the ship and was picked up by authorities along with two U.S. flag tankers and a freighter. Thanks to effective maritime communication there were no deaths when the MS PRINSSENDAM sank in over 8,000 feet of Pacific Ocean, 120 miles Southeast of Yakutat, Alaska.

One interesting activity of listening to maritime communiques is the collection of QSL’s or reception letters confirming the ship-to-shore transmission. Specific information should never be mentioned other than ship name, local time, UTC and equipment used in monitoring the maritime companies. Be sure to include a stamped, self-addressed envelope for United States companies and an International Reply Coupon for foreign companies. Shipping company addresses may be located in books such as Standard and Poors business directory or books written specifically for the QSL’er.

Ship communications of the future may bring about some interesting changes. Visual as well as voice transmission to and from shore could add a more personal touch between a ship’s master and owner. Handheld radio equipment could provide direct contact with shore facilities thousands of miles away. In the years to come ships will be more automated with an increasing need for information to be monitored from shore. Deep sea ship communications will definitely play an important part in the future of professional maritime transportation.
"A Ban On Programmables?"

The Federal Communications Commission is considering banning programmable transceivers that feature a keypad for frequency selection. Congress is also looking to restrict the sale of programmable scanner receivers that might tune into cellular frequencies. Sounds bad, doesn't it? Here are the details.

As this is being written, it looks as though the Electronic Communications Privacy Act will go through. A scanner receiver specifically made for picking up cellular telephone calls will then be illegal to own, operate, manufacture, or sell. This restrictive scanner band would only pertain to a scanner receiver developed primarily for cellular telephone eavesdropping. Any scanner that is capable of receiving more than 50 percent of the services outside of the "band list" could continue to be legally sold, manufactured, and listened to. However, it would not be legal to eavesdrop on cellular phone frequencies with this equipment.

The big issue is now with programmable business transceivers that feature instant channel and frequency selection on the front panel. The FCC is concerned that these transceivers could be illegally set on just about any frequency the operator might wish.

There are approximately ten imported transceivers that offer complete channel programmability from their front panel. These sets are available in either 30 to 50 MHz versions (not very common), 150 to 170 MHz versions (very common) and 450 to 470 MHz versions. There are also approximately five manufacturers that provide complete programmability on their handheld front keypad for instant channel selection.

All of these sets may first require a "secret code," or the snip of a single wire, to unlock the frequency selector on the front panel. Once the set is unlocked, it can span a complete band, up to 30 or 40 MHz wide, in 5 kHz increments. This is what has the FCC worried—a set could be programmed to transmit almost anywhere.

"The National Association of Business and Education Radio Users (NABER) agrees that keyboard-entry transceivers might pose too much temptation for the curious operator not to dial in some new frequencies. However, NABER also feels that the manufacturers should work to develop ways to make accessibility to unlocking the keyboard a lot tougher than it is now," comments a NABER representative.

Land mobile radio sellers of programmable equipment are first to indicate that the problem may be perceived, and not an actual problem. After all, crystal-type radios can easily be re-crystallized by anyone smart enough to open up the cabinet and plug in some new rocks. Manufacturers also indicate that they indeed have put obstacles in front of the casual operator in being able to reprogram the radio for transmitting on illegal frequencies. On handhelds, the applicant must know the secret code to unlock the keyboard frequency selection. On mobile units, it takes the knowledge of knowing which wire to cut or which post to ground in order to unlock the keypad for new frequency information for both transmit and receive.

Many user services that operate business radios in their fleet are absolutely dependent on programmability. Take an air ambulance service that might need to communicate with area hospitals on different frequencies, police departments, search and rescue organizations during an air lift mission, and possibly even government agencies. In this type of service, the frequency-agile, programmable transceiver is almost a necessity. This one frequency set might be able to accomplish the communication tasks of five separate high-band radios that would add considerable weight to the rescue vehicle or aircraft.

The Association of Police Communications Officers (APCO) indicated that programmable radios might be available only to public service agencies, but possibly be outlawed to the regular general business radio service. Police departments may operate under special FCC rules that may allow them a multitude of frequencies to use on a
An internal programmable business radio.

non-interfering basis for surveillance work. The programmable radio would allow them to pick a quiet frequency, and frequency hop if they should suspect that their prey might be tuning them in with a scanner.

Two of the most popular programmable transceivers are the Regency RH250 and the Fujitsu Ten programmable sets. On the Regency unit, bridge a wire and the keypad becomes active for both channel as well as frequency selection within the band that the unit operates (generally 20 MHz wide).

On the Fujitsu set, the top comes off, and you simply ground a specific test point; the radio is ready for immediate frequency and channel selection. Both sets will hold anywhere from 10 to 20 frequencies in their memory.

Despite the fact that both manufacturers restrict the information on how to "unlock" the sets for new frequency selection, the information is readily available in the technician's service manuals that are floating around the country in every land mobile radio dealership.

The FCC is studying the possibilities of making it harder for the end-user to program new frequencies in their business radio programmable set. One way would be to limit the FCC type-acceptance of a programmable radio if it might be easily reprogrammed by the end-user. The FCC would then need to come up with guidelines on the steps it would require manufacturers to take in order to limit programming only to authorized technicians. One way might be the use of an extensive NAM programmer that actually burns a program into the memory of a chip. These very expensive set-ups would normally only be found at the better technical shops.

On the other hand, the FCC is trying to get out of regulating the different radio services, and letting them set their own standards (the old deregulation promise). Right now the Commission is soliciting comments on how the industry feels about this situation, and what steps the FCC should take, or not take.

Business radio programmable hand-helds with keypad channel entry are easier to re-program. No wires to cut, nor posts to ground. The operator simply needs to know the magic numbers to unlock the set. One popular business radio keypad entry hand-held set has gone one step further in making it easy to reprogram—simply do a cross-check on the keypad number system, and the set is unlocked; the frequencies are ready for programming. "X" does it all, and the word spreads fast.

Are the end-users really transmitting on any and all frequencies after unlocking their hand-holds? Few do. Interference complaints would probably cause the local FCC field office to find them out shortly. There simply aren't any vacant business radio frequencies left in major metropolitan areas, so operating on an unauthorized frequency would certainly cause the legal channel operator to become suspicious. The legal channel operator would make a quick call to the FCC, who would listen in, verify the problem, and then seek out the hapless operators.

Just recently a balloon team, staying in touch from their hot air balloon to a chase vehicle on land, was caught using programmable business radios on unauthorized frequencies. It took the local FCC office all of a day to track them down, and write them up, an ultimately cost them a huge fine. It's just not worth it when obtaining business radio frequencies legally is the most sensible alternative.

Or at least the FCC would want you to think so. If you've ever applied for a business radio license, you know that it's a frustrating experience. I finally gave up after six attempts to try and license an emergency rescue organization that falls under both the special emergency radio service as well as the business radio service. After six attempts to seek a frequency, I just gave it up because of the red tape. Unless the FCC and their volunteer frequency coordinators streamline the licensing process, more and more users may end up pirating their own channels out of sheer FCC licensing frustration.

How unfortunate!

If you're thinking of purchasing programmable transceivers in the near future, better do it soon. Their frequency agility may soon be eliminated through pending FCC inquiries into the matter. If you presently operate programmable business radios, stay on the channel you're assigned and avoid the temptation of trying out a different frequency to see if it's more clear. Without the proper license, this is not legal.

Hopefully, the Commission will allow business radio licensing to be as easy as marine radio licensing—filling out an application, and being able to go on the air immediately using temporary ID numbers. Maybe a paid frequency coordinator and a hefty $200 check is what it will ultimately take to finally get a shared business radio channel. Whatever way you go, surely there is nothing wrong with the new breed of programmable radios, providing you use them on the channels you have been assigned.
Another year is dawning on us and I hope your holiday season has been filled with rare DX and some stations that you thought would never be heard!

There is one suggestion I would like to pass on regarding last month's column on grounding. At most hardware stores and Radio Shacks there is a small device that can be plugged into a wall socket that will tell you the condition of that socket. There are three small lights on this device that show whether or not the wall socket polarity is correct, and whether or not the socket is properly grounded. This type of device might be easier to use than the neon tester described last month. The neon tester is still needed for "hot" chassis checks and for the other activities that were described last month, however, this wall socket tester is very easy to use and gives an immediate and definitive answer.

I have not finished moving due to other priorities, however, I have done the paper work in my head on how to resolve the third floor shack. I'll say this, for DX'ing with a portable radio and a loop antenna, the third floor sure-beats a basement shack! By the way, a big Lazy Boy easy chair helps with the early a.m. hours normally spent with small radios!

How many of my readers have seen or even heard of a one-man radio station? They may be few and far between but how about a one-man TV station? I have heard of a couple. How about a one-man radio and TV station? The other day I found a station from the hills of Pennsylvania that has been operated by a single person on duty for both the TV and FM station. The stations are separate and are both operated separately but are also operated at times with a single operator. Neither station is automated. The TV station has been sold and, by the way you read this, the FM station may have been sold as well as a bit of history has passed us by without most of us realizing it. I hope to get some more information about the way these stations were run before the owner/operator departs—so stay tuned.

How many of you ever listen to The Larry King Show at night? Most everyone has heard of it I'm sure—even if you're a late night DX'er in the eastern half of the U.S. The show is aired before midnight on the west coast. Well, yours truly was the "guest engineer" on the broadcast of September 19th from Harbor Place in Baltimore. WBAL sponsored Larry in Baltimore that night and therefore provided the facility to broadcast the show. The guests included Phyllis Diller and the famous manager of the Baltimore Orioles baseball club, Earl Weaver. More about Larry at a later time.

I do want to mention some of the technical parts of the operation to you before departing the subject. They had two 25-kilowatt transmitters and the original plans were to use either or both. As the program progressed, or maybe digressed, one was cannibalized to keep the other operating. From what I gather the total output power rarely exceeded five kilowatts. A fancy news operation was planned which never got off the ground. Two stations were planned with separate studios, and on and on like this . . . one has to read the book to appreciate how Paul felt. He does a good job of keeping his inner emotions out of the facts. As a person who has experienced the disappointment of a well planned station going aground, it is interesting to note that Paul's own inner story has been suppressed in order to give the reader a factual account of Laser 558.

Bits and Pieces

Some months back I mentioned the ARI system used by the Blaupunkt Radio people for a traffic bulletin service on the subcarriers of FM stations in the major U.S. markets. Here is a brief description of how the system operates.

In many cities across the country there are traffic reports broadcast over various stations, both AM and FM. To really take ad-

For those of you that are BCB pirate radio seekers there is a book out describing the adventures of Laser 558, the infamous pirate radio ship of Great Britain. The man who did most of the work in putting the station together, Paul Alexander Rusling, has put down on paper his tale of the good ship Communicator from the beginning to 1984.

First, I am a person who does not favor this type of operation by any stretch of the imagination. From near the start I find this story to be what would be expected of any Hollywood version of a tongue-in-cheek pirate story. Paul Rusling is an engineer and behaves as such through the story and is one of the saner characters. The engineering point of view is the only sensible part of the whole approach, but what would you expect from a bunch of "pirate-minded" individuals?

To begin with the whole idea just doesn't seem economically feasible to me and this is the theme I see through the whole book. Radio Caroline, Laser 558, or any operation of this type, has too much to lose at the next storm that comes across the waters to make a venture of this magnitude realistic to me. Paul points this out time and time again. If it's not one thing it's two others, not only with Laser 558 but also with Caroline. Although Caroline was an earlier pirate radio ship of considerable note and although mention is made in several chapters, this book is titled "The Lid Off Laser 558," The Inside Story of the Concept and Building of the Pirate Radio Station from Paul A. Rusling. The ships off the coast of England may be fun to listen to, but it's no picnic putting the operation together and keeping it aloft. For more details, and with lots of pictures, I suggest you order your own copy today. Order direct from Paul. They are available from Pirate Publications for $13.75 (U.S.). The address is P.O. Box 19, Herne Bay, England.

WWVW, Charlottesville, VA. Notice large top-loading structures at the top of each tower.
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For classes of noncommercial educational stations and their definition, refer to FCC Rules and Regulations, Paragraph 73.304.

In answer to the many requests for the FM channels and frequencies.

vantage of this feature Blaupunkt came up with an idea to use a subcarrier on an FM station to activate the receiver and cause it to tune itself to the station broadcasting the traffic report. There are several different models of radios available to do different types of things. The most sophisticated is actually two receivers in one chassis. With this radio one section is tuned to the ARI station and the other section is tuned to whatever station the listener desires. When the ARI station prepares to broadcast a traffic report they activate a subcarrier on the FM transmitter (57 kHz) which the ARI receiver decodes and causes the receiver to switch to the ARI station for the traffic report. When the report is over, the ARI station broadcasts the commercial, turns the subcarrier off which causes the ARI receiver to return to the station (AM or FM) that the listener had selected. On the simpler version, the radio must be tuned to the ARI station but the listener may be listening to a cassette or have the volume turned down. When the ARI subcarrier is detected, the receiver turns to the ARI station by raising the volume or deselected the cassette.

Some cities have several ARI stations so the user may select the traffic reports he prefers to hear by selecting different ARI stations on that section of the receiver. No traffic information is broadcast on the 57 kHz subcarrier. For more information call Blaupunkt at (800) 323-1943, in Illinois, (312) 865-5200.

Next month I hope to have an update on the NAB antennas that are being built near Washington for the purpose of testing the restricting of sky-wave propagation. This would be useful in reducing interference on local and regional channels and allow more stations to operate on the same frequency. The tests will be conducted on the spectrum around 1700 kHz.

Is AM stereo dying? More manufacturers are dropping their AM stereo receivers. The new 1987 Radio Shack catalog still shows their two AM stereo receivers, one for home and one for the car. The trade magazines rarely mention AM stereo since the hot talk now is the compact disk. Several radio stations are pulling the LP's off the shelf, strongly encouraging the DJ's to play the CD when they have both the album and the CD. I see lots of portable CD players but a portable AM stereo radio is hard to come by. The flood of stations converting to AM stereo has slowed to a trickle; maybe a drop now and again is a better description! However, Kahn has reported a few new stations this month. He seems to be running maybe a couple a month. Not enough to keep AM stereo alive and well. C-Quam's rate is about the same.

The big news is the signing of the Mexican agreement which will allow U.S. broadcasters on Mexican cities to some limited operating at night. Other stations will get regular authorization for full-time broadcasting.
Call Letter Changes

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How many of you have heard the new station operating on 530 kHz? This is not a TIS but an authorized operation in Ft. Erie, Ontario, Canada. CJFT, AM 530, operates 24 hours a day with 250 watts. There may be more... keep listening!

A recent letter from Paul Brown, typical of the ones I receive from new readers, prompts me to run down his list of questions for the benefit of all newcomers to AM and FM broadcast DX'ing.

1) Do FM stations have QSL cards?

Some do but today most confirmation is done via an individual letter. By including return postage the likelihood of an answer is increased.

2) Do FM stations "skip" like AM and SW? No. AM and SW stations bounce off the ionosphere hitting the earth and bouncing skyward again, repeating until the signal is too weak to be heard. FM stations can be "trapped" in a "duct" of atmosphere being given a free ride for hundreds or even a thousand or so miles to be heard as if it were skip. Normally this DX is very directional (one point to another) and not widespread such as the lower frequencies. TV signals are also affected in the same manner.

3) Why do stations that are clear one minute fade out the next? The atmosphere is changing constantly, therefore the reception of the FM (TV) signal will also change rapidly.

4) Are there any clubs specializing in FM DX'ing? Yes, There are several. Probably
one of the largest and most organized is the Worldwide TV-FM DX Association, P.O. Box 514, Buffalo, NY 14205. They'll be glad to send info to any requesting. Another would be the Association of DX Reporters, 7008 Plymouth Road, Baltimore, MD 21208.

5) Are there any publications specializing in FM DX'ing? Yes, for one the WT FDA (above) has a monthly bulletin which runs 50-60 pages and is filled with info only about TV & FM. They have directories showing even low power FM & TV stations.

6) Could you give me the call letters and address of 100.7 in Gillette, Wyoming, so I can write them? Yes. KGWY, 110 E. Lakeway, Suite 800, zip 82716. They operate with 100 kW at 565 feet above the terrain.

7) One last thing. I picked up an Indiana TV station on 87.7 MHz. Do TV stations broadcast on FM? TV Channel 6 is just below the FM band. The TV sound is FM and is on 87.75 MHz. That is why most FM receivers can hear a TV channel on the bottom of the FM dial, below 88.1.

There are a few ICOM R-70 receivers appearing on the used market for about $400. Just thought the information might be worth passing on. Check the ads in the back of CQ and QST magazines. It's taken for granted you'd check the back of POP COMM first! No, mine's not for sale.

Steve Lawrence asks about bumper sticker and air check clubs. I have a short list of people who are interested in this type of activity. There are just about enough numbers on the list now to make a list and send everyone a copy. If you would like to add your name and address I can name a SASE by the end of the month so I can add you to the list. Steve says he's just bought a new R-70 and can't wait until it arrives. If you're disappointed with the BCB reception send me $2.50 and I'll send you modifications instructions to make the receiver come alive below 1600 kHz.

My copy machine is having a heart attack from all the requests for the Commodore BC/SWL/QLS program requests, but as it recovers I'm getting caught up on the mail-outs. Send your request with a SASE.

January and February should continue to be good months for AM DX'ing but remember that this year daylight savings time will start earlier, the first Sunday in April I think, so this will change your operating habits somewhat. Plan to take advantage of the situation. It means many daytime stations will be operating with low power for an extra hour every morning. This will allow you to log other stations an hour later or possibly pickup on some of the daytimers using low power. These low power operations seem to be quite a catch as I haven't received a whole lot of mail mentioning low power loggings. Maybe they are not creating the interference the full-timers were afraid they would. DST should not have any effect on FM DX'ing. That still takes the warmer spring weather for the northern states.

### Station Updates

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Key: D = Daytime, N = Nighttime, DA = Directional Antenna, DA1 = Same Pattern Day & Night, DA2 = Different Pattern Power Day/Night, NDA = Omni Antenna Day and/or Night, * = Special Operation or Critical Hours, N/C = No Change.
Special $239.99 (7.00 shipping)
50 Channels — Mobile/Base
Features include simple raised button keyboard pro-
gramming of the following frequency ranges: 32-50 MHz, 118-174 MHz, 406.020 MHz to 406.512 MHz. Portable Scanner Antenna. The rugged metal cabinet. Includes AC & DC cords, telescopic antenna, mobile mounting kit, and one-year warranty on the Bearcat 300 for only $239.99 and $7.00 shipping. (Optional extended warranty 3 years $39.99, or 2 years $29.99.)

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Ma-518 Wall Charger/Adapter 12.99
HX1000/1200 External Case 24.99
MA256 Drop-in Charger 89.99
MA257 Cigarette Lighter Adapter 89.99
(3 year extended warranty $39.99, 2 year $29.99)

BEARCAT 100 XL
Handheld digital programmable, no crystal portable scanner. 16 channels, search feature, plus more! Frequency range: 30.50, 118-174, 406.512 MHz. Includes a flexible rubber antenna, earphone, battery charger/AC adapter, 6 AA Ni-Cad rechargeable batteries and a heavy duty carry case. All for the low price of $199.99 (5.00 shipping)

REGENCY RH-256
PROGRAMMABLE TRANSCIEVER
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Call (518) 436-9606 to place orders by phone or mail orders to Scanner World, 10 New Scotland Ave., Albany, NY 12206. Orders will be shipped the same day received by United Parcel Service. Scanner World accepts VISA, MasterCard and Discover. All shipments are F.O.B. Scanner World warehouse in Albany, NY. We are not responsible for typographical errors. All transactions will have a 7% sales tax. C.O.D. orders are subject to a minimum of $25.00. Mail orders will be shipped within 24 hours of receipt. Checks and Money Orders will be held for bank clearance. C.O.D. orders will be accepted only by P.O. Box. Only New York State Residents add 8% sales tax. C.O.D. orders are subject to a minimum of $25.00. Mail orders will be shipped within 24 hours of receipt. Checks and Money Orders will be held for bank clearance. C.O.D. orders will be accepted only by P.O. Box. Only New York State Residents add 8% sales tax. C.O.D. orders are subject to a minimum of $25.00. 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QSL IT!

Gerry L. Dexter's Secrets Of Successful QSLing
— shows you how to verify more of the stations you log.
This complete guide to reception reporting and QSL collecting covers everything from the basics to specialized, little-known techniques. It's surely guaranteed to help increase your replies.
Illustrated, with foreword by Ian McFarland of Radio Canada International.
Just $9.95 + $1.00 shipping, $2.00 foreign. U.S. funds only.
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QSL IT!

March should be good in the southern part of the country as the cool nights warm rapidly in the AM creating the "ducting" which promotes TV & FM DX'ing. A good FM yagi antenna helps for the FM band. I've got to get mine back up! Use a rotor unless you're fortunate like Paul Brown who has an eight element yagi on the deck outside his window. He uses an "Armstrong" rotor with his! Here again, though a digital dial makes DX'ing so much easier. I don't think it takes any fun or mystery out of DX'ing. It does remove a great deal of frustration. On my recent trip to Pennsylvania I was riding with a friend and his car radio was typical. The calibration was awful and I could not find any frequency I was looking for. Remind me if I forget... never again will I have an analog dial, except on an antique radio. Their dials were more accurate than the analogs of today anyway! My dad's old Atwater Kent had a knife edge pointer and a fine-line scale that was right on the money. Wonder what he did with that radio?

That about wraps it for this month. Thanks again for writing and for those who haven't the address is P.O. Box 5624, Baltimore, MD 21210. Let's make my post office box rent worthwhile!

MADISON

Electronics Supply
3621 Fannin Street, Houston, TX 77004
Call for Quotes
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Texas Number
1-713-520-7300

KENWOOD

Scanning communications receiver, continuous coverage 100 kHz to 30 MHz.

Features Include:
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- 100 Memory channels for storing frequency mode
- Antenna selection
- Direct keyboard frequency entry
- Dual digital VFO's
- And much more...

Available Options
(Not Included):
- External computer control, various bandwidth filters
- 108-174 MHz VHF adapter
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SC-3000 30 to 512 MHz SCANNER ANT. .......... 58.95
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HPBV 80, 40, 30, 20, 15 & 10 meter vertical .......... 124.95
HFV 80 & 40 meter vertical .......... 124.95

ACCESSORIES IN STOCK. ....... CALL

POLICIES: MASTERCARD — VISA — COD
All prices FOB Houston, TX except as noted. Prices subject to change with out notice, subject to prior sale. Used gear sale price refunded if not satisfied. Texas residents subject to sales tax.

CIRCLE 79 ON READER SERVICE CARD

CIRCLE 66 ON READER SERVICE CARD
Once again, the Inner Sanctum-like creaky door opens and we step inside the secret world of clandestine broadcasting.

This month’s main mystery is: What happened to Radio Monimbo? This well-heard anti-Sandinista station, apparently using at least ten kilowatts of power, was widely logged throughout the U.S. during its evening broadcasts on 6230. Unlike many clandestines, Monimbo never changed or even varied a little from its frequency. It began on 6230 and that’s where it stayed, even when missionary broadcaster HCJB landed on the same spot and covered Monimbo’s nightly 0200 broadcast. But Monimbo has not been heard in at least two months on 6230 or any other frequency so it has apparently been closed down, either by choice or by force. It never announced a sponsoring organization although a Japanese DXer says that it was owned by the son of Joaquin Chamorro who founded the newspaper Dario Prensa Nicaragua during the Somoza regime. If you spot this one back on the air please let us know.

Here are five more fairly easily-to-log clandestine stations for those who are just delving into this kind of radio monitoring:

La Voz de Cuba Independiente y Democratica’s Radio Camilo Cienfuegos can be heard throughout the daytime hours on 9940 kHz and in the evenings on 6305 and 7380. CID has a very attractive QSL card and reception reports can be sent to any one of several addresses, including 937 15th St. NW, Suite 903-5, Washington, DC 20005 or Apartado Postal 5557, 1000 San Jose, Costa Rica. Programs are all Spanish.

The mysterious Radio Caiman is another anti-Castro station and is currently the strongest clandestine on the shortwave dial (at least in the midwest) putting in powerhouse signals during its evening broadcasts on 7470. We wouldn’t be surprised to learn this runs 50 kilowatts. The station never announces any sponsoring organization and despite our research and appeals there is no known address to which to send a reception report. For those who enjoy puzzles, Radio Caiman offers a humdinger!

Still another active anti-Castro outlet is La Voz de Alpha 66, operated by the Alpha 66 group. Its broadcasts are on Monday, Wednesday and Friday evenings at 0200 and run about half an hour. Frequency is 6666, although lately that has been varying up to 6672. It takes a while but the station does send a QSL card in response to reports. The address is P.O. Box 420007, Miami, FL 33142.

Radio Free Suriname, which once had its own station, or at least used an unidentified transmitter and location, can now be heard via the La Voz del CID transmitters. A broadcast in Hindi and other languages of Suriname can be heard at 0830 and approximately 2240 on active CID frequencies. This begins as a weekly broadcast (on Tuesday) but may have expanded by now. Reports are requested to: Box 5517, Rotterdam, The Netherlands.

The Voice of the Nation’s Saving (formerly the Voice of the Revolutionary Party for Reunification) is based in North Korea, but claims to be in Seoul, and is operated by the Korean National Democracy Front. Look for it in Korean between 1000-1400 UTC on 4120 and 4557. It’s not known to have ever QSL’d.

CLANDESTINE LOGGINGS: La Voz del CID heard on 6305 at 0815 and 9940 at 0220 in Spanish by Garth Carman in Alberta. And on 6305 at 1018 in Spanish by David Bush in Ohio.

An unidentified and presumed clandestine was found by David Bush on approximately 6650-6700 in Spanish at 0205.

If you are doing any clandestine hunting (and we hope you will if you haven’t tried it yet) please forward your loggings or any information on stations and their backers or even potential backers of potential clandestines. Loggings, QSL copies, news clippings and such will be most appreciated and will help sort things out, at least a little, in what is one of the monitoring hobby’s most intriguing areas. We look forward to having your input.
RTTY New Year to you! There’s lots of maritime news to report, some of it related to your RTTY monitoring.

The U.S. Navy recently commissioned a nuclear submarine. Named the U.S.S. Chicago (SSN 721), it is the fourth naval vessel to be named after that city. The submarine is to be fitted with Tomahawk cruise missiles, an irony in that early last year the Chicago City Council declared the city a nuclear-weapons-free zone!

Each cruise missile has a range of 1,500 miles and carries a 200-kiloton nuclear warhead. The submarine is 360 feet long and weighs 6,900 tons.

The submarine will never get to visit its namesake, though. Submarines just don’t travel through the Great Lakes.

The first U.S.S. Chicago was commissioned in 1889. It was a steel warship that had sails and was powered by steam. It later sank while being towed. The second vessel was launched in 1931 and was seeing duty during the beginning of World War II. It too sank while under tow. The third U.S.S. Chicago served during World War II and in Vietnam. It was decommissioned in 1980.

Some of you express an interest in monitoring RTTY traffic from the Soviet Union’s merchant fleet, including the passenger ships, all of which makes up one of the largest fleets in the world. Its international cruise liners can be found at most world ports, but not those in the United States.

This is because of a ban by the Federal government on all such vessels from American waters; the ban stemming from 1980 when the Soviet Union invaded Afghanistan. When that happened, the longshoremen here refused to service the Soviet cruise liners docked at New York City; New Orleans, Louisiana; and Galveston, Texas. The Federal ban came a short time later.

As you log RTTY traffic from such vessels, try to picture what it’s like to be aboard them. They have small cabins, plain food and so-so entertainment, according to an article in The New York Times. Service, however, is good, fares are low and schedules are adhered to closely. Security against terrorists is tight.

Their passengers are rarely from the Soviet Union due to the cost of world cruises and because they are restricted by their government from travel to foreign ports. Most of the passengers are Western Europeans, mainly from West Germany and Great Britain.

Few Americans will be found aboard the luxury-lacking vessels. Those on board will find Central European-type food and small cabins, many which lack private baths. The entertainment usually features Russian folk singers or dancers.

Speaking of cruise ships, Carnival Cruise Lines has added a seventh one to its proposed fleet of eight “Fun Ships.” Carnival, you may recall, is the owner of such luxury liners as Tropicale and Festival. The latest ship, Jubilee, is the second of three “SuperLiners” planned for cruises in the Western Caribbean. The first, Holiday, is also in service, and the third, Celebration, will see its inaugural sailing early this year.

Jubilee and Celebration were constructed at the Kockums shipyard at Malmo, Sweden (see photos). Each was assembled in 22 different sections which were then welded together on the dock. Both 48,000-gross registered ton vessels carry 1,486 passengers, two to a cabin, and are slightly larger than Holiday.

In a cost-cutting move, the U.S. Navy has proposed that its military cargo be carried by foreign ships rather than the higher costing U.S. shipping firms, according to The Washington Post.

Such U.S. shipping companies as Sealand, U.S. Lines, Lykes Brothers and American Presidential Lines, which are regularly logged by RTTY buffs, carry a substantial portion of military cargo to overseas military bases. They do so under contract with the Navy’s Military Sealift Command.

It cost the Navy $1.8 billion in 1985 to move cargo on U.S. flag ships. Foreign flag operators can operate up to 30 percent cheaper than U.S. operators, according to industry estimates.

The Navy proposal is being fought vehemently by the U.S. flag operators, which reported heavy losses in revenue last year and contend that allowing foreign flag vessels to carry the cargo will have a devastating effect on the maritime industry here.

“The right to carry government cargo is the only reason anybody has a U.S. flag,” the Post quoted Albert May, executive vice president of the Council of American Flag Ship Operators.

In a feature story on marine consumer electronics, the Post mentioned the use of weather FAX machines which automatically print the radio transmitted weather charts.
of the National Weather Service. With an average cost of $3,000, these printers can provide satellite maps of weather conditions, water currents and temperature analysis. Some machines have permanent memory of worldwide weather stations built in and can be programmed to tune to several of them.

A number of readers have wondered about the disappearance of WBR70, Miami Meteo, Florida, and WSY70, New York Meteo, New York, from the HF bands. No matter what the time of day was, or how bad radio reception got, we were always assured of logging RTTY copy from these stations for many, many years.

They went bye-bye last summer as the result of cost-cutting measures by the Reagan Administration. It was just costing too many bucks to maintain their outdated transmitting equipment.

NOAA still provides National Weather Service data to public and private concerns, however. Weather data is sent via satellite, facsimile over HF radio and by landline, but the era of HF RTTY weather broadcasts appears to have come to a sad end.


The book, originally published in English in 1983 (the original is in French), is a guide to what the Resistance used in occupied France in World War II to spy on the Germans. Included are drawings and descriptions of aircraft bombers, anti-tank weapons, pistols, and sabotage and explosives materials.

Interest to RTTY buffs, however, are the chapters devoted to clandestine radio transmissions, the transmitting and receiving equipment used by the Resistance, and various cryptographic systems used to transmit messages over radio. Even the familiar one-way trip is detailed. This book is sure to cure the mid-winter blues many are now enjoying.

Time now to turn to the RTTY machine and view the traffic.

**RTTY Intercept**

(All Times Are UTC)

4172.5: UH-ID w/VRYY at 0040/66, hour after hour & more (Fried Hertingston, FL).

4171: CFI, Comanov Faces R, Halifax NS w/xx at 0444, 850/100R (Jim Hartung, MD).

5102.4: KU, Monaco, Monaco w/xx at 0429, 425/66R (Hartung, MD).

5010.9: Tokyo Meie, Japan, w/xx at 0930, 850/100R (Hartung, MD).

5117.1: STK, Khatoum, Sudan at 0100 w/VRYY, 425/66L (Hartingston, FL).

5117.4: YEE, Cantonon Aero, Bein, w/xx at 0045, 425/66L (Hartingston, FL).

5112.7: PTT, Havana, Cuba sends w/RF through Time Division Multiplex (TDM). No time given (John Bira, MA). We start 1987 with this new contributor, I'm sure, the Havana, Cuba. Must have changed names recently for his messages show ELDYS as Liberation-flag logo carrier IVER SPIT. Wax on soon.

5368.9: PBC36, Dutch Navy, Gotree 1, Holland, w/xx at 0100/66R (Biro, MA). Details of xmon not given.

**Abbreviations Used In The RTTY Column**

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January 1987 / POPULAR COMMUNICATIONS / 55

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Don’t overlook the vertical as a solution to your small lot limitations. You may be able to erect one just outside the radio room window or some other location near to the house or garage. When this is done, only a short length of transmission line is needed. Verticals perform well and radio Hams all over the world have been using them successfully for years. In fact, for reception purposes, the matching problem is not nearly as difficult as that encountered by Hams when they must match their transmitter output to the antenna. The vertical has an omnidirectional horizontal sensitivity pattern and good low-angle vertical pick-up, the right combination for shortwave listening.

This is a two-part story of a limited space vertical antenna installation for the frequency range between 1.5 and 20 MHz. The basic vertical is shown on the left of Fig. 1. To its right is a special loading coil that can be used to enhance tropical band operation. The loader will be described next month.

An answer to acceptable multiband reception is to choose a vertical length that is practical and will provide good average performance over the range of bands of interest to you. Over a period of time of experimentation with SWB verticals, our results indicated that a vertical cut to the 25-meter band was a valid compromise. A quarter wavelength at this frequency corresponds to a length of 19' 10", Fig. 2. The mast consists of three sections of PVC piping (2", 1½" and 1" ID) telescoped together as shown in Fig. 2. Such a mast can be lifted over a metal pole set into the ground. Mount this pole straight and, if a permanent installation is desired, it can be set in cement. If the pole is set straight the plastic mast is self-supporting. If desired, two or three rope guys can be used to minimize whipping in the wind. Although not really necessary, they help to keep the pole straight up. The other ends of the guys can be fastened to short stakes or other support points such as trees or buildings. Small stakes can be positioned about 10' from the mast, occupying little space. Even less space is needed if you can bracket the mast to a building.

Three resonant radials complete the basic antenna, setting up a fine 25-meter signal snatcher. As always, I choose to use #16 plastic-covered hook-up wire for both verticals and radials. Wire is bared only where it connects to the two nut/bolt combinations that act as coaxial line terminals, Fig. 3.

Before the mast is erected the vertical wire is fastened to the top of the PVC mast.

A solder ring is soldered to the bared opposite end and is held close to the mast by the bolt/nut terminal. The radials are run straight down to the bottom of the mast. At ground level they are fanned out and are buried 1" below the surface. Ideally, they should be fanned straight out with 120° separation, Fig. 4A. However, things do not change too much if you must go out at differing angles. In fact, a serpentine arrangement of the radials can be used in a tight situation, Fig. 4B. Perhaps you can run two straight and a then a third one in an arc to accommodate lot arrangement and proximity to the house.

Additional radials are used to extend the bandwidth of such a vertical simply by improving the match situation. In tests here, good results were obtained by adding two additional 19-meter radials. Also, after some cut and try efforts, a single long radial was cut for 49 meters. By using appropriate curves and serpentes you can usually con-
Fine your radial radius to less than 15° if that is necessary. Do the best you can, using just as much space as you have available.

Our own final arrangement is shown in Fig. 4C. Toward the house side I had to compromise the straight-out arrangement for one of the 19- and 25-meter radials. On the west side of the mounting position, reasonably straight radials could be set down except that the long 49-meter radial was in a broad arc. Signal sensitivity seems to be a bit better toward the west and southwest. It may be the proximity of the house and/or the cranked radials that cut back the north-easterly signals an unimportant amount.

Fig. 5 shows all the various radials connected to the ground terminal as well as the transmission line. Notice in (A) that silicon sealer has been placed where the inner conductor of the coaxial line leaves the braid to prevent moisture from entering the line. In example (B), all the exposed metallic surfaces except the outside nuts have been covered with sealer to hold off early rusting and deterioration of the connections. In most of my presentations of antennas, for the purpose of clarity, I do not show weathering precautions. Usually I do not bother because antenna changes around here are frequent.

The vertical antenna installation, in comparison with a number of reference antennas, indicated good performance on all bands 19 through 49 meters. Results were within 1/2 signal strength unit (SINPO). Results were fair on 13, 16 and 60 meters (down no greater than a minus 1 SINPO signal strength unit). Results were fair to poor on the remaining tropical bands. No tests were made on 11 meters. Quite a good performer for a tight space and a simple antenna.

Would you like to go a step further and do some signal peaking on bands 41 through 120 meters with the loading arrangement shown in Fig. 17 Drop in next month. The antenna proper, the radial system and the required mounting space are unchanged with the addition of the useful loading coil.

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**CIRCLE 115 ON READER SERVICE CARD**
I do not recall ever seeing any Soviet contributors to the column in the past so this may be a first for Communications Confidential. Figure 1 shows a letter with some loggings from M. Alexei Potapov, USSR.

Some amplifying information has been received from Mark in Louisiana concerning the 5080 kHz entry in the September loggings. Mark advised that W9W/XR3 are calls used on the Pacific Missile Range Clearance Net (Barking Sands), USN Base in Hawaii.

Gerald Brookman, AK asked for some CW press schedules but I must confess I have not looked for any since I obtained my RTTY equipment. I consulted several of my reference books but did not find any CW press listings. Perhaps readers can furnish me with some and I will carry them in a future column.

Michael Homer, PA came up with a solution to the antenna problem in his apartment building. On the ledge which goes around the building, he ran insulated wire around three-quarters of the building. He figured that it worked out to be an antenna of about 185-200 feet long. Michael said he was very interested in USAF communications and he had noticed that he was able to receive USAF bases in the western states better in the fall, winter and early spring. Yes, Michael, ionization in the F2 layer of the ionosphere is definitely influenced by seasonal change.

Athens, Greece was heard from via a letter from Konstantinos Krallis who forwarded additional details relating to a logging submitted by Owen O'Neil in the July 1986 issue. The station in question was 5BA, Cyprus Coastal Station, and the voice announcement was carried in English and Greek (not Turkish). Konstantinos also sent along one of his QSL cards (see Figure 2).

Additional material from Carl Koch, CA detailed information about the INMARSAT System. Here is what he had to say: "The INMARSAT (Satellite) Communications System is the newest mode of communications to the U.S. Merchant Fleet, comprised of three Atlantic/Pacific/and Indian Ocean satellites. It uses a 6-GHz C-Band uplink and the vessels using the service are equipped with an L-Band 1.6-GHz earth station which will automatically follow the satellite as the ship makes turns, pitches and rolls. INMARSAT will allow instant Telex or telephone service to any part of the world from a vessel at sea."

"Some people feel that if INMARSAT technology is improved a little more, that there will not be the need for a shipboard Radio Officer. But, take my word for it, they are not 100% reliable yet! And, instant communications with anyone during a time of distress is what the job is all about, even on good ole 'CW'."

David Patton, Signal Mountain, TN wrote asking about several frequencies as follows: "I have a question which might be

Figure 1: M. Alexei Potapov of the USSR sent us these loggings.

Don Schimmel
Popular Communications
76 North Broadway
Hicksville, NY 11801

July 20, 1986

Dear Sir,

This is my latest tips:

6805 Radio Moscow feeder:
USB: 1900-0400 UTC "Radio Orbita 2" Prg.
LSB: 2300-0400 UTC Duble of 3th prg. to Siberia.

9140 Radio Moscow feeder for "Radio Orbita 4" prg. on LSB until 0400 UTC.

13710 Radio Moscow feeder: 0230-1200 UTC
USB: Duble 3th prg. to the Far East
LSB: Radio Moscow External Service

13979 LSB PTT Kabul to Paris 1500 UTC.
13685 USB FTS Paris to Kabul 1550 UTC.

Receiver: R-250, Antenna: 20 m long wire.

Yours,

Alexei

M. Alexei Potapov
B.P. 4
Voronezh 394000
USSR

Leonard Szalony at his equipment position which includes a Kenwood TS-930S and an ICOM R-71A.
of interest to others. I have been monitoring 10,913 kHz which is supposed to be in use by the FBI but I have heard nothing. I was wondering when most of the activity place on this frequency. Another thing is that I have heard tones on the Department of Energy 5,750 and 7,700 kHz frequencies but no other activity.1

I have checked back through my logs and find I have not logged anything for these three frequencies. Perhaps readers can offer David some information.

Let's get to our intercepts:

Intercepts

341: Beacon CGN, Chattanooga, TN at 2130 (David Patton, TN).
369: Beacon CGX, Camilla, GA at 0100 (Patton, TN).
382: Beacon ALX, Alexander City, AL at 0110 (Patton, TN).
400: Beacon UWI, Dalton, GA at 0100 (Patton, TN).

1040. Dore interests are:

1. AO4-BRU in CW

2. AO4-BRU in AM

3. AO4-BRU in Morse

4. AO4-BRU in ID

5. AO4-BRU in SSB

6. AO4-BRU in FM

7. AO4-BRU in CW

**Figure 2:** A QSL from Athens, Greece, sent in by Konstantinos Krallis.

This QSL was received here at POPCOMM from Hernan, O4ABRU, in Lima, Peru.

**Abbreviations Used For Intercepts**

**AM** Amplitude Modulation mode

**BC** Broadcast

**CW** Morse Code mode

**E** English

**G** German

**ID** Identifier/led/cation

**LSB** Lower Sideband mode

**OM** Mole operator

**PS** Port service

**S** Spanish

**TF** Traffic

**USB** Upper Sideband mode

**WX** Weather report/forecast

**Y** French

**FL** 4-figure coded groups (i.e. 5739)

**5L** 5-figure coded groups

**ST** Letter-coded groups (i.e. IGRXJ)

**Figure 3:** Details of an intercept.

**Use the free card.**

**How do I get more data?**

**Do not hallucinate.**

**www.americanradiohistory.com**

**January 1987 / POPULAR COMMUNICATIONS / 61**
One of the common complaints of rural scanner listeners is that there is nothing to listen to. Once you've plugged in the frequencies of the local fire department and the police or state police, you might become easily bored. Fat chance, code-breath—you've just touched the tip of the iceberg.

Although there isn't as much radio traffic in rural areas as there is in major cities, you'll find enough to keep your listening fun.

Once you've learned the local channels for police, fire and rescue, you might want to check out the frequencies used in neighboring counties. If a major fire is going on in a neighboring county, it certainly would be of interest. If you're in such a remote area that you don't have a local police department, then you're probably served by county sheriffs or state police. Make sure you know all of their channels. They may have one channel for dispatch, another for record checks, one for car-to-car communications and maybe a surveillance channel. Keep an ear on all the channels if you want to know what's going on. Likewise, the local ambulance may have a channel for ambulance-to-hospital communications in addition to its routine dispatch channel. On the ambulance-to-hospital channel, you'll hear patient reports as the ambulance is rolling into the hospital. In many areas of the nation, 155.340 MHz is used for this purpose.

Perhaps there is a large state institution nearby. States prefer to locate their prisons and mental health facilities in rural areas; they have a lot of land and they get the least amount of resistance from residents in locating the facilities there. If so, radios are most likely used by the facility's guards. Check scanner directory listings for police or local government radio service frequencies that might be in use at such a facility.

During snowstorms and other bad storms, highway maintenance radio channels will come alive as road crews clear highways of snow and debris. In most rural areas, you'll find that state highway crews will use the same frequency within a given county or several surrounding counties. You'll hear what roads are blocked and whether or not you'll be snowed in for a few days.

Forestry conservation radio frequencies also might be active in your area. These frequencies, which might be better classified as an environmental radio service, are used by park rangers, fish and game wardens, environmental authorities, reservoir workers and state park employees.

If logging and forest products are predominant in your area, you should check out frequencies used in the forest products radio service. These frequencies can be found on low-band and high-band VHF, as well as UHF.

Farmers are also big users of two-way radio. The larger the farm, the better a reason a farmer has for the use of radio. Farmers can operate in both the special industrial radio service, which is also used in the construction industry, and the business radio service. Many farmers have bought programmable high-band VHF radios and you will probably find them operating on special industrial or business band channels in the 151 MHz band. Other allowable communications in the special industrial radio service include: plowing, soil conditioning, seeding, fertilizing or harvesting for agricultural activities; spraying or dusting of insecticides, herbicides or fungicides; livestock breeding; and the delivery of ice and fuel for heating, lighting and refrigeration.

Farmers cooperatives in many rural towns and villages might be using special industrial or business band frequencies, particularly in the 151 MHz band. The 151 MHz band is popular in rural areas because of the characteristics of VHF high-band channels.

Other frequencies worth monitoring during storms in rural areas include those used by the power company or electric cooperative in the power radio service. You'll hear dispatchers routing equipment and personnel to problem areas, and you might even learn how long it will be until your own power is restored. Because power companies often cover vast areas in rural regions, VHF low-band channels are used most often.

The railroad passes through most rural areas and, in many states, towns sprouted up alongside railroad stops. The railroad is still used to transport goods from our na-
tion's farmers. If you listen in on the various rail channels in the 160 and 161 MHz bands, you'll hear the train coming into town. And if there is ever a derailment, you'll hear that, too. A scanner enthusiast was the only person who heard an engineer's call for help when rail cars fell off a track while crossing a bridge in Iowa last year.

If you live in a rural area with a navigable waterway, such as the Mississippi River, be sure to check out marine radio channels in the 156-157 MHz band. You'll hear barges and some shipping vessels on the river.

If you're so remote that there isn't any direct form of communications with a center of population (such as in Alaska), the special emergency radio service, the same channels used by ambulances and hospitals, can be used for point-to-point communications between the isolated area and a city or village. Where it's not possible to install telephone lines for residents of rural areas, stations in the rural telephone radio service provide service with a method similar to mobile telephones. Users of this service have a phone installed in their home similar to that installed in cars. Their phone calls then go out over the radio to a relay station. Check the VHF high-band mobile telephone channels for these stations.

By searching through frequencies used by Federal government stations, primarily in the 162-174 MHz band, you may stumble across channels used by the Soil Conservation Service, Forest Service, Department of Agriculture, Bureau of Sportfisheries and Wildlife, Bureau of Indian Affairs, Bureau of Land Management and Department of the Interior.

Also, don't rule out the aviation bands. You'll hear civilian airplanes (118-136 MHz) and military aircraft (225-400 MHz) hundreds of miles away, and perhaps some satellites as well.

There's plenty to hear if you live out in the wilderness or in America's heartland. You just have to scratch a bit below the surface and do a little detective work. Use a reputable frequency directory that breaks down frequencies by radio service to help find the channels used in the radio services mentioned above.

Strange, But True
If you monitor the Pittsburgh Fire Department in Pennsylvania and thought you heard Adolf Hitler last year, you did. City officials attempted to track down the person who broadcast ten-second segments of Hitler's rallies over the Fire Department's frequency. A recording of a crowd shouting "Sieg Heil," a Nazi slogan, was heard three times one afternoon.

Clubs
The All Ohio Scanner Club has changed its mailing address. The club, which covers Ohio and the surrounding states of Pennsylvania, West Virginia, Kentucky, Indiana and Michigan, can now be reached at P.O. Box 2496, Springfield, OH 45501-2496.

The Ohio club has been gaining new members at a rapid pace not only from their immediate area, but all across the United States and Canada, as well. The club keeps its members up-to-date and informed with news and new product information. It would be worth checking them out.

The Minnesota Radio Hobbyists is a club that was formed a year ago. The club covers public safety, shortwave and longwave utilities, CB, Ham, business band, longwave and shortwave broadcasts as well as AM broadcasts and HF and VHF aviation.

The club's goals are to provide a group for radio hobbyists to learn about radio systems, to exchange information between members, to help members with antenna installations and to offer tours and other activities.

For more information on Minnesota Radio Hobbyists, write to Daniel McNulty, P.O. Box 18918, Minneapolis, MN 55418. We'd also like to hear from you here at POPCOMM. We welcome your frequency lists, listening tips, questions, comments and photographs. Write to: Chuck Gysi, N2DUP, Scanner Scene, Popular Communications, 76 North Broadway, Hicksville, NY 11801-2909.

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CIRCLE 74 ON READER SERVICE CARD

THE MONITORING MAGAZINE

January 1987 / POPULAR COMMUNICATIONS / 63
Loisa news, comments, loggings and stuff in the file this month, so where to begin? You pick something. Japan’s relay via Canada? Okay. That was scheduled to start on October first via RCI’s 250-kilowatt transmitters at Sackville, New Brunswick. The schedule, which will be in effect by the time you read this, is from 1130 to 1230 UTC on 6120, with the first half hour in English and the last half hour in Japanese. Radio Japan is very anxious to receive reports on these broadcasts and they may be sent to Radio Japan-NHK, Tokyo 150, Japan.

That new Honduran station mentioned in a previous column as Family Radio turns out to be called Sani Radio and it’s been putting in pretty good signals during the early evening hours on 4755. Broadcasts are mostly in the Miskito Indian language. The station is operated by the New York-based International Rescue Committee and is funded through the US-AID program. It’s located in Puerto Lempira but its mailing address is Apartado 113, La Ceiba, Honduras.

Something you might be on the lookout for during the coming months is somewhat improved reception from the Voice of Vietnam. Inside dope from a POPCOMM reader indicates that a lot of money is being spent on the revamping of Vietnamese shortwave facilities, including those hard-to-hear regional outlets.

KVOH—the coming shortwave in Rancho Simi, CA operated by High Adventure Ministries in Van Nuys—keeps announcing initial test dates, we keep reporting them, and the dates keep passing with no signals in the air. KVOH has purchased a used 100-kW transmitter from HCJB and that has been shipped to Los Angeles where it will be reassembled and tested. So certainly, KVOH should be on the air by the time you read this. On the other hand, we’ve said that before! Watch 17775 between 1700 and 2200.

Meantime, High Adventure is seeking $98,000 so it can purchase the “Morning Star,” a ship which H.A.M. would then convert into a floating radio station beaming to Asia.

In the Dominican Republic, Radio Clarin (11700) has been off the air for some months as it undergoes a refurbishing and some antenna improvements, which, when completed, are designed to give the station a better signal into North America. You can probably expect the return of Rudy Espinal to the Clarin airwaves, in addition to former Radio Earth star Jeff White and perhaps a slew of religious programs too.

Radio Yugoslavia has been preparing to put a bigger broadcast punch on the shortwaves for some time now and the last word we had was that these 500-kilowatt transmitters were expected to be operational around the first of the year so you might want to scan around for this.

Radio Baghdad has put through some changes on its English language program times and it’s now scheduled in English from 0000-0200 (instead of 0300-0500) on 11750.

Most SWLs don’t fuss around with the Peruvian stations very much. Most of them are hard to hear. They tend to move around a lot. During the fall two Peruvians were putting in exceptionally good signals on 60 meters: Radio Ancash in Huaraz on 4992 and Radio Andina, Huancayo on 4996. And, a strong new Peruvian showed up, Radio Sensacion from Hancabamba on 6792 running to sign-off around 0345.

CLUB NOTES: The Chicago Area DX Club has changed its headquarters address to 237 LaPorte Drive, Addison, IL 60101-3909. If you live in the Chicago area, or anywhere within 150 miles of Chicago, you really ought to get into this group. They are a fun-loving bunch with a monthly bulletin and several picnics, barbeques and other activities throughout the year.

The Southern California DXers (SCADS) have released the dates of their coming meetings for the next year and a half. They’re set for February 21, June 20, August 15 and October 17, 1987 and February 20, 1988. You can get more information about the group and its meetings by sending a large SASE to Don R. Schmidt, 3809 Rose Ave., Long Beach, CA 90807-4334. And a pox on whoever thought up 9-digit zip-codes!

LISTENING POST
WHAT’S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Guy Atkins of Seattle edits the Cascade Mountain DX Club newsletter SW Monitor.

Listeners in the greater Cincinnati area, including those in southwest Ohio, northern Kentucky and southeast Indiana, are invited to contact Mark Meece. 7917 Third St., West Chester, OH 45069 about forming a regional club for that area.

Guy Atkins of Seattle sends a copy of “SW Monitor,” the newsletter of the Cascade Mountain DX Club, and it’s a first-rate piece of work! It’s a four-page, foldout-style newsletter issued twice monthly unless reports are insufficient. You can subscribe for as many issues as you want at 40 cents each. The address is 3721 27th Place West, #301, Seattle, WA 98199.

Steve Lawrence (not the singer) is trying to locate other SWLs in his area (presumably northeast Iowa, northwest Illinois and

Radio Veritas in the Philippines celebrated the 10th anniversary of the English service in 1986.

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THE MONITORING MAGAZINE
southwest Wisconsin) so, if that’s you, contact Steve at 605 West 17th St., Dubuque, IA 52011.

Into the mailbag now and a note from William Moser of Pittsburgh. Bill bemoans Botswana’s QSL policy. You’ll be glad to know, if you don’t know by now, that Radio Botswana is now verifying correct reception reports. Make them detailed and polite (and a tape recording wouldn’t hurt) and send them to Mr. Ted Makgekgenene, Chief Engineer, Radio Botswana, Private Bag 0060, Gaborone, Botswana.

Douglas S. Waller of Bay Village, OH wonders about how to identify BBC and VOA relay stations since they aren’t announced on the air. Probably the best way is to get a hold of London Calling, the BBC monthly program guide, which has a world service schedule with sites indicated. The BBC offers this on a subscription basis but you can get one free copy by asking for it (and asking for a subscription form). Write to Julia Miller-Timmins, London Calling, BBC, P.O. Box 76, Bush House, Strand, London WC2B 4PH, England. The VOA’s quarterly Frequency Schedule lists all VOA sites with times and frequencies and is available free on request from the Frequency Division, Voice of America, Washington, DC 20457. They don’t maintain a mailing list so it’s necessary to request a copy each time the broadcast seasons change.

Tom Hartley in Chillicothe, OH is one of a growing number of people who’ve now received replies from the Voice of Nicaragua. Tom points out that the missive from Managua is a little vague in the QSL wording and wonders if he should count the reply as a QSL. Since everyone is receiving the same form letter and since the letter isn’t a “no” to your report we can only assume that the Nicaraguans intend it as a QSL, even though the wording isn’t the best.

Benton C. Steck, Jr., of La Porte, IN ran across something calling itself the “Voice of Salvation” at 0300 on 5050 and wonders what it is. The only possibility that comes to mind, Benton, is that you had TIFC in Costa Rica (5055 kHz) carrying some sort of religious program by that name. Anyone have another suggestion?

REMEMBER to forward your loggings—with your last name and state abbreviation after each and some cutting space in between—as well as your comments, questions, shack photos, station photos, copies or duplicate originals of QSLs, news clippings and anything else you think might be of interest to Listening Post readers. We look forward to hearing from you every month!

Here’s what’s on:

**SWEC Loggings**

(All Times Are UTC)

**ALBANIA:** R. Tirana, EE at 0010 on 7065 (Mitch, OH); EE to 0400 W/AA at 0615 on 7300 (Gilbert, CA); 11985 at 1730 W/EE ex (Moser, PA).

**ALGERIA:** R. Algiers, 17465 in EE w/ex 0200, r&st ex 2000-2030 (Weiss, IL).

**ANTIGUA:** Deutsche Welle relay on 6120 W/AA (Moser, PA); 9640 W/EE to NA at 0315 (Neff, OR); 17810 at 2100 w/ex in GG (Lofrus, OR).

**ARGENTINA:** RAE at 9690 at 0110 in EE (Hunt, NC); Ending mailbag pgm at 0444 (Johnson, OH); 0156 w/address & QSL info (Moser, PA); 1710 in EE of 0115 (Gilbert, CA).

**ASCENSION ISLAND:** BBC Atlantic relay on 7105 at 0400 to Africa (Bush, OH); to Africa at 1550 to 1600 off on 17885 & re-start on 17880 at 1600 (Mayo, ME).

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Czechoslovakia: R. Prague at 0339 in EE/NA freq list & address at 9390 (Gilbert, CA), 11840 at 0100-0200 (Hartley, OH), 11705 at 0133 in EE (London, MN).

East Germany (GDR): Berlin International, 0400 on 9560, also 0315 at 9640 (Carman, ALB). See also twice in EE at 0525-0545 (Lisville, OH).

Ecuador: HCJB in EE at 6230/9870 at 0220 w/rx pgms (Moser, PA), 0300 at 9870 w/EE rx (Meece, OH), N at 0100 an 15155 (Tokat, CA).

Egypt: R. Cairo, 9475 at 0235 in EE w/mailbag.

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The Monitoring Magazine is a publication that covers the world of radio, including shortwave listening and DXing. It contains articles on various radio stations, their programming, and listener feedback. The magazine is published six times a year and is available by subscription.

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PIRATES DEN
FOCUS ON FREE RADIO BROADCASTING

Here's some background on Irish pirate radio from a man who has been there, "Carl" of Absecon, New Jersey. Carl is from Dublin and he notes there are many stations there operating FM stereo transmitters of up to 50 watts and shortwave outlets on 48 meters running as high as 600 watts. Broadcasts are usually on the air early Sunday mornings.

Carl says the English pirates use anywhere from just a few watts up to 50 or 60 watts and that the laws against illegal broadcasting in England are much stiffer than they are in Ireland where there are a few loopholes. The police, or the "Garda" as they're known, do make raids on pirates occasionally but the bigger stations are able to return to the air in a matter of hours or in a day at the most.

Of the Irish pirates Radio Dublin is far and away the longest-running Irish station. It broadcasts on AM with "a few kilowatts" with a sister station, Dublin 2, on FM. Both are located in an old house three or four miles from the center of Dublin. The station is also on shortwave (but they've been missing from 6910 of late, I note).

Carl says he ran a station called Radio Enterprise from Dublin for a number of years. Radio Enterprise operated with 100 watts on 6317 kHz and received reception reports from all over Western Europe as well as East Germany. No reports were received from the United States, however.

Thanks for the most interesting letter, Carl, and I'm sure all the Pirate's Den readers would like more details when you can provide them.

Speaking of European pirates, William C. Mason II in Forest Knolls, CA writes to say that he used to be a regular listener to Radio Caroline back in 1967 when he was stationed in England with the Air Force. Caroline was, according to William, practically the only station the Yanks listened to. The British government ordered Caroline off the air in 1967 and it signed off for good on September 1 of that year.

According to press reports sent in by Dough Rink, a newsman at WDBO in Orlando, FL the Florida Institute of Technology's station WFIT in Melbourne was broken into in early August and equipment valued at some $10,000 was stolen. The report notes that whoever took the equipment knew what he or she was doing and that it was enough to put together a pirate radio station. Was this robbery, in fact, the genesis for a new pirate station? Anyone in the Florida area noting anything unusual?

Someone sent in some material about the Fantasy Broadcast Station, also calling itself FNTC or Radio Free Magic, which is supposed to appear on 11 meters (the area around 25 MHz). Apparently the station operates on 101.3 MHz FM on a more regular basis. I don't have any information any more specific than this. Let me know if you should run across this one. Is it for real? Where?

KG49 is another station which was supposed to start broadcasting in August. Based on the west coast, KG49 says it was going to use 6250 kHz AM or lower sideband and operate with a 90-watt state-of-the-art transmitter and a half-wave dipole antenna at an elevation of 3,000 feet. Broadcasts were to be on every weekend and consist of a mixture of rock, comedy and old radio shows. DJs are "240 Gordy" and "Doctor Dipole" who say a mail drop will be announced on the air.

TFM, the Canadian pirate from Ganges, on Salt Spring Island, British Columbia continues its fairly regular operations. Ken Johnson in Kelowna, BC had them from 0540 to 0630 on 7415. Bruce Jensen in San Leandro, CA noted the station on 7437 from 0440 to an abrupt sign-off at 0508. The programming was mostly rock music and weather reports. Bruce called the station (604-537-4445) and was told the power was 150 watts. Bruce also states that the station was having some technical problems when he heard them.

Radio Mouser International was logged by Phil Bekkala in Laurium, MI from 0154-0208 August 16 on 7490. Alternate slogans were "The Voice of American Free Radio," "7490 Radio Mouser International" and "Radio Mouser Worldwide." Programs were rock music; reports were requested via POPCOMM. (That was a bum steer, POPCOMM doesn't forward pirate mail.) According to announcements Phil heard, QSL cards are being printed and a mail drop is being arranged. Lara Absher in Franklin, OH heard the station a day ahead of Phil so Mouser obviously had an active weekend. From various other reports I've seen there still appears to be some doubt as to the exact way this station spells its name so it'll be nice when the QSLs start showing up and we'll know the proper spelling for certain.

Most pirate activity on shortwave is now occurring between 7300 and 7500 kHz during weekend evenings and late afternoons. Among the stations which have been active in this area in recent months are Radio Clan-destine, WKUE, Radio Deadman, TNFM, Canadian Club Radio, Radio Mouser, the Voice of Fubar (though the identification of this one is still in doubt), Zeppelin Radio Worldwide, and Radio North Coast International, among others. Tune around enough and you'll eventually pick up one or more of these, to say nothing of the chance of grabbing a new one from time to time.

Be sure to send in whatever pirate information you run across, including your loggings, your QSL news, news clippings, data about stations (attention operators!), copies of QSLs and photos. I'll share them with other Pirate's Den readers and we will all benefit. See you next month!
To many readers of Popular Communications, the name R.L. Drake Company of Miamisburg, Ohio was known for the many Amateur and communications receivers that the company produced from the middle forties to the early eighties. The Drake Company officially withdrew from most manufacturing and sales of Amateur and communications type gear during 1984 and 1985 and devoted the company's full engineering, sales and manufacturing facilities to the exploding satellite television market. This decision promptly placed the company in the lead of this growing field.

The R. L. Drake Company has undoubtedly produced more total satellite receivers than any manufacturer in this new field. These receivers range from the popular ESR 240, the ESR 324, ESR 524, to the present ESR 924i which we will review in this user's report.

The ESR 924i unit is a fully-integrated system, i.e., the total operating system is contained in one small, well-designed and attractive package measuring 17 inches wide, 14 inches deep, and 3½ inches in height. The cabinet work is attractive and well laid out. All control and programming functions are handled through the use of a handheld infrared control unit which allows the user complete freedom of movement and armchair use and control of satellite selection, transponder selection plus many other functions that the unit is capable of performing. The Drake ESR 924i has accomplished the integration of the total satellite system into one easy-to-use unit.

Features On The ESR 924i

The 924i is a block-type system utilizing the low-noise blocked downconverter unit (LNB) taking the primary 4-GHz frequency to a block of frequencies covering 950 to 1450 MHz. This block of frequencies is carried to the 924i system via a single 75-ohm coax cable from the LNB. This block system allows the use of multiple satellite receivers at various locations in the home. With multiple receivers, the users can select any transponder on their receiver from a single satellite. For example, on Galaxy 1, each receiver location could select any of the 24 transponders on their particular TV set. The features of the ESR 924i are: stereophonic sound, parental lockout, 21-memory programmable antenna positioner, digital LED displays for transponder, satellite and audio-frequency settings, microprocessor, and 9 preprogrammed priority viewing channels.

The accompanying ESR 924i infrared remote-control unit will control a wide range of functions such as: parental lockout controls, full audio/stereo tuning, bandwidth selection and control, volume control, format selection, skew control, and east/west dish motion controls, plus many more.

Installing The ESR 924i

This is not a high-tech but rather a user report, so we will take you from out of the box to a satellite picture. After the full installation, we did check out most of the important specifications. These all meet or exceed the manufacturer's reported figures and specifications with one exception—the video threshold was slightly lower than I would like to see. However, with a normal size antenna (dish) this is no problem. We intend to look at the picture, not published specifications.

The test antenna was a 1985, 12-foot Paracclipse™ mesh unit. This dish has been in constant use and its performance has been proven several times with extensive measurement procedures. In other words, we know what is coming from the antenna and will be able to give a good user evaluation of the receiver system that we are working with.

In any quality home satellite system, we would start with the dish installation, mount the selected antenna actuator system, install (bury) the multiple lines coming from the satellite dish to the receiver location, etc. In this case, the dish installation was in and the multiple lines were already installed. So, all of the time-consuming and hard labor part of the installation was in place and as mentioned previously, the dish was aimed and properly tracking the Clarke Belt. At this point, I installed a Houston Tracker™ actuator that is compatible with the Drake ESR 924i system. The 924i is designed to accommodate any antenna actuator unit with pulse type sensors. These would be Hall-effect type, reed switch, micro-switch types or other actuator systems that produce an approximate 5-volt TTL level that can be sensed or read by the Drake ESR 924i system in order to control the dish actuator. One word of caution on the actuator or dish mover: Actuators with potentiometer (resistive) sensors are not compatible with this receiver system.

After the mechanical installation and hook up of the actuator system, the Drake LNB (low noise block downconverter) was placed on a new Polarotor™ by Chapparral Communications. The Polarotor hookup is standard on these proven feed systems, and the 924i carries the standard Polarotor™ voltages and reads the Polarotor system perfectly.

The complete 924i system was installed at the receiver site and final hookup to the coax, Polarotor™ actuator and Sony monitor was accomplished in short order.
The 924i was not plugged in to the AC outlet during this hookup. Most receiver systems carry LNA or, in this case, LNB voltage down the coax to the LNB at all times regardless of the setting of the power switch on the receiver. This is done to insure frequency stability of the LNB, a type of temperature stability, so the LNB is powered up at all times when the system is plugged into the 110 volt AC line.

System Calibration and Set Up

Our first set up procedure was to program in to the systems memory, the most important dish actuator settings, the upper and lower limits setting to prevent the dish from being driven beyond the mechanical limits of the actuator or, on the down side, into the ground which could cause damage.

The ERS 924i has a very good limit system that provides a second memory back-up stop limit in both up and down positions. This made me feel more secure without an actual mechanical limit stop.

Electrical limit stops on antenna actuators have been a favorite subject of mine after a programming glitch caused my dish to wind up and into the air. Luckily the configuration of the mount prevented the dish from falling completely over to the opposite side. On another occasion, a lightning storm caused one of my dishes to drive itself into the ground. The Drake’s system should provide an additional safety factor from the above happening to the ESR 924i system.

The actual satellite programming settings were then placed into the system by following the simple directions in the owner’s manual. All of this programming was accomplished with the handheld infrared control unit.

The ESR 924i has the various satellite polarity formats permanently programmed into the system so that when you go to the satellite and program that satellite into the system, it detects the polarity format automatically for each satellite—a good feature. The system can hold a total of 21 satellite locations as well as all audio format and polarization information.

Our next programming chore was to set into the system’s memory, the correct audio mode. Most satellite transponders use mono mode at 6.8 subcarrier. The ESR 924i automatically sets this into the system. I took a quick spin to several of my favorite transponders that carry their audio on stereo discrete and a couple that use stereo matrix format. These were entered and checked several times. All areas in the audio provided very good quality audio regardless of format selected.

The entire audio subcarrier section of any transponder can be tuned with the remote control and can be placed in memory if needed; or a simple up/down will tune the entire range from 5.0 to 8.5 MHz.

The Picture and Audio

After twenty minutes of programming the ESR 924i, we directed our attention to the 24-inch Sony Pro-Feel™ studio monitor. The picture quality was excellent.

Further tuning on the satellite produced a set of color test bars which confirmed the high quality of the video picture. A good video monitor is capable of full capture of the entire video signal produced via satellite transmission and produce better overall quality than the average TV set.

The next video test was the use of a Sony 19-inch television set. The TV also produced a high-quality video picture. A quick and simple hookup to a medium-priced stereo system produced extremely high-quality sound in all stereo modes, matrix and discrete. The 924i system should be considered by anyone who loves good music and stereo programming as the satellites are carrying many types of music and audio services on the subcarriers of most transponders. Refer to any of the satellite TV guides or STV magazines for full audio subcarrier audio services.

Descrambling Compatibility

I was able to do a M/A-Com Videocipher 2 test on the Drake ESR 924i as my descrambler unit is a Videocipher 2 which uses composite video interface. The unit performed very well and quickly locked into the descramble mode and produced the usual high-quality picture. Your satellite dealer can furnish you with the proper information as to the compatible M/A-Com VC-2 unit to use with the Drake ESR 924i and the hookup procedure.

Conclusion

The Drake ESR 924i is a quality fully-integrated satellite TV receiving system with many features which are too numerous to include in this user’s report. The owner’s manual is very well done, clear, and leads you to the setup of the system with one exception; the installation section of the dish actuator was not as clear as it should be. This information consisted of a loose single sheet of additional illustration data for the ESR 924i. I would think that Drake would mention and recommend first a Drake actuator and then cover some of the popular brands on the market along with names and model numbers. These should be fully compatible with their system. I would recommend the use of a spike and surge protector device on the 110 volt AC line to the unit. These small devices can sometimes save a receiver from damage from transient voltages coming down the power line. The 924i is Ku-band compatible as it carries a video invert and a channel offset switch on rear of unit. In summary, the 924i is a very good system that should give years of pleasant satellite TV viewing.

Figure 2: Paralipse™ 3.8 m (12-foot) mesh antenna used in this user report.
One of the best innovations to come along in the telephone world has been the automatic dialer. The first dialers were large desk-top devices that worked by inserting a punch card with holes punched out to correspond to the number to be dialed. This was a large, slow, clumsy device by today's standards. Consider that twenty years ago, punched cards were the way to go in computers. Semiconductor memory and Touch-Tone® phones were either large, slow, or very esoteric. These early dialers were rented from the telephone company at exorbitant rates, but no hot-shot executive wanted to be without one. Just the thing to sit beside his brand new speaker phone.

The first semiconductor memory dialer to make any impact was the one designed and built by American Telecommunication Corp (ATC). They sold most of them to the Bell system who rented them out with the Bell logo on them. The first ATC dialer could store and dial up to 16 numbers. A pulse and a Touch-Tone® were available. These were snapped up by sales departments, stockbrokers and people who had trouble dialing, either because of poor eyesight or poor mobility. The ATC dialer later came out as a 32-number dialer and models were released with a monitor speaker so dialing could be "on hook" and the phone picked up after the call had gone through.

After the ATC dialers, other companies came out with similar dialers. Western Electric had one of their own and Panasonic had a couple of models. All the companies coming out with new PBXs and Key Systems after divestiture added dialers as a matter of course. Sometimes it was called "speed dialing" but it's all the same thing—a few memory chips storing telephone numbers.

The dialer of choice for the telephone freak has always been the Demon Dialer. This is literally a black box that is connected in series with the phone line. When placed by the phone protector (the point at which the phone line comes into the building), every phone on the line can use the Demon Dialer. The dialer is accessed by flashing the hookswitch on a rotary phone or hitting the * sign (octothorpe) on a Touch-Tone® phone. Some of the Demon Dialers can hold up to 176 numbers. By hitting * and 1 it will redial the last number called. By hitting * and 2 it will redial the last number dialed or, if it is busy, it will hang up and dial again. This automatic redialing is called "Demon Dialing." Just the thing for calling radio stations to win a prize or getting through to the movie house to find out when the feature is playing.

The Demon Dialer people, Zoom Electronics, also make a dialer called the Hotshot. This dialer will only call one number that is programmed by inserting pegs into the PC board. This is an excellent device for hotlines for such services as airport car rentals. It can also be used to dial a discount long distance carrier if you do not yet have equal access. (Yes, it will wait for the tone and automatically enter the access code.) Another good use for the Hotshot is for emergency phones by pools and in elevators. It can be programmed to dial 911 after the handset is lifted. For this use, a simple phone with no dial, preferably red in color, and the Hotshot is all that is needed.

The new thing in dialers is "alphanumeric units." These are dialers with keyboards. To find and dial a number, type in a name, such as CHARLIE and the number is displayed and dialed. The biggest of these devices is the Zelex 910 dialer made by Zelex Corp. It will hold over 400 numbers and with the addition of more memory chips will hold up to 1,000 numbers. This is obviously too many for the average home or small business. The device is designed for "crew calling." Airlines, utilities, railroads, and police departments use these to call out personnel. Often the police department needs to call out extra officers and rather than flick through a Rolodex, it is faster to let a device like the Zelex 910 do the work. Stockbrokers, lawyers and sales departments also find the Zelex useful.

For home and small business use there is also an alphanumeric dialer, the Colonial Data Technologies AP2002. This is a 200-number dialer combined with a two-line telephone and speaker phone. The speaker phone uses the Motorola Speaker phone IC and has very good quality. This phone has a "Line in Use" indicating LED and this means that it will not hang up when used with a 24-volt PBX or on some rural phone lines, where the line voltage can be below the 30 volts, the indicators need to see to turn off the LED and hang up the phone.

For someone on the go who makes lots of calls from public phones, Colonial Data Technologies also has a small handheld alphanumeric dialer that is acoustically coupled to the handset transmitter. This is the AD-2 and it also holds 200 numbers. It will also double as a calculator, alarm clock and timer. Not bad for a device the size of a pocket calculator.
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